Sure Partners Limited

ARKLOW BANK WIND PARK PHASE 2 **ONSHORE GRID INFRASTRUCTURE**

VOLUME III
Chapter 9 APPENDICES

Appendix 9.1c GI Reports - Substation Factual Report



ARUP

sse Renewables

Appendix 9.1c

Substation Site

Investigations Factual Report

IRISH DRILLING LIMITED

LOUGHREA, CO. GALWAY, IRELAND

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SITE INVESTIGATION

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ARKLOW BANK WIND PARK
ONSHORE GROUND INVESTIGATION

SUBSTATION SITE INVESTIGATIONS
FACTUAL REPORT

Sure Partners Ltd,
South County Business Park,
Leopardstown,
Dublin 18.

ARUP,
Consulting Engineers,
50 Ringsend Road,
Dublin,
D04 T6X0.

	Prepared by	Approved by	Rev. Issue Date:	Revision No.
	Ronan Killeen	Declan Joyce	4th January 2021	20 WW_101/01b
Signature	RK	DJ		

Report No.: LF100034-ENG-GT-OCB-RPT-0001

FOREWORD

The borehole and trial pit records have been compiled from an examination of the samples by a Geotechnical Engineer and from the Drillers' descriptions.

The report presents an opinion on the configuration of the strata within the site based on the borehole and trial pit results. The assumptions, though reasonable, are given for guidance only and no liability can be accepted for changes in conditions not revealed by the boreholes and trial pits.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

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1.0 Introduction

Irish Drilling Ltd. (IDL) was instructed by Sure Partners Limited (SPL), to carry out a site investigation at the site of the proposed substation site for the Arklow Bank Wind Park (ABWP) Onshore Grid Infrastructure Project.

This site investigation was carried out to provide detailed factual geotechnical information of the underlying ground conditions at the proposed substation site.

The fieldwork commenced on October 5th 2020 and was completed on October 30th 2020.

2.0 Site Geology

The site is located on the grounds of the Avoca River Park Industrial Estate and can be generally described as a previously developed level stone hardstand compound area.

Site Plans, prepared by the client's representatives and amended by IDL to show 'as-built' locations, are included with this report and also included as Appendix 11.

The following were the main published information sources used:

Soil and Subsoil Geology
General Classification:
Cable percussive borehole, trial pit data, the Teagasc Subsoil Mapping (2004) and the Quaternary Geology of Ireland – Sediments Map: 1 to 50,000 were reviewed to obtain information on subsoil classifications within the proposed locations.

Solid Geology
General Classification:
The 1:100,000 scale map series Geological Survey of Ireland: A geological Description: Sheet 16 and the Geological Survey of Ireland Map Viewer were used to establish the probable geological rock formations underlying the proposed location.

Site investigation data is available as point source data along the proposed route, and the majority of the ground in between the points can only be assumed to follow the characteristics of the nearest available data.

A summary of the ground conditions recorded in published data for the region (including GSI database) is outlined as follows:

Made Ground
There are areas of made ground, which is ground where material has been deposited by humans.

Alluvial Silt/Clay
The recent alluvium is present over the whole area and is very variable in nature. It can however be broadly divided into an upper silt/clay layer and a lower peat layer. The silt/clay layer mostly comprises a soft grey brown mottled silty clay or clayey silt. There are occasional deposits of loose brown silty sand and gravel with pockets of carbonaceous material as wood fragments.

Glacial Till:
Generally, glacial till is what was often referred to as Boulder Clay. Here we have the calcareous Irish Sea till, a diverse material that has been largely deposited sub-glacially and has a wide range of characteristics due to the variety of parent materials and processes of deposition. Tills are generally tightly packed, unsorted, heterogeneous, unbedded, and can have a wide range of particle sizes and types, which are often but not exclusively angular or sub-angular.

Bedrock:
The general bedrock lithology mapped beneath the location is the Ordivician Ballylane Shale Formation. This rock formation is generally composed of a series of layered sandstones, siltstones and shales. From core samples thus identified as Ordovician Shales: and seen greenish grey, grey and dark grey fine-grained shale with subordinate greenish brown and brown fine and medium grained sandstone.

10 Fieldwork

11 Fieldwork Plan
The following plant was mobilised to site to carry out fieldwork operations:

Dando 2000 Cable Percussive Boring Rig.
GT1100 GoTract Rotary Core Drilling Rig.
Hyundai 140x Excavator.
DeltaBase 520 Rotary Core Drill Rig.

Fieldwork carried out to date has included the following:

12 Cable Percussive Borehole
Five cable percussion (Shell & Auger) boreholes were completed using Dando 2000 Cable Percussive Boring Rigs. The boreholes were bored to ‘refusal’ or to depths as instructed by the client’s representatives.

The borehole depths ranged from 7.20m to 21.00m below ground level.

In–Situ testing consisting of Standard Penetration Tests were carried out at regular intervals (predominantly 1.0m intervals) or as instructed by the client’s representatives.

Disturbed bulk and jar soil samples were taken at each change in strata and were returned to the laboratory and logged by a Geotechnical Engineer and presented for testing. Undisturbed soil samples (U4) were also recovered where possible in cohesive soils and groundwater samples were also obtained if encountered.

13 Rotary Core
Five rotary core boreholes were carried out to establish overburden conditions and rockhead and to establish the nature and integrity of the underlying rock.

The rotary core boreholes were carried out as ‘extension follow-on’ boreholes at the locations where the cable percussive boreholes encountered ‘refusals’ at relatively shallow depths.

The boreholes were completed using wireline drilling techniques, with PQ and HQ size (84mm core/123mm hole diameter and 64mm core / 96mm hole diameter) drill strings to recover soil and rock core samples.

A water based flush system was used as the drilling medium while a biodegradable polymer gel was also used where necessary to aid the drilling and soil / rock recovery process.

The samples were stored in wooden boxes and returned to the laboratory where there were logged and photographed by a Geotechnical Engineer and presented for testing.

A 50mm diameter standpipe was installed in the following rotary core boreholes to allow for the monitoring of groundwater levels over a prolonged period of time: BH 301, BH 302, BH 303, BH 304 and BH 305.

The rotary core boreholes were carried out to depths ranging from 19.10m to 26.60m below ground level.

Trial Pits

Twenty-five trial pits were excavated on site using a 13T wide-padded tracked excavator. The pits were logged and photographed by an Engineer with observations made on ground conditions, pit stability, water ingress and services encountered.

Small and bulk disturbed soil samples were recovered at each change in strata and returned to the laboratory and presented for testing.

Shear Vane Tests were carried out in-situ where applicable or on irregular lump samples recovered from trial pit arisings.

Seven Plate Bearing Tests were also carried out at a number of trial pit locations and the records of same are included in Appendix 4 of this factual report.

Laboratory Environmental Tests were also carried out on a number of trial pit samples. The samples were recovered using specified jars and dials and then couriered directly from site to ALS Laboratories, UK and the results of these environmental tests are included in Appendix 8 of this factual report.

Radiological Survey

A Radiological Survey was carried out on site by Radiation Safety Ireland Limited.

The purpose of the survey was to observe and record any potential elevated levels of radiation that may be encountered during the excavation of a number of trial pits over a two-day period in October 2020.

The records of the radiological survey are included as a ‘stand-alone’ report in appendix 6 of this report.

Resistivity Survey

One soil resistivity test (SR 01) was carried out on site.

The test was carried out using a Megger Resistivity Unit with electrode spacings of 1m, 2m and 3m used to complete the test.

The records of the soil resistivity test are included as Appendix 4 of this factual report.

Surveying

The borehole and trial pit locations were set out on site using a Trimble CU Bluetooth GPS Surveying Unit and the co-ordinates are included on the logs presented in the appendices. All fieldwork co-ordinates are reported to Irish Transverse Mercator (ITM) with Reduced Levels recorded relative to Malin Head Datum and with an accuracy level of + or – 0.10m.

General Summary

Ground conditions encountered during the completion of the fieldwork were typical and as expected for this region and in general consisted of Made Ground over organic clay/silts and/or peat over sands and gravels over bedrock.

Made ground was also encountered at many fieldwork locations and is generally described as tarmacadam and Clause 804 type material and/or clayey sandy gravel with cobbles.

Very soft peats and/or organic silt/clay to depth were also frequently encountered in the boreholes and trial pits.

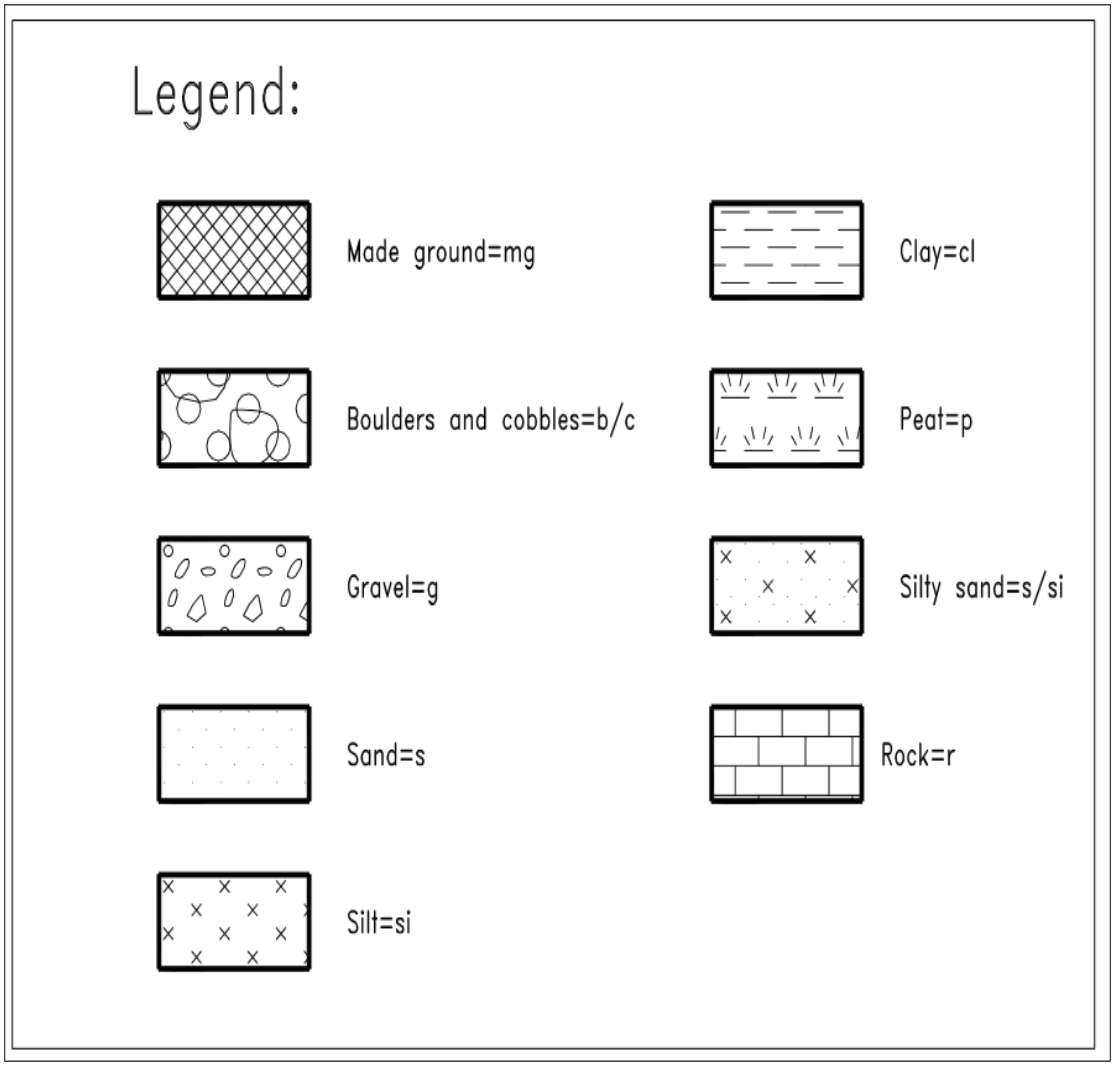
Bedrock was encountered in the rotary core boreholes at depths varying from 20.80m to 22.10m below ground level. Weathered bedrock was also encountered in a number of the boreholes at shallower depths.

Intact bedrock in general is described as grey, fine-grained, thinly laminated shale.

Reference should be made to the engineering logs for a detailed description of the ground conditions encountered.

The fieldwork was carried out in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations with precedence given to IS EN 1997-2 where applicable.

The following Key Legend Table details the symbology used on the engineering logs to describe ground conditions encountered:



10 Laboratory Testing

Representative samples recovered from the boreholes and trial pits were scheduled for testing in the laboratory. The test schedules were prepared by the Client's Engineer and included some or all of the following tests on disturbed and undisturbed soil samples:

* 61nr Natural Moisture Content.
* 33nr Atterberg Limits.
* 53nr Particle Size Distribution.
* 32nr Sedimentation.
* 2nr Consolidation.
* 6nr Chemical (pH, Sulphate, Sulphur).
* 7nr Triaxial.
* 3nr Shearbox.
* 105nr Environmental Suite.

The test schedules also included some or all of the following tests on rock core samples:

* 46nr Point Load Tests.
* 5nr Unconfined Compressive Strength (UCS).
* 3nr UCS with Deformation.

A full summary of the soil and rock test results is included as Appendix 7 with the Environmental Suite test results included as Appendix 8.

The test schedules were carried out predominantly at the IDL Laboratory located at Loughrea, County Galway.

A number of specialist tests not available at the IDL laboratory were carried out by designated laboratories on a subcontract basis as follows:

Laboratory chemical and environmental tests were carried out by Alcontrol Laboratories, UK.
Triaxial soil tests were carried out by NMTL, Carlow.
Specialist rock tests (UCS with Deformation) were carried out by Soil Engineering Geoservices Ltd., UK.

The soil and rock descriptions as noted on the borehole and trial pit logs are in general visual descriptions as observed and logged by our Engineers and are described in accordance with IS EN 1997-2 and BS5930, 2015 Code of Practice for Site Investigations.

Soils descriptions (cohesive or otherwise) are also initially assessed based on the texture and 'feel' of the soil materials as witnessed by our Geotechnical Engineers.

Where laboratory classification tests have been carried out on soil or rock samples then these visual descriptions have been amended accordingly to take into account the results of these classification tests.

The records of all fieldwork, laboratory test results and photographs are included in the appendices of this Factual Report.

Ronan Killeen
Chartered Engineer
Irish Drilling Limited
January 4th 2021

Appendix 1
Core Photographic Record

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH301**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	08-10-20 30-10-20	2.20	E 722,735.9 N 675,076.0

Engineer	GROUNDWATER STRIKES	Sheet
ARUP	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-1.00	B1			1.60		(0.60) 0.60	MADE GROUND: Tarmac and Clause 804 type material.		
1.00	SPT	N = 1 (1, 0, 0, 0, 1, 0)		1.00		(0.60) 1.20	MADE GROUND: Greyish black CLAY fill.		
1.00 1.00-1.50 1.50	D2 B4 D5						Greyish green organic silty CLAY.		
2.00 2.00-2.50 2.50	SPT B7 D8	N = 5 (1, 2, 2, 1, 1, 1)				(2.60)			
3.00 3.00-3.50 3.50	SPT B10 D11	N = 22 (4, 5, 7, 7, 6, 2)		-1.60		3.80			
4.00-4.45 4.50	U10012 D13	12 blows					Brown silty PEAT with timber.		
5.00 5.00-5.50 5.50	SPT B15 D16	N = 8 (2, 1, 1, 2, 3, 2)				(2.80)			
6.50 6.50-7.00 7.00	U10017 B18 CPT	8 blows NR 50 for 40 mm (10, 15, 50)		-4.40 -5.00		6.60 (0.60) 7.20	Coarse sandy GRAVEL.		
7.00	D19			-5.30		7.50	Obstruction as possible timber. Borehole continued as a Cored Drillhole		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
08-10-20	17.00	7.50	7.50	203	1.70
09-10-20	08.30	7.50	7.50	203	

Chiselling

From	To	Hours
7.3	7.5	1
7.5	7.5	1/2

Water Added

From	To
4	

GENERAL REMARKS

Install PQ casing for rotary follow on.
6 gallons of polydrill used.
50mm standpipe installed.Response zone 7.60m to 10.60m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/Hydreq	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS3 UK BH ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH301**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	08-10-20 30-10-20	2.20	E 722,735.9 N 675,076.0

Engineer	Sheet	Rev.
ARUP	2 of 3	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
08.10 7.50	0 (-) -	NA	-5.30		7.50 (2.50)	7.50 - 21.40 m: overburden		No recovery. Drillers Comment: Washed away.		
10.00			-7.80		10.00					
12.00	25 (-) -	NA			(11.40)			Subangular to subrounded fine to coarse GRAVEL of greywacke and shale with cobbles. Cobbles are of sandstone and shale.		
15.50	8 (-) -									
17.60	19 (-) -									
28.10 18.40	38 (-) -									

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
08-10-20	17.00	7.50	7.50	203			1.70
09-10-20	08.30	7.50	7.50	203			
28-10-20	17.00	18.40	16.50	99	63		
29-10-20	08.30	18.40	16.50	99	63		

Rotary Flush

From (m)	To (m)	Type	Return (%)
7.5	26.50	polymer	100

GENERAL REMARKS

Install PQ casing for rotary follow on.
6 gallons of polydrill used.
50mm standpipe installed.Response zone 7.60m to 10.60m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/Hydreq	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH301**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	08-10-20 30-10-20	2.20	E 722,735.9 N 675,076.0

Engineer	Sheet	Rev.
ARUP	3 of 3	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
29.10 19.50	46 (-) -							Subangular to subrounded fine to coarse GRAVEL of greywacke and shale with cobbles. Cobbles are of sandstone and shale. *(continued)*		
20.60	63 (-) -									
21.60	80 (0) 0	NA	-19.20		21.40					
22.60	100 (0) 0	NI				21.40 - 26.50 Discontinuities, apparently extremely and very closely spaced, dipping 86 to 90o, planar, smooth, with 0.5 to 1mm thick grey silt smear and orange and orangish brown iron stain and powder. 22.60 - 25.00 No recovery as washout of fines during drilling. No record of cavity. Non-intact as extremely closely spaced and very closely spaced discontinuities.		Medium strong locally strong thinly laminated dark grey and grey fissile fine grained SHALE.		
23.50	77 (0) 0	NR/NI			(5.10)					
25.00	40 (0) 0									
29.10 26.50	100 (31) 13	NI	-24.30		26.50	25.00 - 26.50 Non-intact as extremely closely spaced and very closely spaced discontinuities.		26.10m to 26.50m: medium strong fissile.		
								BH terminated at 26.50m bgl on REs instruction.		

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
29-10-20	17.00	26.50	21.00	99	63		

Rotary Flush			
From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

Install PQ casing for rotary follow on.
6 gallons of polydrill used.
50mm standpipe installed.Response zone 7.60m to 10.60m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/Hydreq	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH302**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	07-10-20 20-10-20	2.00	E 722,909.4 N 675,090.5

Engineer	GROUNDWATER STRIKES	Sheet / Rev.
ARUP	Water strikes: 1st: 7.00m 2nd: 3rd: Rose to (@ 20 min.): 1.70m Sealed at:	Sheet 1 of 3 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-1.00	B1			1.40		(0.60) 0.60	MADE GROUND: Tarmac over Clause 804 type material.		
1.00	SPT	N = 2 (1, 2, 1, 0, 0, 1)		0.70		(0.70) 1.30	MADE GROUND: Wet brown sandy CLAY fill with cobbles.		
1.00 1.00-1.50 1.50	D2 B4 D5		1	-0.20		(0.90) 2.20	MADE GROUND: Greyish black gravelly CLAY fill.		
2.00	CPT	N = 8 (1, 1, 2, 1, 2, 3)		-1.00		(0.80) 3.00	Soft to firm greyish brown silty PEAT.		
2.00-2.50 2.50	B7 D8								
3.00-3.45	U1009	21 blows				(3.90)	Greyish brown silty PEAT with timber.		
3.50	D10								
4.00	SPT	N = 1 (1, 0, 0, 0, 1, 0)							
4.00-4.50 4.50	B12 D13								
5.00-5.45	U10014	19 blows							
5.50	D15								
6.50	CPT	N = 12 (2, 1, 2, 3, 3, 4)	1	-4.90		6.90			
6.50-7.00 7.00 7.00	B17 D18 W19					(2.00)	Medium GRAVEL with cobbles. Cobbles are rounded.		
8.00	CPT	50 for 220 mm (15, 10, 16, 18, 16)							
8.00-8.50 8.50	B21 D22			-6.90		8.90			
8.90 8.90	B23 D24					(0.80)	Soft brown CLAY with cobbles. Cobbles are rounded.		
9.50	U10025	50 blows NR		-7.70		9.70			
9.50-10.00 10.00	B26 D27					(1.50)	Medium GRAVEL with cobbles.		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
07-10-20	17.00	8.50	8.50	203	0.60
08-10-20	08.30	8.50	8.50	203	1.10
08-10-20	12.00	11.00	11.20	203	

Chiselling

From	To	Hours
11	11.2	1

Water Added

From	To

GENERAL REMARKS

Install PQ casing for rotary follow on.
2 gallons of polydrill used.
50mm standpipe installed.Response zone 9.00m to 11.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/Hydreq	Bit Design	Driller: BT/PMcG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH302**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	07-10-20 20-10-20	2.00	E 722,909.4 N 675,090.5

Engineer	GROUNDWATER STRIKES	Sheet
ARUP	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.00m 1.70m 2nd: 3rd:	2 of 3 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
11.00	CPT	50 for 87 mm (25, -, 37, 13)		-9.20		11.20			
11.00	D29						Borehole continued as a Cored Drillhole		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To
20-10-20	16.00	19.10	10.70	99						

GENERAL REMARKS

Install PQ casing for rotary follow on.
2 gallons of polydrill used.
50mm standpipe installed.Response zone 9.00m to 11.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/Hydreq	Bit Design	Driller BT/PMcG	Logged By EAT

IDL AGS3 UK BH ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH302**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	07-10-20 20-10-20	2.00	E 722,909.4 N 675,090.5

Engineer	Sheet	Rev.
ARUP	3 of 3	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
11.60	22 (-) -		-9.20 -9.50		11.20 11.50	11.50 - 19.10 Non-intact as weathered rock. No recovery as washout of fines during drilling. No record of cavity.		Subangular to subrounded fine to coarse GRAVEL of greywacke and shale with cobbles. Cobbles are of sandstone and shale. (0.20m recovered).		
13.10	40 (0) 0							Weathered SHALE rock. Recovered as angular fine to coarse gravel and cobble sized clasts of medium strong locally strong thinly laminated dark grey fine grained SHALE with some grey silt and a little greenish grey silt and some surficial orangish brown iron stain and powder.		
14.60	40 (0) 0									
16.10	40 (0) 0	NR/NI			(7.60)					
17.60	33 (0) 0									
20.10 19.10	47 (0) 0		-17.10		19.10					
								BH terminated at 19.10m bgl on REs instruction.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
20-10-20	16.00	19.10	10.70	99	63		

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

Install PQ casing for rotary follow on.
2 gallons of polydrill used.
50mm standpipe installed.Response zone 9.00m to 11.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/Hydreq	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH303**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	09-10-20 28-10-20	1.84	E 722,836.3 N 675,033.0

Engineer	GROUNDWATER STRIKES	Sheet / Rev.
ARUP	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.00m 1.70m 2nd: 3rd:	Sheet 1 of 3 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-1.00	B1			1.69		0.15	MADE GROUND: Tarmac.		
				1.44		0.40	MADE GROUND: Clause 804 type material.		
							MADE GROUND: Multi coloured silty CLAY fill and timber.		
1.00	CPT	N = 7 (2, 2, 3, 2, 1, 1)							
1.00	D2		1			(2.20)			
1.00-1.50	B4								
1.50	D5								
2.00	CPT	N = 1 (1, 0, 0, 0, 1, 0)							
2.00-2.50	B7			-0.76		2.60			
2.50	D8						Soft grey sandy silty PEAT with rootlets and timber.		
3.00	CPT	N = 0 (1, 0, 0, 0, 0, 0)							
3.00-3.50	B10								
3.50	D11								
4.00-4.45	U10012	16 blows							
4.50	D13								
5.00	SPT	12 for 265 mm (2, 3, 3, 2, 4, 3)				(4.90)			
5.00-5.50	B15								
5.50	D16								
6.50-6.95	U10017	16 blows							
7.00	D18		1						
7.00	W19			-5.66		7.50			
7.50-8.50	B20						Dense grey sandy medium GRAVEL with cobbles. Cobbles are rounded.		
7.50	D21								
8.00	CPT	N = 37 (5, 9, 8, 9, 10, 10)				(1.40)			
8.00-8.50	B23								
8.50	D24			-7.06		8.90			
							Firm brown CLAY.		
9.50-9.95	U10025	27 blows				(1.20)			
10.00	D26			-8.26		10.10			
							Dense brown sandy coarse GRAVEL.		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To
09-10-20	17.00	4.50	4.50	203	2.60				0	
12-10-20	08.30	4.50	4.50	203	2.40					

GENERAL REMARKS

Install PQ casing for rotary follow on.
6 gallons of polydrill used.
50mm standpipe installed.Response zone 9.00m to 12.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller: BT/PMcG	Logged By: EAT

Irish drilling LTD

BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH303**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	09-10-20 28-10-20	1.84	E 722,836.3 N 675,033.0

Engineer	GROUNDWATER STRIKES	Sheet / Rev.
ARUP	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 7.00m 1.70m 2nd: 3rd:	Sheet 2 of 3 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
11.00	CPT	N = 33 (4, 5, 7, 8, 9, 9)				(1.90)	Dense brown sandy coarse GRAVEL. *(continued)*		
11.00-11.50	B28								
11.50	D29			-10.16		12.00			
							Stiff brown sandy gravelly SILT with cobbles and boulders.		
12.50	SPT	N = 35 (5, 6, 8, 8, 8, 11)							
12.50-13.00	B31								
13.00	D32					(3.30)			
14.00-14.45	U10033	50 blows NR							
14.00-14.50	B34								
14.50	SPT	N = 42 (6, 8, 8, 10, 11, 13)							
14.50	D35								
14.50-15.00	B37			-13.46		15.30			
15.00	D38						Dense brown sandy coarse GRAVEL.		
15.30	B39								
15.30	D40					(1.20)			
16.00	CPT	N = 38 (8, 7, 10, 9, 9, 10)							
16.00-16.50	B42			-14.66		16.50			
16.50	D43						Medium GRAVEL and coarse SAND.		
17.50	CPT	N = 48 (8, 10, 10, 11, 9, 18)				(2.50)			
17.50-18.00	B45								
18.00	D46			-17.16		19.00			
19.00	CPT	N = 58 (9, 8, 13, 18, 19, 8)					Very dense medium GRAVEL with cobbles and clay bands. Cobbles are rounded of granite.		
19.00-19.50	B48								
19.50	D49					(2.00)			
20.80-21.20	C			-19.16		21.00			
							Borehole continued as a Cored Drillhole		

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
12-10-20	17.00	16.50	16.50	203	
13-10-20	08.30	16.50	16.50	203	1.10
13-10-20	13.00	21.00	21.00	203	
23-10-20	17.00	21.60	10.30	123	
24-10-20	08.30	21.60	10.30	123	

Chiselling

From	To	Hours
18.1	18.4	1
19.5	19.7	1
20.7	21	2

Water Added

From	To

GENERAL REMARKS

Install PQ casing for rotary follow on.
6 gallons of polydrill used.
50mm standpipe installed.Response zone 9.00m to 12.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS3 UK BH ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH303**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	09-10-20 28-10-20	1.84	E 722,836.3 N 675,033.0

Engineer	Sheet	Rev.
ARUP	3 of 3	FINAL

RUN DETAILS					STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Geology	Instrument/ Backfill
23.10 21.00	100 (-) -	21.00 (50/0mm) NR	-19.16		21.00	21.00 - 21.30 m: overburden	Subangular to subrounded fine to coarse GRAVEL of sandstone and shale.		
21.20 23.10 21.60	100 (0) 0	NR/NI	-19.46		21.30 (0.80)	21.30 - 22.10 Non-intact as weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Weathered SHALE rock. Recovered as angular fine to coarse gravel and cobble sized clasts of strong thinly laminated dark grey fine grained SHALE.		
24.10 24.10 22.10	60 (0) 0 100 (84) 51	6	-20.26		22.10	22.10 - 26.60 Discontinuities, medium spaced, locally closely spaced to 23.00m, then closely locally very closely spaced, dipping 18 to 20o, stepped, smooth, with 0.5 to 2mm thick grey silt smear and orange and orangish brown iron stain to 22.60m bgl.	Very strong locally strong thinly laminated grey fine grained SHALE.		
23.50		8							
24.10 25.00	93 (70) 37	NR/NI			(4.50)	23.60 - 25.00 Non-intact as weathered rock. No recovery as washout of fines during drilling. No record of cavity.			
28.10 26.20	100 (70) 31	20							
25.10 26.60	100 (97) 95	2	-24.76		26.60		BH terminated at 26.60m bgl on REs instruction.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
13-10-20	13.00	21.00	21.00	203			
23-10-20	17.00	21.60	10.30	123	84		
24-10-20	08.30	21.60	10.30	123	84		
24-10-20	12.00	22.10	10.30	99	63		
24-10-20	17.00	25.00	10.30	99	63		
25-10-20	11.00	26.60	10.30	99	63		
28-10-20	08.30	25.00	10.30	99	63		

Rotary Flush

From (m)	To (m)	Type	Return (%)
21	26.60	polymer	100

GENERAL REMARKS

Install PQ casing for rotary follow on.
6 gallons of polydrill used.
50mm standpipe installed.Response zone 9.00m to 12.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

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BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH304**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	06-10-20 22-10-20	1.49	E 722,966.5 N 674,980.2

Engineer	GROUNDWATER STRIKES	Sheet / Rev.
ARUP	Water strikes: 1st: 1.50m 2nd: 3rd: Rose to (@ 20 min.): 1.50m Sealed at: 1.50m	Sheet 1 of 4 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-1.00	B1						MADE GROUND: Brown sandy CLAY fill with broken shale.		
0.50	ES					(1.30)			
1.00	SPT	N = 16 (2, 2, 1, 4, 5, 6)	1.1	0.19		1.30			
1.00	ES						MADE GROUND: Broken brown shale.		
1.00	D2					(0.70)			
1.00-1.50	B4			-0.51		2.00			
1.50	ES						MADE GROUND: Soft to firm greyish brown organic silty CLAY fill with timber.		
1.50	SPT								
1.50	D5								
1.50	W6					(0.90)			
2.00		N = 46 (4, 5, 7, 10, 10, 19)		-1.41		2.90			
2.00	ES						Soft to firm grey silty CLAY with wood and coarse sand bands.		
2.00-2.50	B8								
2.50	ES								
2.50	D9								
3.00		N = 16 (2, 3, 2, 4, 5, 5)							
3.00	ES								
3.00-3.50	B11								
3.50	ES								
3.50	D12								
4.00		N = 20 (3, 2, 4, 4, 9, 3)							
4.00	ES								
4.00-4.50	B14								
4.50	ES								
4.50	D15					(5.90)			
5.00	ES								
5.00-5.45	U10016	12 blows							
5.50	D17								
6.50	CPT	N = 10 (1, 2, 2, 2, 3, 3)							
6.50-7.00	B19								
7.00	D20								
8.00-8.45	U10021	25 blows							
8.50	D22			-7.31		8.80			
8.80-10.00	B23						Medium GRAVEL with cobbles. Cobbles are rounded.		
8.80	D24								
9.50	CPT	N = 32 (4, 5, 7, 7, 8, 10)				(1.30)			
9.50-10.00	B25			-8.61		10.10			
10.00	D27						GRAVEL with peat bands.		
				-9.21		(0.60) 10.70			
							Dense GRAVEL with cobbles. Cobbles are rounded.		

Boring Progress and Water Observations						Chiselling			Water Added	
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To

GENERAL REMARKS

Install PQ casing for rotary follow on.
5 gallons of polydrill used.
50mm standpipe installed.Response zone 10.00m to 13.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS3 UK BH ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

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BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH304**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	06-10-20 22-10-20	1.49	E 722,966.5 N 674,980.2

Engineer	GROUNDWATER STRIKES	Sheet
ARUP	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: 1.50m 1.50m 2nd: 3rd:	2 of 4 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
11.00	CPT	N = 41 (5, 6, 6, 10, 11, 14)					Dense GRAVEL with cobbles. Cobbles are rounded. *(continued)*		
11.00-11.50	B29								
11.50	D30					(2.10)			
12.50	CPT	50 for 40 mm (12, 13, 50)		-11.31		12.80			
12.50-12.80	B32						Borehole continued as a Cored Drillhole		
12.50	D33								

Boring Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m
06-10-20	17.00	11.45	11.00	203	0.30
07-10-20	08.30	11.45	11.00	203	g/l
07-10-20	11.00	12.80	12.50	203	g/l
21-10-20	16.00	17.80	1.50	123	
22-10-20	08.30	17.80	1.50	123	

Chiselling

From	To	Hours
12.7	12.8	1

Water Added

From	To

GENERAL REMARKS

Install PQ casing for rotary follow on.
5 gallons of polydrill used.
50mm standpipe installed.Response zone 10.00m to 13.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller BT/PMcG	Logged By EAT

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH304**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	06-10-20 22-10-20	1.49	E 722,966.5 N 674,980.2

Engineer	Sheet	Rev.
ARUP	3 of 4	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
07.10 12.80 13.30	23 (-) -		-11.31		12.80	12.80 - 20.80 m: overburden		Subangular to subrounded fine to coarse GRAVEL of sandstone and shale with cobbles and some brown slightly sandy gravelly silt. Cobbles are of sandstone and shale.		
14.80	17 (-) -									
16.30	7 (-) -									
21.10 17.80	23 (-) -	NA			(8.00)					
22.10 19.30	0 (-) -									
20.80	27 (-) -		-19.31		20.80					
22.30	100 (49) 24	7 NI			(2.70)	20.80 - 25.30 Discontinuities, closley spaced, locally medium and very closely spaced, dipping 58 to 60o, planar, smooth, with 0.5 to 1mm thick grey silt smear and orange and orangish brown iron stain to 24.70m bgl. 21.90 - 22.30 Non-intact as weathered rock.		Very strong locally strong thinly laminated grey slightly sandy fine to medium grained SHALE with 'anastomosing' calcite veinlets.		
23.80	100 (51) 9	5 NI	-22.01		23.50	22.70 - 23.90 Non-intact as weathered rock. 23.40 - 24.00 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm				

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
07-10-20	11.00	12.80	12.50	203			g/l
21-10-20	16.00	17.80	1.50	123	84		
22-10-20	08.30	17.80	1.50	123	84		

Rotary Flush

From (m)	To (m)	Type	Return (%)
12.8	25.30	polymer	100

GENERAL REMARKS

Install PQ casing for rotary follow on.
5 gallons of polydrill used.
50mm standpipe installed.Response zone 10.00m to 13.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

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DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH304**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	06-10-20 22-10-20	1.49	E 722,966.5 N 674,980.2

Engineer	Sheet	Rev.
ARUP	4 of 4	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities Detail	Main	Geology	Instrument/ Backfill
	100 (44) 17	4 28			(1.80)	thick grey silt smear and orange and orangish brown iron stain and powder, open.	Strong locally medium strong thinly laminated dark grey fine grained SHALE with surficial orange and dark orangish brown iron stain and powder. *(continued)* 24.70m: absence of iron stain.		
22.10 25.30		5	-23.81		25.30	25.00 - 25.30 Joint, subvertical dip, stepped, smooth, with 0.5 to 1mm thick grey silt smear, open.	BH terminated at 25.30m bgl on REs instruction.		

Drilling Progress and Water Observations							
Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
22-10-20	13.00	25.30	1.50	123	84		

Rotary Flush			
From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

Install PQ casing for rotary follow on.
5 gallons of polydrill used.
50mm standpipe installed.Response zone 10.00m to 13.00m bgl.
Gas monitoirng valve fitted.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller: BT/PMcG	Logged By: EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

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BOREHOLE LOG

Project	Location	BOREHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH305**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	21-10-20 30-10-20	14.43	E 723,216.5 N 674,968.5

Engineer	GROUNDWATER STRIKES	Sheet
ARUP	Water strikes: Rose to (@ 20 min.): Sealed at: 1st: dry 2nd: 3rd:	1 of 3 Rev. FINAL

SAMPLES & TESTS			Water	STRATA				Geology	Instrument/ Backfill
Depth	Type No	Test Result		Reduced Level	Legend	Depth (Thick-ness)	DESCRIPTION		
0.00-1.00	B1						Brown SAND.		
1.00	CPT	N = 10 (2, 2, 1, 2, 3, 4)					1.00m: loose.		
1.00	D2								
1.00-1.50	B4								
1.50	D5					(3.90)			
2.00	CPT	N = 17 (3, 4, 4, 5, 4, 4)					2.00m: medium dense.		
2.00-2.50	B7								
2.50	D8								
3.00	CPT	N = 17 (4, 4, 5, 3, 4, 5)							
3.00-3.50	B10								
3.50	D11			10.53		3.90			
4.00-4.45	U10012	30 blows					Firm to stiff brown sandy gravelly SILT with cobbles and boulders.		
4.50	D13								
5.00	CPT	N = 38 (8, 9, 9, 8, 10, 11)				(2.90)			
5.00-5.50	B15								
5.50	D16								
6.50	SPT	N = 59 (6, 10, 10, 8, 11, 30)		7.63		6.80			
6.50-7.00	B18						Obstruction - possible rock or boulder. Recovered as brown angular gravel and cobble size fragments of greyish brown shale.		
7.00	D19			7.13		7.30			
7.20-8.20	C						Borehole continued as a Cored Drillhole		

Boring Progress and Water Observations						Chiselling			Water Added		GENERAL REMARKS
Date	Time	Depth	Casing Depth	Casing Dia. mm	Water (bgl) Depth, m	From	To	Hours	From	To	
21-10-20	17.00	7.30	4.50	203		4.7 7	4.9 7.3	1 1			Install PQ casing for rotary follow on. 10litres of polydrill used. 50mm standpipe installed.Response zone 13.70m to 16.70m bgl.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller BT/DK	Logged By EAT

IDL AGS3 UK BH ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH305**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	21-10-20 30-10-20	14.43	E 723,216.5 N 674,968.5

Engineer	Sheet	Rev.
ARUP	2 of 3	FINAL

RUN DETAILS					STRATA				
Depth / Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick-ness)	DESCRIPTION: Discontinuities / Detail	DESCRIPTION: Main	Geology	Instrument/ Backfill
21.10 7.30	40 (0) 0		7.13		7.30 (0.60)	7.30 - 7.90 m: overburden	Recovered as brown angular gravel and cobble size fragments of greyish brown shale.		
8.20			6.53		7.90	7.90 - 20.20 Non-intact as weathered rock. No recovery as washout of fines during drilling. No record of cavity.	Weathered SHALE rock. Recovered as angular fine to coarse gravel cobble and boulder sized clasts of strong and medium strong thinly laminated greyish brown fine grained MUDSTONE with surficial orange and orangish brown iron stain and powder.		
9.70	80 (0) 0	NR/NI							
11.20	87 (0) 0								
28.10 12.70	73 (0) 0								
30.10 14.20	87 (0) 0				(12.30)				
15.70	40 (0) 0	NR/NI							
17.20	33 (12) 0								
	40 (11) 0								

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
21-10-20	17.00	7.30	4.50	203			
28-10-20	17.00	12.70	7.20	123	84		
30-10-20	08.30	12.70	7.20	123	84		

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

Install PQ casing for rotary follow on.
10litres of polydrill used.
50mm standpipe installed.Response zone 13.70m to 16.70m bgl.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller BT/DK	Logged By EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

Irish drilling LTD

DRILLHOLE LOG

Project	Location	DRILLHOLE No
Arklow Bank Wind Park-Substation Site Investigations	Arklow, County Wicklow	**BH305**

Job No	Date	Ground Level (m OD)	Co-Ordinates ()
2020WW102	21-10-20 30-10-20	14.43	E 723,216.5 N 674,968.5

Engineer	Sheet	Rev.
ARUP	3 of 3	FINAL

RUN DETAILS					STRATA				
Depth Date	TCR (SCR) RQD	(SPT) Fracture Spacing	Red'cd Level	Legend	Depth (Thick- ness)	DESCRIPTION Discontinuities	Detail	Main	Geology	Instrument/ Backfill
18.70								Weathered SHALE rock. Recovered as angular fine to coarse gravel cobble and boulder sized clasts of strong and medium strong thinly laminated greyish brown fine grained MUDSTONE with surficial orange and orangish brown iron stain and powder. *(continued)*		
	53 (33) 24							Core run - 18.70m to 20.20m: 1 No greyish brown mudstone boulder 210mm in length. 1 No greyish brown mudstone boulder 250mm in length.		
30.10 20.20			-5.77		20.20			BH terminated at 20.20m bgl on REs instruction.		

Drilling Progress and Water Observations

Date	Time	Depth	Casing Depth	Casing Dia	Core Dia mm	Water Strike	Water Standing
30-10-20	17.00	20.20	7.20	123	84		

Rotary Flush

From (m)	To (m)	Type	Return (%)

GENERAL REMARKS

Install PQ casing for rotary follow on.
10litres of polydrill used.
50mm standpipe installed.Response zone 13.70m to 16.70m bgl.

All dimensions in metres Scale 1:68.75	Client: Sure Partners Limited	Method/ Plant Used: Dando 2000/DeltaBase	Bit Design	Driller BT/DK	Logged By EAT

IDL AGS UK DH (SPTS) ARKLOW BANK COMBINED SUBSTATION ALL JAN21.GPJ IDL TP TEMPLATE.GDT 8/1/21

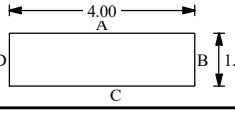
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PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP301**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,778.1 N 675,069.5**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.22m O.D.	**Rev: FINAL**
	DATE: 28.10.20

GROUNDWATER

Water strikes: Rose to after:
1st: 0.60m
2nd: 2.00m
3rd:

PIT DIRECTION: 120-300
PIT DIMENSION: 1.00 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.00m to 2.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.14	0.08	'TARMAC'.
							1.92	0.30	MADE GROUND: Clause 804 type material.
			ES 1	0.40-0.50			1.62	0.60	MADE GROUND: Light reddish brown sandy angular to subangular medium to coarse GRAVEL of shale and greywacke with low cobble content. Sand is medium. Cobbles are angular to subangular of shale and greywacke.
			ES 2	0.90-1.00			1.22	1.00	MADE GROUND: Firm crimson red SILT.
1			ES 3	1.00-1.10			1.12	1.10	MADE GROUND: Soft greyish white SILT as possible gypsum.
			ES 4 B 5	1.60-1.70 1.60-1.70					Soft greenish brownish grey organic silty CLAY with some rootlets. Organic odour.
2									
			VANE ES 6 B 7	2.80 2.90-3.00 2.90-3.00	19mm vane used 16 kN/m² lump sample				
3									
4							-1.79	4.00	
			B 8	4.40-4.50			-2.29	4.50	Soft greenish greyish brown organic silty CLAY with many wood fragments. Wood is up to 20 x 200mm in size. Strong organic odour.
						END			TP terminated at 4.50m bgl on REs instruction.
5									

Remarks: Seepage of water at 0.60m bgl. Seepage of water at 2.00m bgl.Radiation survey monitoring carried out on arisings. Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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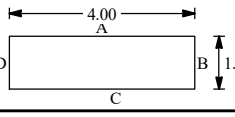
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP302**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,752.3 N 675,090.7**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.41m O.D.	**Rev: FINAL**
	DATE: 28.10.20

GROUNDWATER

Water strikes: Rose to after:
1st: 1.40m
2nd: 2.50m 20min 2.40m
3rd:

PIT DIRECTION: 110-290
PIT DIMENSION: 1.00 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.33	0.08	'TARMAC'.
							2.26	0.15	MADE GROUND: Clause 804 type material.
							2.01	0.40	MADE GROUND: Brownish orange gravelly angular to subangular limestone COBBLES. Gravel is angular to subangular fine to coarse of shale and greywacke.
			ES 1	0.40-0.50			1.71	0.70	MADE GROUND: Greyish brown sandy angular to subangular medium to coarse GRAVEL of shale and greywacke with low cobble content and low boulder content. Sand is fine to medium. Cobbles are angular to subangular of shale and greywacke. Boulders are angular to subangular of shale and greywacke. Boulders are up to 400mm in length.
1			ES 2	1.00-1.10			1.01	1.40	MADE GROUND: Firm crimson red slightly gravelly SILT. Gravel is angular to subangular fine to coarse of shale.
		1	ES 3 B 4	1.60-1.70 1.60-1.70					Soft mottled greenish brownish grey organic silty CLAY with some rootlets and some wood fragments. Wood is up to 20mm thick. Organic odour.
2		1 2							
3			ES 5 B 6	3.10-3.20 3.10-3.20			-0.99	3.40	
						END			TP terminated at 4.50m bgl on REs instruction.
4									
5									

Remarks: Seepage of water at 1.40m bgl. Ingress of water at 2.50m bgl. Radiation survey monitoring carried out on arisings. TP backfilled with arisings.

Scale: 1:27.5

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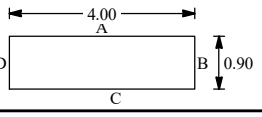
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP303**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,789.0 N 675,095.1**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.45m O.D.	**Rev: FINAL**
	DATE: 9.10.20

GROUNDWATER

Water strikes: Rose to after:
1st: 1.20m 20min 1.10m
2nd:
3rd:

PIT DIRECTION: 130-310
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.39	0.06	'TARMAC'.
									MADE GROUND: Clause 804 type material. 0.06m to 0.40m: slight hydrocarbon odour.
			ES 1	0.40-0.50			2.05	0.40	
									MADE GROUND: Reddish orangish brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of shale and greywacke with low cobble content. Sand is coarse. Cobbles are angular to subangular of shale and greywacke.
							1.75	0.70	
			ES 2	0.90-1.00					MADE GROUND: Firm damp crimson red SILT.
1		1					1.25	1.20	
			ES 3	1.40-1.50					MADE GROUND: Very soft moist dark grey silty organic CLAY with grass and rootlets and white and yellow lenses of clayey silt with possible gypsum and sulphur.
							0.75	1.70	
									Very soft moist greenish grey organic silty CLAY with some rootlets and many wood fragments.
2			VANE	2.60	33mm vane used 15 kN/m² in situ				
			ES 4	2.90-3.00					
3			B 5	2.90-3.00					
4			B 6	4.40-4.50			-2.05	4.50	
						END			TP terminated at 4.50m bgl on REs instruction.
5									

Remarks: Ingress of water at 1.20m bgl. Plate test carried out at 0.50m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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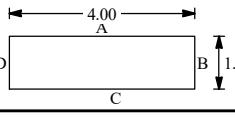
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP304**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,816.5 N 675,111.1**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.28m O.D.	**Rev: FINAL**
	DATE: 28.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.70m	20min	1.60m
2nd:	2.80m	20min	2.05m
3rd:			

PIT DIRECTION: 020-200
PIT DIMENSION: 1.00 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.20	0.08	'TARMAC'.
							2.03	0.25	MADE GROUND: Clause 804 type material.
							1.94	0.34	'TARMAC'.
			ES 1	0.40-0.50			1.83	0.45	MADE GROUND: Clause 804 type material.
									MADE GROUND: Light brownish grey slightly sandy slightly clayey angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content. Sand is coarse. Cobbles are angular to subangular of shale and greywacke.
1			ES 2	1.00-1.10					
							0.98	1.30	
		1	ES 3	1.60-1.70					Soft blackish brownish grey organic silty CLAY with some rootlets. Organic odour. 1.30m to 2.80m: slight hydrocarbon odour.
		1	B 4	1.60-1.70					
2		2							
		2					-0.52	2.80	
							-0.72	3.00	Bluish grey slightly gravelly silty fine to coarse SAND. Gravel is angular to subangular fine to coarse of shale and greywacke.
3									Very soft greyish brown organic silty CLAY with many wood fragments. Wood is up to 30 x 300mm in size. Organic odour.
			ES 5	3.20-3.30					
			B 6	3.20-3.30					
4									
			B 7	4.40-4.50			-2.22	4.50	
						END			TP terminated at 4.50m bgl on REs instruction.
5									

Remarks: Ingress of water at 1.70m bgl. Ingress of water at 2.80m bgl. Radiation survey monitoring carried out on arisings. TP backfilled with arisings.

Scale: 1:27.5

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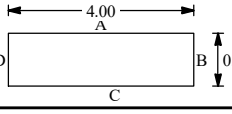
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations		**TRIALPIT: TP305**
LOCATION: Arklow, County Wicklow		**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates:** E 722,838.0 N 675,095.1	**Rig: Hyundai 140LC9**
ENGINEER: ARUP		**Rev: FINAL**
Ground level: 2.27m O.D.		**DATE: 8.10.20**

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.00m	20min	0.88m
2nd:	1.40m	20min	0.62m
3rd:	2.60m	20min	1.60m

PIT DIRECTION: 310-130
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.20	0.07	'TARMAC'.
									MADE GROUND: Clause 804 type material with some steel visible.
							1.82	0.45	
		2	ES 1	0.50-0.60					MADE GROUND: Damp greyish brown slightly clayey angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content and low boulder content. Cobbles are angular to subangular of shale and greywacke. Boulders are angular to subangular of shale and greywacke. Boulders are up to 300mm in length.
		1							
1		1	ES 2	0.90-1.00					
			B 3	0.90-1.00					
		2					0.87	1.40	
		3							Soft moist brownish grey organic silty CLAY with rootlets and some wood. Organic odour.
			ES 4	1.90-2.00					
2			B 5	1.90-2.00					
							-0.03	2.30	
									Soft moist grey clayey sandy organic SILT with tree trunk 1500 x 600mm. Sand is fine to coarse.
		3	B 6	2.50-2.60			-0.33	2.60	
									Moist grey very sandy subangular to subrounded fine GRAVEL of shale quartz and greywacke with some wood. Sand is coarse.
			ES 7	2.80-2.90			-0.63	2.90	
3			B 8	2.80-2.90		END			TP terminated at 2.90m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Ingress of water at 1.00m bgl. Ingress of water at 1.40m bgl. Ingress of water at 2.60m bgl. TP backfilled with arisings.

Scale: 1:27.5

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PROJECT: Arklow Bank Wind Park-Substation Site Investigations
LOCATION: Arklow, County Wicklow

TRIALPIT: TP306
Sheet 1 of 1

CLIENT: Sure Partners Limited
ENGINEER: ARUP

Co-ordinates: E 722,864.9 N 675,107.0

Rig: Hyundai 140LC9
Rev: FINAL

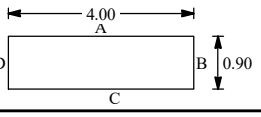
Ground level: 2.11m O.D.

DATE: 8.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.70m	20min	0.63m
2nd:	1.60m	20min	0.98m
3rd:			

PIT DIRECTION: 100-280
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.04	0.07	'TARMAC'.
									MADE GROUND: Clause 804 type material.
							1.81	0.30	
		1	PLATE 1	0.50					MADE GROUND: Moist brownish grey slightly clayey slightly sandy angular to subangular fine to coarse GRAVEL of shale greywacke and limestone with medium cobble content and low boulder content. Sand is coarse. Cobbles are angular to subangular of shale greywacke and limestone. Boulders are subangular of shale greywacke and limestone. Boulders are up to 250mm in length.
			ES 1	0.50-0.60					
		2							
1			ES 2	1.00-1.10					
			B 3	1.00-1.10					
		2					0.51	1.60	
			ES 4	1.80-1.90					Soft moist grey organic silty micaceous CLAY with some rootlets. Organic odour.
			B 5	1.80-1.90					
2									
			VANE	2.80	33mm vane used 17 kN/m² in situ				
			ES 6	2.80-2.90					
			B 7	2.80-2.90					
3									3.50m to 4.10m: becoming brownish grey with some wood and an increase in organic content. Wood is up to 50mm thick.
4			B 8	4.00-4.10			-1.99	4.10	
						END			TP terminated at 4.10m bgl on REs instruction.
5									

Remarks: Ingress of water at 0.70m bgl. Ingress of water at 1.60m bgl. Plate test carried out at 0.50m bgl. Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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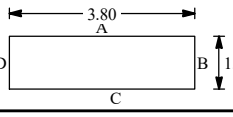
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations		**TRIALPIT: TP307**
LOCATION: Arklow, County Wicklow		**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates:**	**Rig: Hyundai 140LC9**
ENGINEER: ARUP	**E 722,964.7 N 675,048.9**	**Rev: FINAL**
Ground level: 1.94m O.D.		**DATE: 5.10.20**

GROUNDWATER

Water strikes:		Rose to after:	
1st:	2.00m		
2nd:	3.50m	20min	3.10m
3rd:			

PIT DIRECTION: 270-090
PIT DIMENSION: 1.20 * 3.80m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.88	0.06	'TARMAC'.
									MADE GROUND: Clause 804 type material.
			ES 1	0.40-0.50			1.44	0.50	
									MADE GROUND: Firm brown slightly gravelly silty CLAY with low cobble content. Gravel is subrounded to subangular medium mainly of shale. 0.50m to 1.90m: slight hydrocarbon odour.
			ES 2	0.90-1.00					
1									
			ES 3	1.50-1.60					
							0.04	1.90	
		1					-0.06	2.00	Soft dark brown peaty CLAY with roots and rootlets.
2									Soft grey organic SILT with many rootlets.
			B 4	2.30-2.60					
			ES 5	2.50-2.60					
3		1							
		2	ES 6	3.40-3.50					
			B 7	3.50-3.70					
							-1.76	3.70	
						END			TP terminated at 3.70m bgl. Unable to progress TP due to ingress of water.
4									
5									

Remarks: Ingress of water at 2.00m bgl. Ingress of water at 3.50m bgl. TP backfilled with arisings.

Scale: 1:27.5

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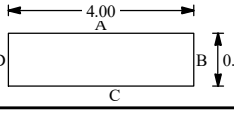
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT:** TP308
LOCATION: Arklow, County Wicklow	**Sheet** 1 of 1
CLIENT: Sure Partners Limited	**Co-ordinates:** E 722,908.6 N 675,018.3
ENGINEER: ARUP	**Rig:** Hyundai 140LC9
	Rev: FINAL
Ground level: 1.87m O.D.	**DATE:** 7.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.70m	20min	0.37m
2nd:	1.70m	20min	0.90m
3rd:	2.55m	20min	1.45m

PIT DIRECTION: 070-250
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.55m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.80	0.07	'TARMAC'.
							1.62	0.25	MADE GROUND: Clause 804 type material with subangular limestone boulders. Boulders are up to 350mm in length. 0.70m to 1.70m: slight hydrocarbon odour.
		1	ES 1	0.50-0.60					MADE GROUND: Moist brownish grey slightly clayey angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content and low boulder content. Cobbles are angular to subangular of shale and greywacke. Boulders are subangular to subrounded of shale and greywacke. Boulders are up to 300mm in length.
		1							
		2							
1			ES 2 B 3	1.00-1.10 1.00-1.10					
		3							
		2					0.17	1.70	
			VANE ES 4 B 5	1.90 1.90-2.00 1.90-2.00	33mm vane used 24 kN/m² in situ				Soft moist grey organic silty CLAY with many rootlets. Strong organic odour.
2		3					-0.68	2.55	
			ES 6 B 7	2.80-2.90 2.80-2.90			-1.03	2.90	Moist dark grey very gravelly coarse SAND with some wood content. Gravel is subangular to subrounded fine of shale quartz and greywacke.
						END			TP terminated at 2.90m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
3									
4									
5									

Remarks: Ingress of water at 0.70m bgl. Ingress of water at 1.70m bgl. Ingress of water at 2.55m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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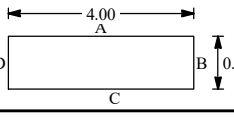
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP309**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,863.5 N 675,045.0**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.04m O.D.	**Rev: FINAL**
	DATE: 7.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.90m	20min	0.74m
2nd:	1.40m	20min	0.64m
3rd:	2.80m	20min	1.80m

PIT DIRECTION: 130-310
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.98	0.06	'TARMAC'.
							1.76	0.28	MADE GROUND: Clause 804 type material.
							1.59	0.45	MADE GROUND: Orangish brown slightly clayey silty angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content. Cobbles are angular to subangular of shale and greywacke.
		2 1	ES 1	0.50-0.60					MADE GROUND: Soft damp crimson red SILT.
		1	ES 2	0.90-1.00			1.14	0.90	
1		2							MADE GROUND: Moist light brown slightly clayey angular to subangular fine to coarse GRAVEL of shale and greywacke with high cobble content and low boulder content. Cobbles are angular to subangular of shale and greywacke. Boulders are angular to subangular of shale and greywacke. Boulders are up to 300mm in length.
							0.54	1.50	
		3							Soft moist grey organic silty CLAY with some rootlets.
2			B 3 ES 4 VANE	1.90-2.00 1.90-2.00 2.00	33mm vane used 25 kN/m² in situ				
		3					-0.76	2.80	
			B 5	2.90-3.00			-0.96	3.00	Moist grey very sandy fine GRAVEL of shale greywacke and quartz with low cobble content and low boulder content and some wood. Sand is coarse. Cobbles are angular to subangular of shale greywacke and quartz. Boulders are angular to subangular of shale greywacke and quartz. Boulders are up to 300mm in length. Wood is up to 20mm thick.
3							END		TP terminated at 3.00m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Ingress of water at 0.90m bgl. Ingress of water at 1.40m bgl. Ingress of water at 2.80m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

Irish drilling LTD

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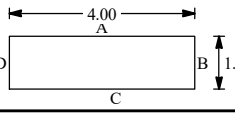
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP310**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,818.0 N 675,131.0**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.26m O.D.	**Rev: FINAL**
	DATE: 29.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.50m	20min	1.40m
2nd:	2.80m	20min	2.50m
3rd:			

PIT DIRECTION: 130-310
PIT DIMENSION: 1.00 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.20	0.06	'TARMAC'.
									MADE GROUND: Clause 804 type material.
			ES 1	0.50-0.60			1.66	0.60	
									MADE GROUND: Orangish brown slightly sandy slightly clayey angular to subangular fine to coarse GRAVEL of shale greywacke and quartz with medium cobble content and low boulder content. Sand is coarse. Cobbles are angular to subangular of shale greywacke and quartz. Boulders are angular to subangular of shale greywacke and quartz. Boulders are up to 300mm in length.
1			ES 2 B 3	1.00-1.10 1.00-1.10					
		1					0.86	1.40	
		1	ES 4	1.40-1.50			0.76	1.50	MADE GROUND: Soft white crystalline SILT as possible gypsum over grass.
									Soft dark greenish orangish grey organic silty CLAY with some rootlets and some reeds. Strong organic odour.
2			VANE	2.30	33mm vane used, 17 kN/m²				
		2	ES 5 B 6	2.50-2.60 2.50-2.60	lump sample				
		2					-0.54	2.80	
									Soft dark brownish grey organic silty CLAY with many wood fragments. Wood is up to 400mm in length. Strong organic odour.
3			B 7	3.50-3.60					
4							-1.74	4.00	
							END		TP terminated at 4.00m bgl on REs instruction.
5									

Remarks: Ingress of water at 1.50m bgl. Ingress of water at 2.80m bgl. Radiation survey monitoring carried out on arisings. Plate test carried out at 0.50m bgl. TP backfilled with arisings.

Scale: 1:27.5

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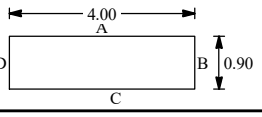
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TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP311**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,794.0 N 675,133.0**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.34m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 12.10.20**

Water strikes: **Rose to after:**
1st: 1.80m 20min 1.79m
2nd: 3.10m 20min 3.09m
3rd:

PIT DIRECTION: 105-285
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.26	0.08	'TARMAC'.
									MADE GROUND: Clause 804 type material with some plastic.
							1.94	0.40	
			ES 1	0.40-0.50					MADE GROUND: Light orangish brown slightly clayey slightly silty angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content and low boulder content. Cobbles are angular to subangular of shale and greywacke. Boulders are angular to subangular of shale and greywacke. Boulders are up to 300mm in length.
1			ES 2 B 3	1.10-1.20 1.10-1.20			1.14	1.20	
									MADE GROUND: Soft damp white clayey SILT. Possible gypsum.
							0.94	1.40	
		1 1							Very soft light greyish greenish brown organic silty CLAY with some rootlets and many wood fragments. Wood is up to 20mm thick.
2			ES 4 B 5	2.10-2.20 2.10-2.20					
							-0.26	2.60	
									Very soft moist grey organic silty CLAY.
			VANE	2.90	33mm vane used, 12 kN/m² in situ				
3		2 2	ES 6 B 7	3.10-3.20 3.10-3.20					
							-1.56	3.90	
			B 8	3.90-4.00			-1.66	4.00	Very soft moist brownish grey silty organic CLAY with many wood fragments. Wood is up to 100mm x 400mm in size.
4						END			TP terminated at 4.00m bgl on REs instruction.
5									

Remarks: Ingress of water at 1.80m bgl. Ingress of water at 3.10m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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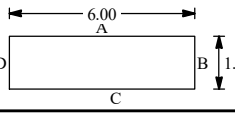
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TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP312**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,785.0 N 675,106.3**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.33m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 28.10.20**

Water strikes: **Rose to after:**
1st: 1.50m 20min 1.05m
2nd:
3rd:

PIT DIRECTION: 150-330
PIT DIMENSION: 1.00 * 6.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.80m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.24	0.09	'TARMAC'.
							2.03	0.30	MADE GROUND: Clause 804 type material.
			ES 1	0.40-0.50			1.78	0.55	MADE GROUND: Light reddish brown sandy angular to subangular fine to coarse GRAVEL. Sand is medium to coarse.
							1.63	0.70	MADE GROUND: Firm crimson red gravelly SILT with low cobble content. Gravel is angular to subangular fine to coarse of shale and greywacke. Cobbles are angular to subangular of shale and greywacke.
			ES 2	0.80-0.90					MADE GROUND: Orangish brown slightly clayey angular to subangular fine to coarse GRAVEL of shale and greywacke and some rebar. Cobbles are angular to subangular of shale and greywacke.
1		▽							
							0.93	1.40	
		▽	ES 3	1.40-1.50			0.83	1.50	MADE GROUND: White crystalline SILT as possible gypsum.
									Soft blackish brownish grey organic silty CLAY with some rootlets and some wood fragments and pockets of subangular to rounded fine gravel. Wood is up to 20mm in length. Strong organic odour to 2.00m bgl. 1.50m to 2.00m: slight hydrocarbon odour.
2			ES 4	2.10-2.20					
			B 5	2.10-2.20					
3			VANE	3.00	33mm vane used 21 kN/m² lump sample				
			ES 6	3.00-3.10					
			B 7	3.00-3.10					
			B 8	3.90-4.00			-1.67	4.00	
4						END			TP terminated at 4.00m bgl on REs instruction.
5									

Remarks: Ingress of water at 1.50m bgl. Radiation survey monitoring carried out on arisings.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

Irish drilling LTD

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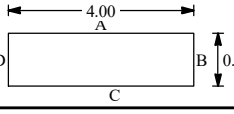
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP313**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,892.9 N 675,033.0**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 1.97m O.D.	**Rev: FINAL**
	DATE: 7.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.30m	20min	0.75m
2nd:	1.40m	20min	0.57m
3rd:			

PIT DIRECTION: 130-310
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.90	0.07	'TARMAC'.
							1.67	0.30	MADE GROUND: Clause 804 type material with medium cobble content and low boulder content. Cobbles are subangular. Boulders are subangular. Boulders are up to 300mm in length.
		2	ES 1	0.40-0.50					MADE GROUND: Moist brown slightly clayey slightly silty angular to subangular fine to coarse GRAVEL of various lithologies with medium cobble content and low boulder content. Cobbles are angular to subangular of various lithologies. Boulders are angular to subangular of various lithologies. Boulders are up to 300mm in length.
			PLATE	0.50					
		1							
1			ES 2	1.10-1.20					
		1	B 3	1.10-1.20					
							0.57	1.40	
									Soft moist grey organic silty CLAY with some rootlets. Organic odour.
			ES 4	1.60-1.70					
2			B 5	1.60-1.70					
							-0.53	2.50	
									Moist grey slightly clayey gravelly coarse SAND with some clayey laminae and some wood. Gravel is subangular to subrounded fine to coarse of quartz shale and greywacke. Wood is up to 15mm thick.
			ES 6	2.70-2.80					
3			B 7	2.70-2.80					
			B 8	3.30-3.40			-1.43	3.40	
									TP terminated at 3.40m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Ingress of water at 1.30m bgl. Ingress of water at 1.40m bgl. Plate test carried out at 0.50m bgl. TP backfilled with arisings.

Scale: 1:27.5

Irish drilling LTD

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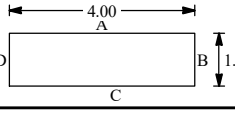
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP314**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,907.1 N 675,051.9**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.16m O.D.	**Rev: FINAL**
	DATE: 29.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.40m	20min	1.20m
2nd:	1.70m	20min	1.10m
3rd:			

PIT DIRECTION: 160-340
PIT DIMENSION: 1.00 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.50m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.09	0.07	'TARMAC'.
							1.94	0.22	MADE GROUND: Clause 804 type material.
			ES 1	0.50-0.60					MADE GROUND: Orangish brown slightly sandy clayey angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content and low boulder content. Cobbles are angular to subangular of shale and greywacke. Boulders are angular to subangular of shale and greywacke. Boulders are up to 400mm in length.
1		2	ES 2	1.10-1.20					
			B 3	1.10-1.20					
		1							
		2					0.46	1.70	
			ES 4	1.80-1.90					Soft dark grey organic silty micaceous CLAY with some rootlets. Organic odour. 1.70m to 2.50m: slight hydrocarbon odour.
2			B 5	1.80-1.90					
							-0.34	2.50	
									Dark bluish grey very sandy subangular to rounded fine to medium GRAVEL of various lithologies with some wood. Sand is coarse. Cobbles are angular to subangular of various lithologies. Boulders are angular to subangular of various lithologies. Boulders are up to 300mm in length. Wood is up to 20 x 300mm in size.
			ES 6	2.90-3.00					
3			B 7	2.90-3.00			-0.84	3.00	
						END			TP terminated at 3.00m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Ingress of water at 1.40m bgl. Ingress of water at 1.70m bgl. Radiation survey monitoring carried out on arisings. TP backfilled with arisings.

Scale: 1:27.5

Irish drilling LTD

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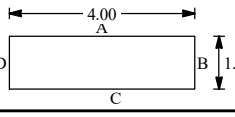
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP315**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,724.8 N 675,174.2**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.53m O.D.	**Rev: FINAL**
	DATE: 29.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.90m		
2nd:	1.30m	20min	0.90m
3rd:			

PIT DIRECTION: 300-120
PIT DIMENSION: 1.00 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.40m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.33	0.20	MADE GROUND: Clause 804 type material.
			ES 1	0.40-0.50					MADE GROUND: Orangish greyish brown slightly clayey angular to subangular fine to coarse GRAVEL of shale greywacke and quartz with medium cobble content and low boulder content. Cobbles are angular to subangular of shale greywacke and quartz. Boulders are angular to subangular of shale greywacke and quartz. Boulders are up to 300mm in length.
		1	ES 2	0.90-1.00			1.63	0.90	
1							1.23	1.30	MADE GROUND: Orangish blackish brown angular to subangular COBBLES of shale greywacke and quartz with low boulder content. Gravel is angular to subangular fine to coarse of shale greywacke and quartz. Boulders are angular to subangular of shale greywacke and quartz. Boulders are up to 300mm in length.
		2	VANE	1.30	33mm vane used 16 kN/m² lump sample				Soft dark grey organic silty micaceous CLAY with some rootlets. Organic odour.
			ES 3	1.50-1.60					
			B 4	1.50-1.60					
2									2.20m to 2.40m: with 200 x 1200mm tree trunk.
							0.13	2.40	
			ES 5	2.50-2.60					Bluish grey very sandy subangular to rounded fine to medium GRAVEL of shale quartz limestone and chert. Sand is coarse.
			B 6	2.50-2.60					
3									
			B 7	3.40-3.50			-0.97	3.50	
						END			TP terminated at 3.50m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Seepage of water at 0.90m bgl. Ingress of water at 1.30m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

Irish drilling LTD

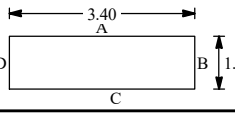
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TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP316**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,936.4 N 675,001.6**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 1.77m O.D.	**Rev: FINAL**
GROUNDWATER	**DATE: 5.10.20**

Water strikes: 1st: 0.50m, Rose to after: 20min 0.45m; 2nd: 1.00m, Rose to after: 20min 0.90m; 3rd:

PIT DIRECTION: 000-180
PIT DIMENSION: 1.20 * 3.40m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.71	0.06	'TARMAC'.
							1.57	0.20	MADE GROUND: Clause 804 type material.
		1	ES 1	0.40-0.50					MADE GROUND: Yellowish brown clayey subrounded to subangular medium GRAVEL with high cobble content. Cobbles are angular to subangular of shale.
		2	B 2	0.80-1.00					
1			ES 3	0.80-1.00					
							0.27	1.50	
			ES 4	1.50-1.60					Soft dark grey organic silty CLAY with many rootlets.
			B 5	1.50-1.60					
			VANE	1.70	33mm vane used 29 kN/m²		-0.03	1.80	
					lump sample				Firm grey organic silty CLAY with some rootlets.
2			B 6	2.00-2.50					
3			B 7	3.00-3.40			-1.63	3.40	
						END			TP terminated at 3.40m bgl. Unable to progress TP due to ingress of water.
4									
5									

Remarks: Ingress of water at 0.50m bgl. Ingress of water at 1.00m bgl. Plate test carried out at 0.50m bgl. Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

Irish drilling LTD

Ph.
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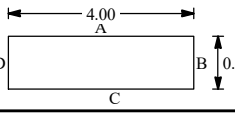
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP317**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,927.2 N 675,070.5**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.14m O.D.	**Rev: FINAL**
	DATE: 6.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.10m	20min	1.05m
2nd:	1.70m	20min	1.80m
3rd:	3.10m	20min	2.65m

PIT DIRECTION: 300-120
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 3.00m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.08	0.06	'TARMAC'.
									MADE GROUND: Clause 804 type material.
							1.74	0.40	
			ES 1	0.40-0.50			1.64	0.50	MADE GROUND: Clause 804 type material with orangish brown very sandy angular to subangular fine to medium GRAVEL of various lithologies.
									MADE GROUND: Grey Clause 804 type material.
							1.34	0.80	
1		1							MADE GROUND: Orangish brown slightly clayey angular to subangular fine to coarse GRAVEL of shale greywacke and quartz with medium cobble content and low boulder content. Cobbles are angular to subangular of shale greywacke and quartz. Boulders are subangular of shale greywacke and quartz. Boulders are up to 300mm in length.
			ES 2	1.40-1.50					
		2					0.44	1.70	
		2							Firm damp dark grey organic silty CLAY with many rootlets.
2			VANE	1.90	19mm vane used 9 kN/m² in situ				
			ES 3	1.90-2.00					
			B 4	1.90-2.00					
							-0.06	2.20	
									Very soft grey organic sandy SILT with some shell fragments and fine laminae of sand and shells. Sand is fine.
		3							
3		3							
			VANE	3.10	33mm vane used 19 kN/m² in situ				
			ES 5	3.10-3.20					
			B 6	3.10-3.20					
							-1.16	3.30	
									Moist grey slightly gravelly silty medium SAND with some wood. Gravel is angular to subangular fine to medium of shale and quartz. Wood is up to 10mm thick.
							-1.36	3.50	
							END		TP terminated at 3.50m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Ingress of water at 1.10m bgl. Ingress of water at 1.70m bgl. Ingress of water at 3.10m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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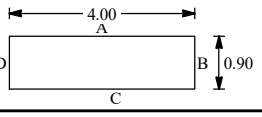
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP318**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,837.1 N 675,046.0**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.02m O.D.	**Rev: FINAL**
	DATE: 7.10.20

GROUNDWATER

Water strikes: 1st: 2.10m Rose to after: 20min 2.05m
2nd:
3rd:

PIT DIRECTION: 120-300
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.96	0.06	'TARMAC'.
							1.70	0.32	MADE GROUND: Clause 804 type material.
			BS 1	0.50-0.60			1.42	0.60	MADE GROUND: Damp light brown slightly clayey slightly silty angular to subangular medium to coarse GRAVEL of shale and greywacke with medium cobble content and low boulder content. Cobbles are angular to subangular of shale and greywacke. Boulders are angular to subangular of shale and greywacke. Boulders are up to 400mm in length.
1			BS 2	0.90-1.00			0.42	1.60	MADE GROUND: Firm damp crimson red slightly gravelly SILT. Gravel is angular to subangular fine to coarse of shale and greywacke.
2		1	VANE BS 3 B 4	2.00 2.00-2.10 2.00-2.10	33mm vane used 15 kN/m² in situ		-1.38	3.40	Very soft moist orangish brownish grey organic silty CLAY with some rootlets. Organic odour.
3			BS 5 B 6	3.50-3.60 3.50-3.60			-2.28	4.30	Soft moist brownish grey silty organic CLAY with some wood. Wood is up to 10mm thick. Strong organic odour.
4						END			TP terminated at 4.30m bgl on REs instruction.
5									

Remarks: Ingress of water at 2.10m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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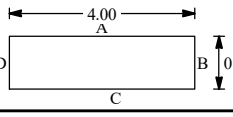
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP319**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,864.1 N 675,020.9**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 1.69m O.D.	**Rev: FINAL**
	DATE: 12.10.20

GROUNDWATER

Water strikes: Rose to after:
1st: 0.90m 20min 0.88m
2nd: 4.20m 20min
3rd:

PIT DIRECTION: 130-310
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.90m to 2.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.62	0.07	'TARMAC'.
							1.47	0.22	MADE GROUND: Clause 804 type material.
			ES 1	0.40-0.50			1.29	0.40	MADE GROUND: Brown slightly clayey slightly sandy angular to subangular fine to coarse GRAVEL of shale and greywacke with low cobble content. Sand is coarse. Cobbles are angular to subangular of shale and greywacke.
		1							MADE GROUND: Firm damp crimson red SILT.
							0.79	0.90	
1			ES 2	1.20-1.30					Very soft moist light greyish greenish brown organic silty CLAY with some rootlets and many wood fragments. Wood is up to 50mm x 20mm in size.
2			ES 3 B 4	2.30-2.40 2.30-2.40					
3			VANE ES 5 B 6	3.40 3.50-3.60 3.50-3.60	33mm vane used 15 kN/m² lump sample				
4		2	B 7	4.10-4.20			-2.41	4.10	
							-2.51	4.20	Soft moist dark greyish brown silty organic CLAY with many wood fragments. Wood is up to 300mm x 50mm in size. Strong organic odour.
						END			TP terminated at 4.20m bgl on REs instruction.
5									

Remarks: Ingress of water at 0.90m bgl. Ingress of water at 4.20m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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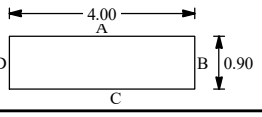
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations		**TRIALPIT: TP320**
LOCATION: Arklow, County Wicklow		**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates:**	**Rig: Hyundai 140LC9**
ENGINEER: ARUP	**E 722,811.2 N 675,050.0**	**Rev: FINAL**
Ground level: 2.02m O.D.		**DATE: 8.10.20**

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.50m	20min	0.36m
2nd:	1.20m	20min	1.02m
3rd:			

PIT DIRECTION: 090-270
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit stable.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.95	0.07	'TARMAC'.
							1.77	0.25	MADE GROUND: Clause 804 type material.
		1	ES 1	0.50-0.60					MADE GROUND: Moist orangish brown slightly clayey slightly sandy angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content and low boulder content and lenses of reddish crimson silt. Sand is coarse. Cobbles are angular to subangular of shale and greywacke. Boulders are subangular of shale and greywacke. Boulders are up to 600mm in length.
1		2	ES 2	1.00-1.10			0.82	1.20	
			VANE	1.50	33mm vane used, 18 kN/m² in situ				Soft moist brownish grey organic silty CLAY with some rootlets mottled with dark brown organic material as wood. Wood is up to 20mm thick. Organic odour.
			ES 3	1.50-1.60					
			B 4	1.50-1.60					
2									
			ES 5	2.50-2.60					
			B 6	2.50-2.60					
3									
4			B 7	4.00-4.10			-2.08	4.10	
						END			TP terminated at 4.10m bgl on REs instruction.
5									

Remarks: Ingress of water at 0.50m bgl. Ingress of water at 1.20m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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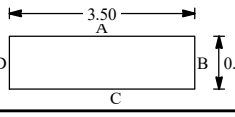
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP321**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,915.1 N 675,042.9**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 2.11m O.D.	**Rev: FINAL**
	DATE: 6.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.00m	20min	0.94m
2nd:	3.20m	20min	2.60m
3rd:			

PIT DIRECTION: 130-310
PIT DIMENSION: 0.90 * 3.50m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 1.60m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.03	0.08	'TARMAC'.
							1.89	0.22	MADE GROUND: Clause 804 type material.
			ES 1	0.40-0.50			1.61	0.50	MADE GROUND: Damp brown slightly clayey sandy angular to subangular fine to coarse GRAVEL of shale greywacke and quartz with medium cobble content and low boulder content. Sand is coarse. Cobbles are angular to subangular of shale greywacke and quartz. Boulders are angular to subangular of shale greywacke and quartz. Boulders are up to 250mm in length.
1		1	ES 2	0.90-1.00					MADE GROUND: Damp orangish brown slightly clayey angular to subangular fine to coarse GRAVEL of shale greywacke and quartz with medium cobble content and low boulder content. Cobbles are angular to subangular of shale greywacke and quartz. Boulders are angular to subangular of shale greywacke and quartz. Boulders are up to 400mm in length.
							0.51	1.60	
			ES 3 B 4	1.60-1.70 1.60-1.70					Soft moist dark grey organic silty CLAY with some rootlets.
2			VANE ES 5 B 6	2.00 2.00-2.10 2.00-2.10	33mm vane used 12 kN/m² in situ				
		2					-0.60	2.70	
									Very soft moist brownish grey organic sandy SILT with some shell fragments and some rootlets. Sand is fine.
3		2	ES 7 B 8	3.00-3.10 3.00-3.10			-1.10	3.20	
									Soft moist dark brown organic silty CLAY with some rootlets and some wood. Wood is up to 30mm thick.
			B 9	3.90-4.00			-1.90	4.00	
4							**END**		TP terminated at 4.00m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
5									

Remarks: Ingress of water at 1.00m bgl. Ingress of water at 3.20m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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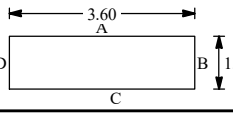
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP322**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates:** E 722,974.9 N 675,022.3 — **Rig: Hyundai 140LC9**
ENGINEER: ARUP	**Rev: FINAL**
Ground level: 1.94m O.D.	**DATE: 5.10.20**

GROUNDWATER

Water strikes: 1st: 2.70m Rose to after: 20min 2.20m
2nd:
3rd:

PIT DIRECTION: 090-270
PIT DIMENSION: 1.20 * 3.60m
LOGGED BY: DK



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.70m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.84	0.10	'TARMAC'.
							1.64	0.30	MADE GROUND: Clause 804 type material.
			HS 1	0.40-0.50					MADE GROUND: Dark grey and black silty CLAY with fragments of timber concrete and metal. 0.30m to 1.70m: strong hydrocarbon odour.
			HS 2	0.60-0.70					
1			HS 3	1.00-1.10					
			HS 4	1.60-1.70			0.24	1.70	
		1	B 5	2.00-2.50					Soft brown organic SILT with some roots and rootlets.
2		1	B 6	2.70-2.80			-0.76	2.70	
			HS 7	2.70-2.80			-0.96	2.90	Grey coarse SAND and subrounded to subangular fine to coarse GRAVEL of various lithologies.
						END			TP terminated at 2.90m bgl. Unable to keep TP open - sidewall collapse.
3									
4									
5									

Remarks: Ingress of water at 2.70m bgl. Plate tests carried out at 0.50m bgl.
TP backfilled with arisings.

Scale: 1:27.5

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TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations
LOCATION: Arklow, County Wicklow

TRIALPIT: TP323
Sheet 1 of 1

CLIENT: Sure Partners Limited
ENGINEER: ARUP

Co-ordinates: E 722,893.7 N 675,070.6

Rig: Hyundai 140LC9
Rev: FINAL

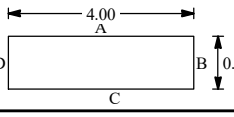
Ground level: 2.02m O.D.

DATE: 6.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	1.35m	20min	0.22m
2nd:	1.50m	20min	0.85m
3rd:			

PIT DIRECTION: 130-310
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.95	0.07	'TARMAC'.
		1					1.77	0.25	MADE GROUND: Clause 804 type material.
			ES 1	0.40-0.50					MADE GROUND: Damp orangish brown slightly clayey silty angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content. Cobbles are angular to subangular of shale and greywacke.
		2					1.12	0.90	
1									MADE GROUND: Moist greyish brown slightly clayey angular to subangular fine to coarse GRAVEL of shale and greywacke with high cobble content. Cobbles are angular to subangular of shale and greywacke.
		1	ES 2	1.40-1.50			0.52	1.50	
		2	B 3	1.40-1.50					
									Soft moist dark grey organic silty CLAY with many rootlets.
2			ES 4	2.00-2.10					
			B 5	2.00-2.10			-0.28	2.30	
									Moist grey sandy subangular to subrounded fine to medium GRAVEL of shale quartz and greywacke. Sand is coarse.
			ES 6	2.50-2.60			-0.58	2.60	
			B 7	2.50-2.60					
						END			TP terminated at 2.60m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
3									
4									
5									

Remarks: Ingress of water at 1.35m bgl. Ingress of water at 1.50m bgl.
Plate test carried out at 0.50m bgl.TP backfilled with arisings.

Scale: 1:27.5

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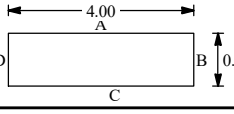
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations	**TRIALPIT: TP324**
LOCATION: Arklow, County Wicklow	**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates: E 722,865.1 N 675,071.1**
ENGINEER: ARUP	**Rig: Hyundai 140LC9**
Ground level: 1.98m O.D.	**Rev: FINAL**
	DATE: 6.10.20

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.50m	20min	0.47m
2nd:	1.50m	20min	1.20m
3rd:			

PIT DIRECTION: 010-190
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 2.20m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							1.93	0.05	'TARMAC'.
									MADE GROUND: Clause 804 type material.
							1.68	0.30	
		1	ES 1	0.50-0.60			1.48	0.50	MADE GROUND: Damp brown slightly clayey silty angular to subangular fine to coarse GRAVEL of shale greywacke and quartz with low cobble content. Cobbles are angular to subangular of shale greywacke and quartz.
									MADE GROUND: Damp red crimson slightly gravelly SILT. Gravel is angular to subangular fine to coarse of shale greywacke and quartz. 0.50m to 1.50m: slight hydrocarbon odour.
1		2	ES 2	1.10-1.20					
							0.48	1.50	
									Very soft moist grey organic silty CLAY with some rootlets.
			VANE	1.80	33mm vane used, 26 kN/m² in situ				
2			ES 3	2.00-2.10					
			B 4	2.00-2.10			-0.22	2.20	
									Moist grey very sandy subangular to subrounded fine GRAVEL of shale greywacke and quartz. Sand is coarse.
			B 5	2.80-2.90			-0.92	2.90	
3						END			TP terminated at 2.90m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Ingress of water at 0.50m bgl. Ingress of water at 1.50m bgl.
Shear vanes carried out on trial pit arisings (irregular lump samples). TP backfilled with arisings.

Scale: 1:27.5

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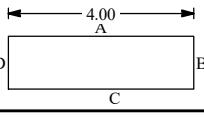
TRIAL PIT VANE & WL RISES ARKLOW BANK TPS SUBSTATION ALL FILE DEC 11 2020.GPJ IRISHDRL.GDT 13/1/21

PROJECT: Arklow Bank Wind Park-Substation Site Investigations		**TRIALPIT: TP325**
LOCATION: Arklow, County Wicklow		**Sheet 1 of 1**
CLIENT: Sure Partners Limited	**Co-ordinates:**	**Rig: Hyundai 140LC9**
ENGINEER: ARUP	**E 722,839.2 N 675,072.0**	**Rev: FINAL**
Ground level: 2.22m O.D.		**DATE: 8.10.20**

GROUNDWATER

Water strikes:		Rose to after:	
1st:	0.90m	20min	0.89m
2nd:	2.30m	20min	1.90m
3rd:			

PIT DIRECTION: 130-310
PIT DIMENSION: 0.90 * 4.00m
LOGGED BY: PC



Shoring/Support: N/A
Stability: Pit unstable. Sidewall collapse from 0.90m to 1.40m bgl and from 2.30m bgl.

Depth (m)	Date	Water	Samples	Depth (m)	In-situ Vane Tests	LEGEND	Elevation m O.D.	Depth (m)	DESCRIPTION
0							2.15	0.07	'TARMAC'.
							1.92	0.30	MADE GROUND: Clause 804 type material with medium cobble content. Cobbles are angular.
			ES 1	0.40-0.50			1.62	0.60	MADE GROUND: Orangish brown slightly clayey slightly silty angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content. Cobbles are angular to subangular of shale and greywacke.
		1	ES 2	0.90-1.00			1.32	0.90	MADE GROUND: Orangish brown slightly clayey slightly silty angular to subangular fine to coarse GRAVEL of shale and greywacke with medium cobble content and medium boulder content. Cobbles are angular to subangular of shale and greywacke. Boulders are subangular of shale and greywacke. Boulders are up to 300mm in length.
1							0.82	1.40	MADE GROUND: Soft damp crimson red SILT.
			ES 3 B 4	1.70-1.80 1.70-1.80					Soft moist brownish grey organic silty CLAY. Organic odour.
2		2					-0.09	2.30	
		2							Moist grey very sandy subangular to subrounded fine GRAVEL of shale quartz and greywacke with some wood. Sand is coarse. Wood is up to 20mm thick.
			B 5 ES 6	2.80-2.90 2.80-2.90			-0.69	2.90	
3						END			TP terminated at 2.90m bgl. Unable to keep TP open - sidewall collapse and ingress of water.
4									
5									

Remarks: Ingress of water at 0.90m bgl. Ingress of water at 2.30m bgl. TP backfilled with arisings.

Scale: 1:27.5

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R DR D	Contract:	ABWP - Substation Site Investigation		
Loughrea Co. Galway	Client:	SPL		
	Engineer:	ARUP		
Tel: (091) 841274	Date:	09/10/2020		
Lab@IrishDrilling.ie	Tested by:	Dkiv	Checked:	DCD

ear n e 1 ar 1 0

Plate diameter (mm) 450

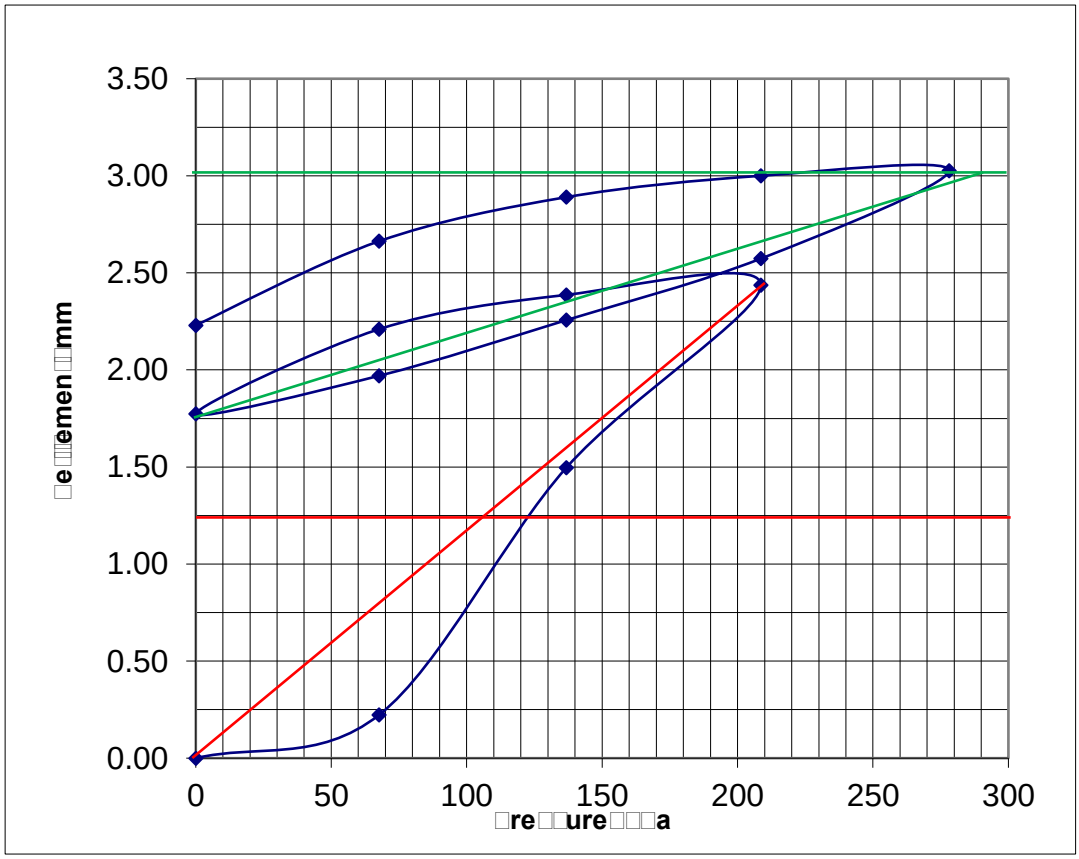
Pump C

Test Location Number: TP303 Depth / Level: 0.5m bgl

Description: Made Ground

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
67.7	0.22
136.8	1.50
208.6	2.44
136.8	2.39
67.7	2.21
0	1.77
67.7	1.97
136.8	2.26
208.6	2.57
278.1	3.03
208.6	3.00
136.8	2.89
67.7	2.66
0	2.23



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
105	(p) Pressure kN/m^2	290
84.00	Gradient (p/y)	232.00
0.643	Correction factor (to 762mm plate)	0.643
54.01	(k_s) Modulus of subgrade reaction kPa/mm	149.18
9.7	Approximate CBR (%)	56.6

Approximation of CBR from HD 25/94
Design Manual for Roads and Bridges.

R DR D	Contract:	ABWP - Substation Site Investigation		
Loughrea Co. Galway	Client:	SPL		
	Engineer:	ARUP		
Tel: (091) 841274	Date:	08/10/2020		
Lab@IrishDrilling.ie	Tested by:	Dkiv	Checked:	DCD

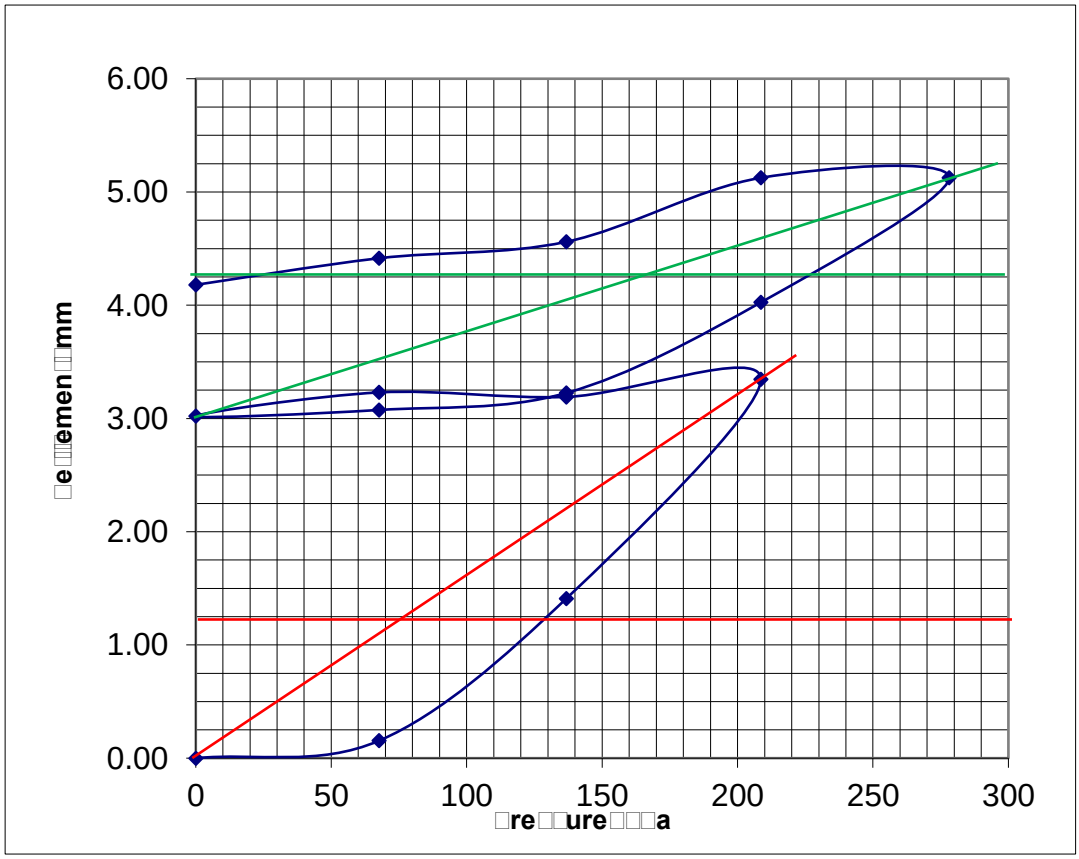
ear n e 1 ar 1 0 Plate diameter (mm) 450

Pump C

Test Location Number:	TP306	Depth / Level:	0.5m bgl
Description:	Made Ground		

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
67.7	0.15
136.8	1.41
208.6	3.35
136.8	3.19
67.7	3.23
0	3.02
67.7	3.08
136.8	3.23
208.6	4.03
278.1	5.13
208.6	5.13
136.8	4.56
67.7	4.42
0	4.18



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
75	(p) Pressure kN/m^2	165
60.00	Gradient (p/y)	132.00
0.643	Correction factor (to 762mm plate)	0.643
38.58	(k_s) Modulus of subgrade reaction kPa/mm	84.88
5.4	Approximate CBR (%)	21.3

Approximation of CBR from HD 25/94
Design Manual for Roads and Bridges.

R DR D
Loughrea Co. Galway

Tel: (091) 841274
Lab@IrishDrilling.ie

Contract:	ABWP - Substation Site Investigation		
Client:	SPL		
Engineer:	ARUP		
Date:	19/10/2020		
Tested by:	Dkiv	Checked:	DCD

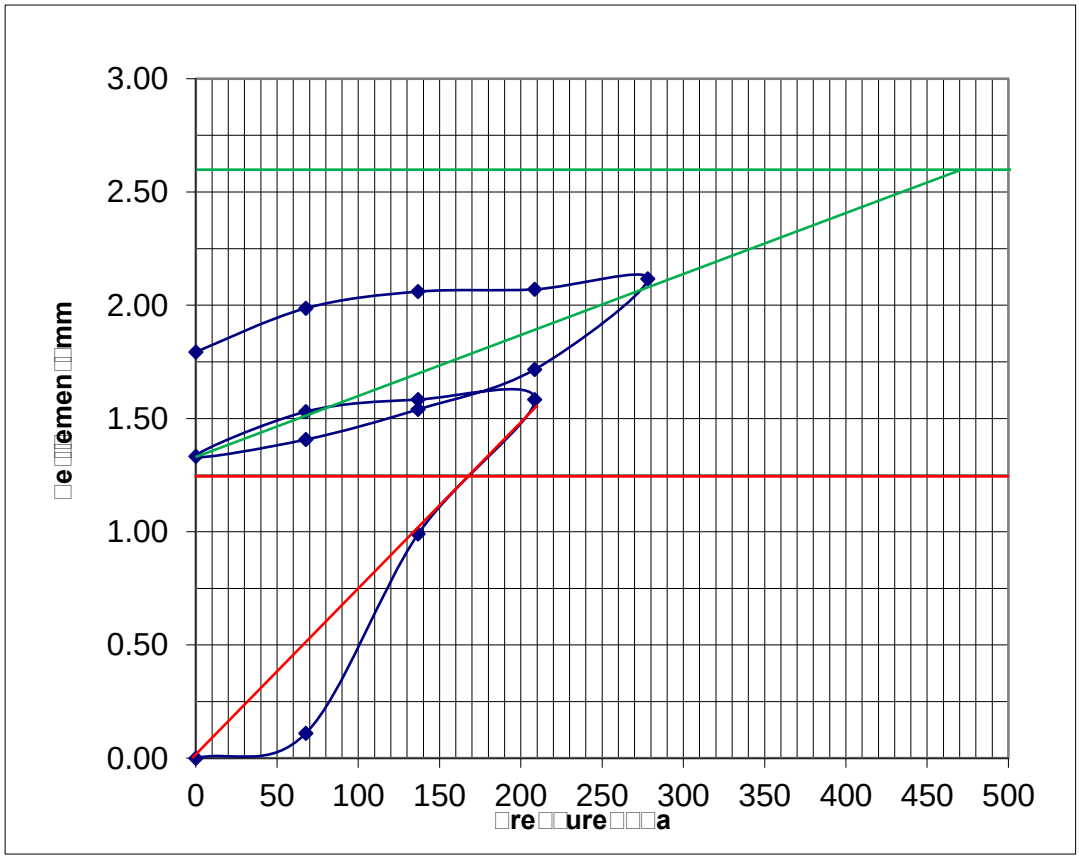
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Plate diameter (mm) 450
Pump C

Test Location Number:	TP310	Depth / Level:	0.5m bgl
Description:	Made Ground		

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
67.7	0.11
136.8	0.99
208.6	1.58
136.8	1.58
67.7	1.53
0	1.33
67.7	1.41
136.8	1.54
208.6	1.72
278.1	2.12
208.6	2.07
136.8	2.06
67.7	1.99
0	1.79



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
170	(p) Pressure kN/m^2	470
136.00	Gradient (p/y)	376.00
0.643	Correction factor (to 762mm plate)	0.643
87.45	(k_s) Modulus of subgrade reaction kPa/mm	241.77
22.4	Approximate CBR (%)	130.7

Approximation of CBR from HD 25/94
Design Manual for Roads and Bridges.

R DR D	Contract: ABWP - Substation Site Investigation
Loughrea Co. Galway	Client: SPL
	Engineer: ARUP
Tel: (091) 841274	Date: 07/10/2020
Lab@IrishDrilling.ie	Tested by: Dkiv Checked: DCD

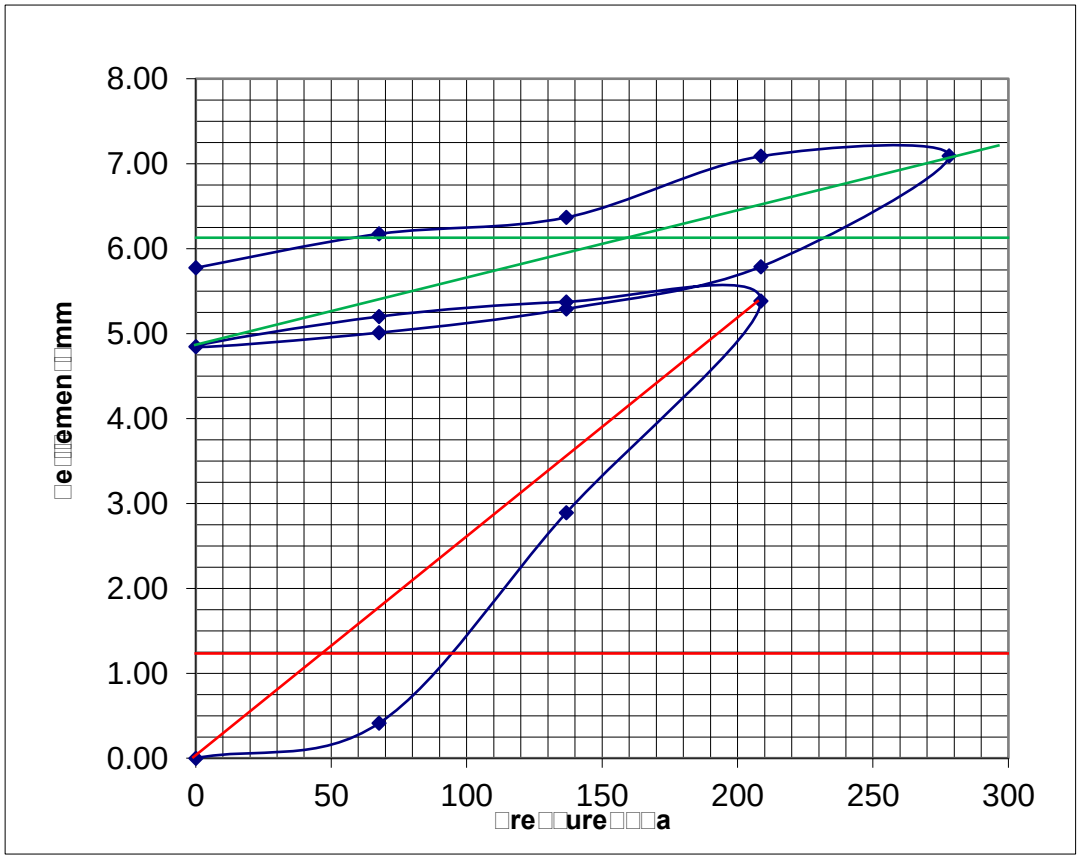
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Plate diameter (mm) 450
Pump C

Test Location Number: TP313 Depth / Level: 0.5m bgl
Description: Made Ground

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
67.7	0.41
136.8	2.89
208.6	5.38
136.8	5.37
67.7	5.20
0	4.85
67.7	5.01
136.8	5.29
208.6	5.79
278.1	7.09
208.6	7.09
136.8	6.37
67.7	6.17
0	5.77



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
45	(p) Pressure kN/m^2	160
36.00	Gradient (p/y)	128.00
0.643	Correction factor (to 762mm plate)	0.643
23.15	(k_s) Modulus of subgrade reaction kPa/mm	82.30
2.2	Approximate CBR (%)	20.2

Approximation of CBR from HD 25/94
Design Manual for Roads and Bridges.

R DR D
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Tel: (091) 841274
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Contract:	ABWP - Substation Site Investigation		
Client:	SPL		
Engineer:	ARUP		
Date:	19/10/2020		
Tested by:	Dkiv	Checked:	DCD

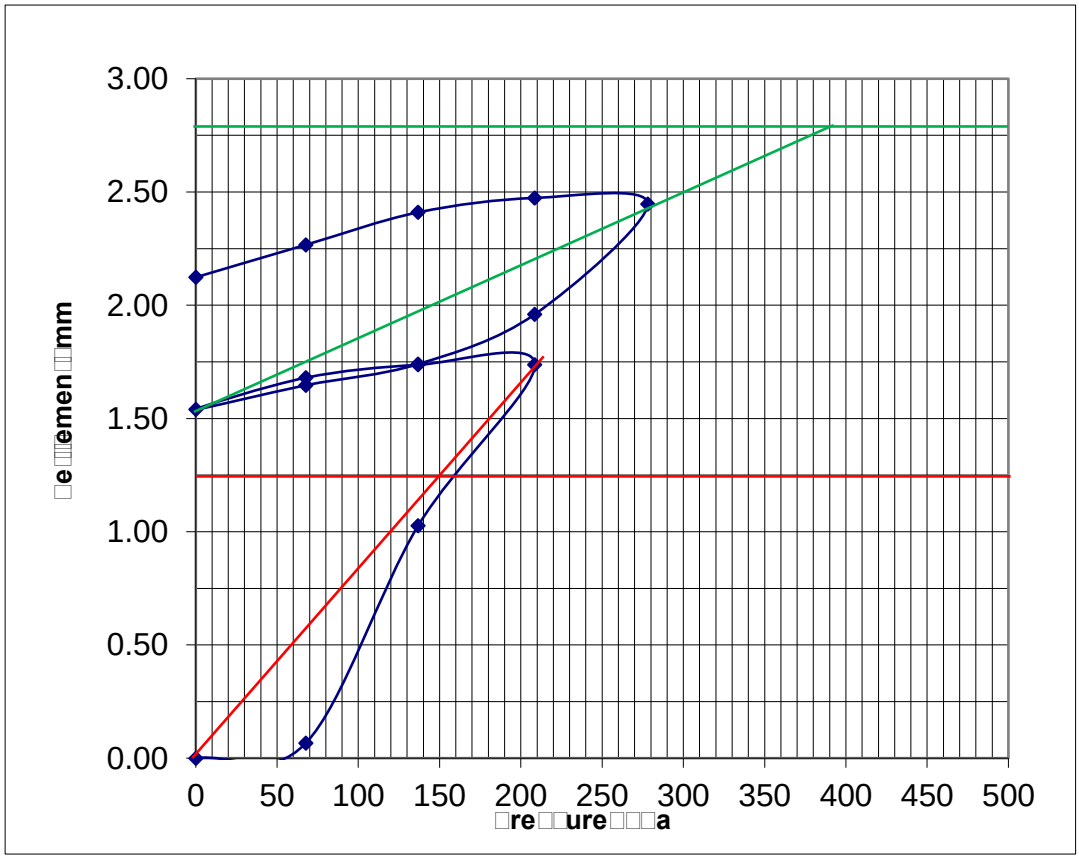
Plate Bearing Test to IS EN 1997-2:2007

Plate diameter (mm) 450
Pump C

Test Location Number:	TP316	Depth / Level:	0.5m bgl
Description:	Made Ground		

PLATE TEST

Pressure kN/m²	Settlement mm
0	0.00
67.7	0.07
136.8	1.03
208.6	1.74
136.8	1.74
67.7	1.68
0	1.54
67.7	1.65
136.8	1.74
208.6	1.96
278.1	2.45
208.6	2.47
136.8	2.41
67.7	2.27
0	2.12



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
150	(p) Pressure kN/m²	390
120.00	Gradient (p/y)	312.00
0.643	Correction factor (to 762mm plate)	0.643
77.16	(k_s) Modulus of subgrade reaction kPa/mm	200.62
18.1	Approximate CBR (%)	94.6

Approximation of CBR from HD 25/94
Design Manual for Roads and Bridges.

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Loughrea Co. Galway

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Contract:	ABWP - Substation Site Investigation		
Client:	SPL		
Engineer:	ARUP		
Date:	19/10/2020		
Tested by:	Dkiv	Checked:	DCD

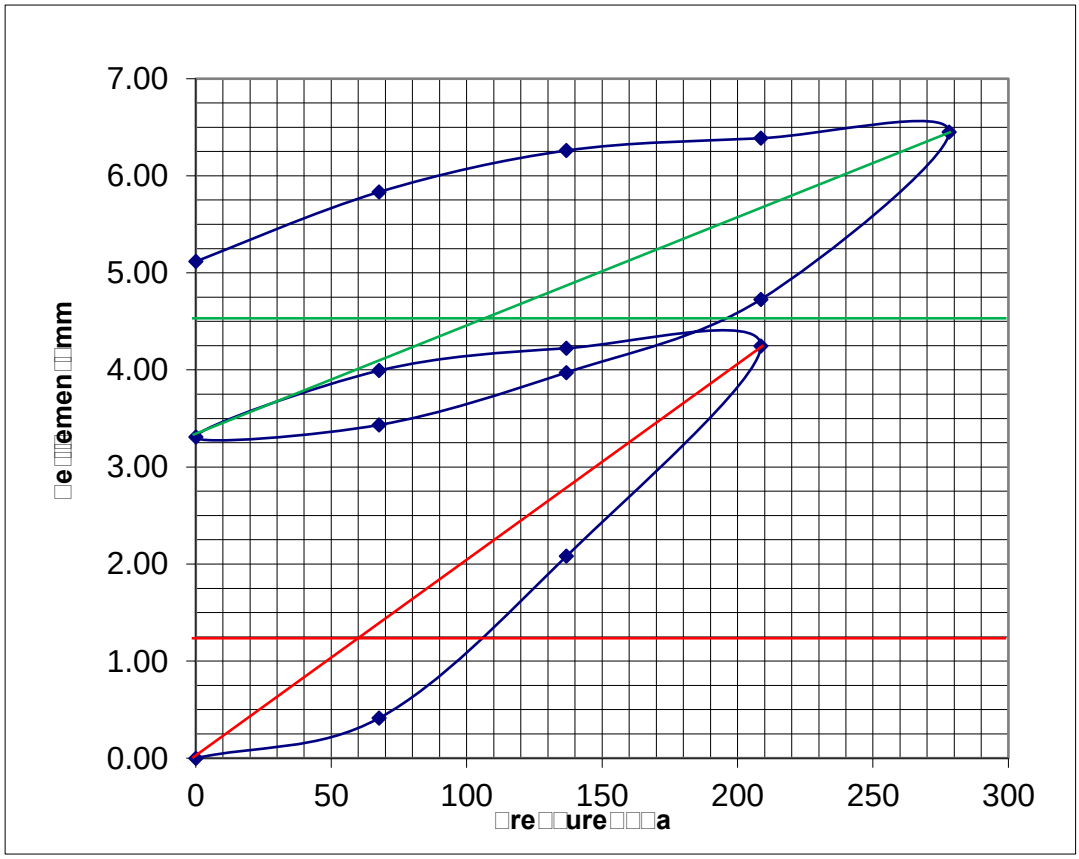
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Plate diameter (mm) 450
Pump C

Test Location Number:	TP322	Depth / Level:	0.5m bgl
Description:	Made Ground		

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
67.7	0.41
136.8	2.08
208.6	4.25
136.8	4.22
67.7	3.99
0	3.31
67.7	3.43
136.8	3.97
208.6	4.73
278.1	6.45
208.6	6.39
136.8	6.26
67.7	5.83
0	5.12



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
60	(p) Pressure kN/m^2	105
48.00	Gradient (p/y)	84.00
0.643	Correction factor (to 762mm plate)	0.643
30.86	(k_s) Modulus of subgrade reaction kPa/mm	54.01
3.7	Approximate CBR (%)	9.7

Approximation of CBR from HD 25/94
Design Manual for Roads and Bridges.

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Loughrea Co. Galway

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Lab@IrishDrilling.ie

Contract:	ABWP - Substation Site Investigation		
Client:	SPL		
Engineer:	ARUP		
Date:	19/10/2020		
Tested by:	Dkiv	Checked:	DCD

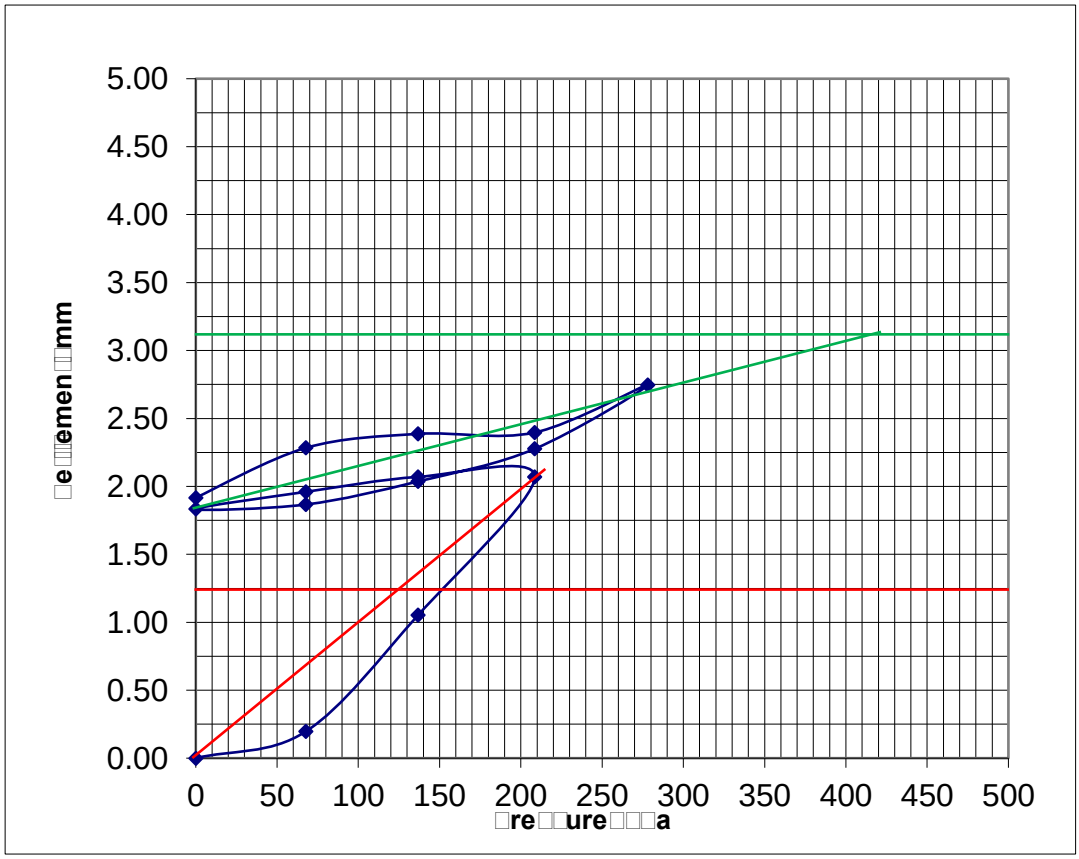
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Plate diameter (mm) 450
Pump C

Test Location Number:	TP323	Depth / Level:	0.5m bgl
Description:	Made Ground		

PLATE TEST

Pressure kN/m^2	Settlement mm
0	0.00
67.7	0.20
136.8	1.05
208.6	2.07
136.8	2.07
67.7	1.96
0	1.83
67.7	1.87
136.8	2.04
208.6	2.28
278.1	2.75
208.6	2.40
136.8	2.39
67.7	2.28
0	1.92



Pressures to give 1.25mm settlement

Cycle 1		Cycle 2
1.25	(y) Settlement mm	1.25
125	(p) Pressure kN/m^2	420
100.00	Gradient (p/y)	336.00
0.643	Correction factor (to 762mm plate)	0.643
64.30	(k_s) Modulus of subgrade reaction kPa/mm	216.05
13.2	Approximate CBR (%)	107.6

Approximation of CBR from HD 25/94
Design Manual for Roads and Bridges.

Amendments to Previously Recorded

IRISH DRILLING LTD. Loughrea Co. Galway Tel: (091) 841274 Fax: (091) 880861	Project: Arklow Bank Wind Park - Onshore Ground Investigations Client: Sure Partners Ltd Location: Substation Site Investigations Date: 02/12/2020		Sheet No. 1 Checked: RK

Soil Resistivity Survey

Date	Location	Orientation	Spacing	Reading in Ohms	Notes
03.11.2020	SR01	N/S	1.0m	5.5	C1 electrode located at north end
			2.0m	2.5	
			3.0m	1.5	
					Ground surface too hard to complete
					second orientation.

Appendix D
Groundwater Readings

R DR D
Loughrea Co. Galway

Tel: (091) 841274 Fax: (091) 880861

r e	Arklow Bank Wind Park - Substation Site Investigations
en	SPL
a n	Arklow,County Wicklow
Da e	######## Sheet No. 1
	Checked: RK

a er e e n and e

Da e	a n	De m	Redu ed e e m D	mmen	Remar
1 11 2020	BH301	0.58m	1.62	before purge	
		0.97m	1.23	after purge	50mm standpipe, Rotary Core Borehole
	BH302	0.46m	1.54	before purge	
		0.63m	1.37	after purge	50mm standpipe, Rotary Core Borehole
	BH303	0.35m	1.49	before purge	
		0.35m	1.49	after purge bh regenerating very fast	50mm standpipe, Rotary Core Borehole
	BH304	GL	1.49	before purge	
		GL	1.49	after purge bh regenerating very fast	50mm standpipe, Rotary Core Borehole
	BH305	9.60m	4.83	before purge	
		10.87m	3.56	after purge	50mm standpipe, Rotary Core Borehole
2 11 2020	BH301	0.90m	1.30		
	BH302	0.75m	1.25		
	BH303	0.63m	1.21		
	BH304	0.40m	1.09		
	BH305	9.95m	4.48		

Remar
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Radiation Safety Ireland

www.radiationsafety.ie

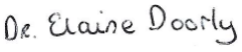
Radiation survey for Drinan Limited

Catherine Keyes
Archaeological Consultant

October 2020
Amended January 2021

D□□umen□Re□□rd

□□□e	Radiological Survey for Irish Drilling Limited
□□en□	Irish Drilling Limited Old, Galway Rd, Pollroebuck, Loughrea, Co. Galway
□□n□den□a□y□ □□□yr□□□ and re□r□du□□□n	This document has been prepared by Radiation Safety Ireland in accordance with a contract to supply goods and/or services and is submitted solely for the use of the authorised recipient.
Re□□r□□r□□ded □y	Dr Elaine Doorly, BSc, MSc, Phd, CRadP, Chartered Radiation Protection Professional and Approved Radiation Protection Adviser by the Environmental Protection Agency in the Republic of Ireland Business Name: Radiation Safety Ireland Mobile: 087 264 4107 E-mail: elaine@radiationsafety.ie Web site: www.radiationsafety.ie

	□ame	**□□na□ure**	**Da□e**
Au□□□r	Mr. Eoin O' Scannail Radiation Health Physicist		30th October 2020
Re□e□ed and A□□r□□ed □y	Dr. Elaine Doorly Radiation Protection Advisor		2nd November 2020

1.0 Introduction

Following a request from Irish Drilling Limited, Radiation Safety Ireland was engaged to assist a geotechnical survey of land located near a former fertiliser production facility located in Arklow, Co. Wicklow.
The land in question was suspected to possibly contain waste phosphogypsum. Phosphogypsum contains naturally occurring radioactive material (NORM) in the form of uranium and thorium and their associated daughter products.

NORM results from the enhancement or concentration of naturally occurring terrestrial radionuclides, in particular:

- Natural radionuclides from the U-238 series

and

- Natural radionuclides from the Th-232 series

The radionuclides of relevance are shown in Figures 1 and 2 below in the decay chains for U238 and Th232.

Fig 1: Uranium 238 and its decay products

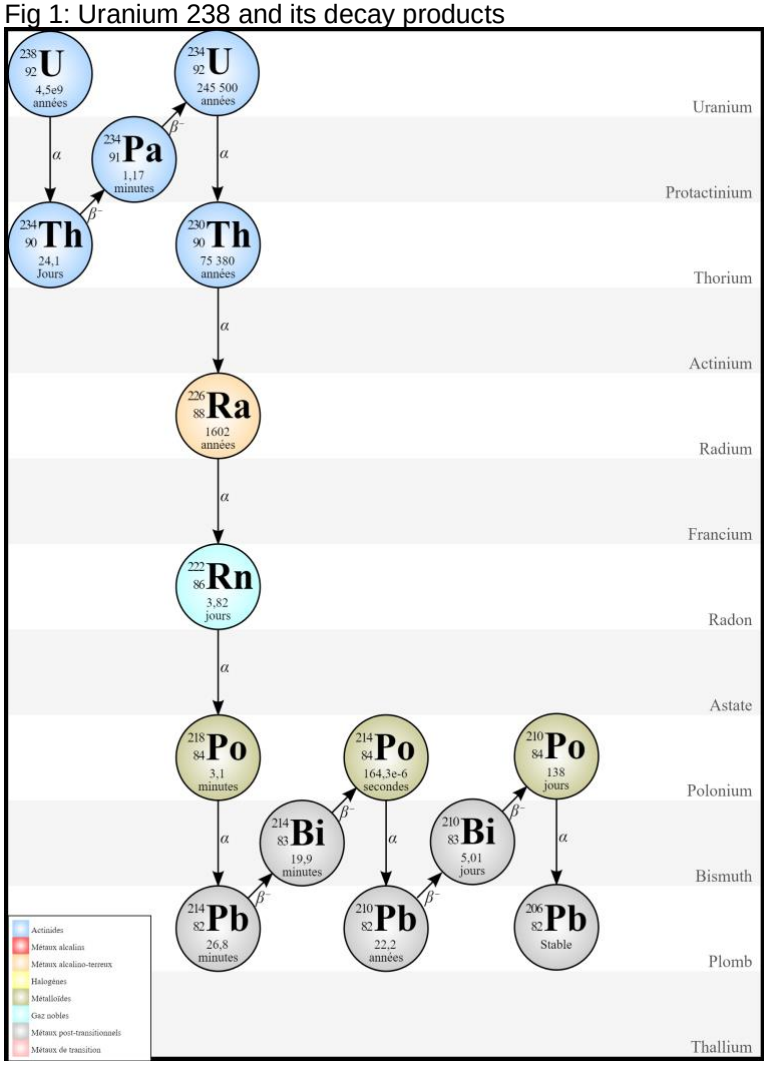
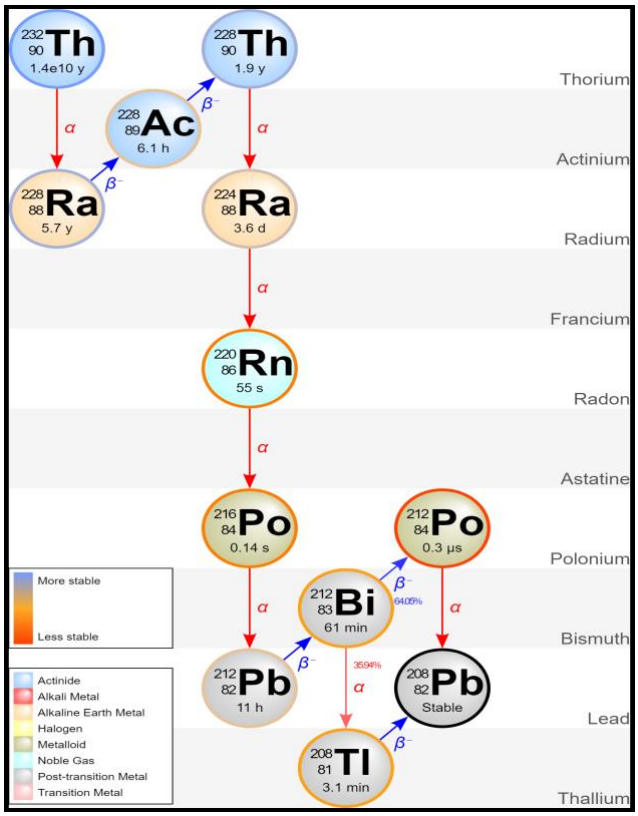


Fig 2: Thorium 232 and its decay products



There are three types of radiation emitted by these radionuclides:

- Gamma Rays (e.g. Ra 226, Pb 210)
- Beta Particles (e.g. Ra 228, Pb 210, Bi 210) and
- Alpha Particles (e.g. Ra 226, Po 210, Pb 210)

Ionising radiation may pose an external or internal hazard depending on the type of radiation involved. Gamma Rays and Beta Particles can be an external and / or internal radiation hazard and Alpha Particles may be an internal hazard if ingested, inhaled or absorbed through the skin.

A radiological survey was required to identify any radiologically significant contamination as a result of historic use of the site in Arklow and to determine if there was any risk of any significant radiation dose being received by anyone working on the site or in handling soil or excavated samples.

Irish Drilling Limited were on site carrying out a geotechnical survey to investigate subsurface conditions of the site. Trenches were excavated in various locations around the site and geotechnical engineers took soil samples and detailed the soil stratum.

Radiation Safety Ireland were engaged to undertake a radiological survey of the materials being excavated.

Radiation Safety Ireland attended the site from 28th to 29th October 2020 to conduct this radiological survey. This report outlines the details and findings of the assessment.

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Company: Ballyraine Lower
Arklow, Co Wicklow

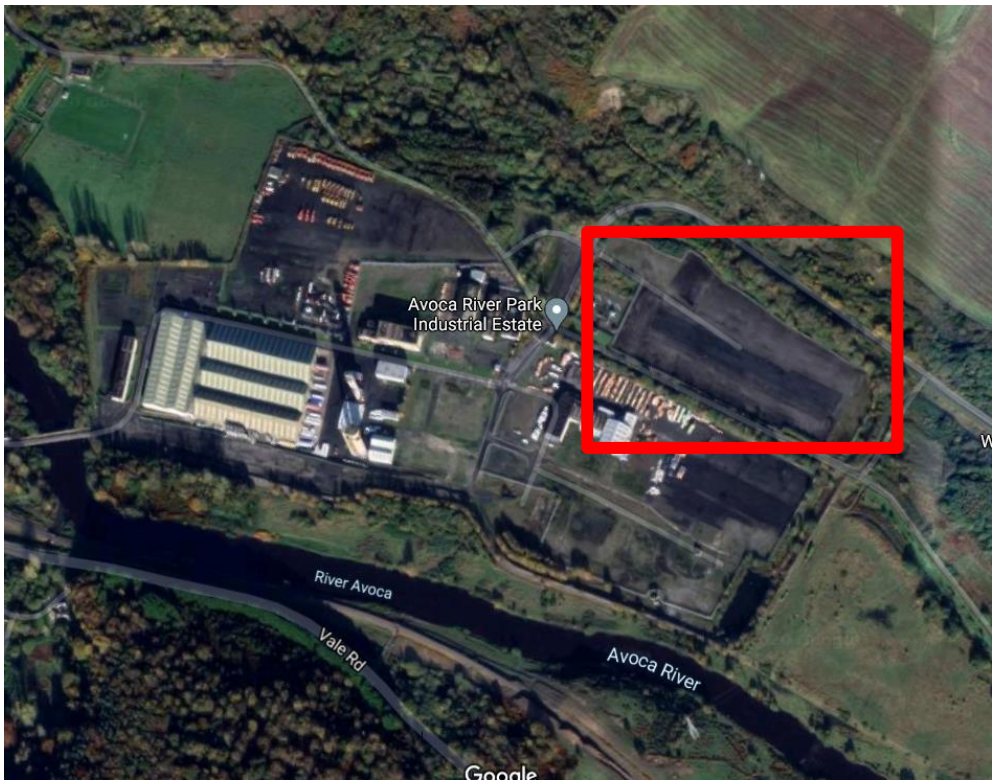


Fig 3 - Location of the site where the radiological survey took place

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A total of seven trenches were excavated and all of the excavated materials were monitored for radioactive contaminants. Each trench was given an identification number, TP301, TP302, TP312, TP304, TP314, TP310 and TP315.

A completed trench was approximately 5m long and 4m in depth (Fig 4). During the excavation process, works would stop every 0.5m – 1m into the trench to allow for monitoring and investigation works. There were typically five stops during each excavation process.



Fig 4 – Excavated trench (TP310)

A radiological survey was carried out over each soil heap (Fig 9) as it was removed from the trench.

Ambient dose equivalent rate measurements (µSv/hr) were performed using a Thermo Scientific RadEye G20-10 monitor at the surface of the excavated materials (Fig 5).
Contamination measurements (counts per second (cps)) were performed using a Ludlum Model 26-1 meter at the surface of the excavated materials (Fig 6).

The results from the surveys were recorded. If an elevated radiation level was detected a soil sample was taken from the soil heap in case further analysis was required by the client.

All trenches were refilled and monitored before leaving the area.

Results of the survey are discussed in Section 5.0.



Fig 5 Thermo Scientific Rad Eye G20-10 meter



Fig 6 Ludlum Model 26-1 meter

□0 Rad□a□□n m□n□□r□n□ e□u□□men□

The following calibrated radiation monitors were used to perform radiation measurements:

(i) Rad Eye G20-10, Serial No. 30546, Calibrated on 28/08/2020
(ii) Ludlum Model 26-1, Serial Number PF012725, Calibrated 31/01/2020
Calibration certificates are attached to this report.

The Thermo Rad Eye G20-10 hand held radiation dose rate meter was used to assess the radiation dose rate on site. It provides results in microsieverts per hour (µSv/hr). Results of dose rate monitoring provide information on any radiation dose that workers on site might receive in handling soil samples or from undertaking work on site.
The Ludlum 26-1 Contamination monitor will test for elevated levels of radioactivity in soil / ground samples / surfaces. It tests for alpha, beta and gamma radiation in counts per second (cps). If phosphogypsum or NORM is present it will have elevated levels of Uranium 238 and Th 232 and their daughter products which emit alpha particles, beta particles and gamma rays which would be detected by this monitor.

□0 Re□u□□

□1 □a□□□r□und Rad□a□□n □e□e□□

Background dose rate measurements were conducted at two locations, one on site near the site compound and one off-site, the purpose of which was to establish typical natural ambient dose rates for the local area.
The off-site background location was selected based on exclusivity from any developed areas and is considered the best representation available of the localised natural background radiation levels.

Background Dose Rates Day 1 - RadEye G20-10			
On-Site		Off-Site	
1	0.12 µSv/hr	1	0.09 µSv/hr
2	0.13 µSv/hr	2	0.10 µSv/hr
3	0.16 µSv/hr	3	0.09 µSv/hr
4	0.09 µSv/hr	4	0.11µSv/hr
5	0.10 µSv/hr	5	0.11 µSv/hr
A□era□e	**0□12 □□□□r**	**A□era□e**	**0□10 □□□□r**

Table 1 – Background Dose Rates Day 1 - RadEye G20-10

Background Counts Per Second Day 1 - Ludlum Model 26-1			
On-Site		Off-Site	
1	1.4 cps	1	0.8 cps
2	1.6 cps	2	1.0 cps
3	1.7 cps	3	1.4 cps
4	0.9 cps	4	0.9 cps
5	1.3 cps	5	1.1 cps
A□era□e	**1□□ □□□**	**A□era□e**	**1 □□□**

Table 2 - Background Dose Rates Day 1 - Ludlum Model 26-1

Background Dose Rates Day 2 - RadEye G20-10			
On-Site		Off-Site	
1	0.16 µSv/hr	1	0.11 µSv/hr
2	0.09 µSv/hr	2	0.12 µSv/hr
3	0.13 µSv/hr	3	0.13 µSv/hr
4	0.17µSv/hr	4	0.11µSv/hr
5	0.11 µSv/hr	5	0.10 µSv/hr
A□era□e	**0□1□ □□□□r**	**A□era□e**	**0□11 □□□□r**

Table 3 - Background Dose Rates Day 2 - RadEye G20-10

Background Counts Per Second Day 2 - Ludlum Model 26-1			
On-Site		Off-Site	
1	1.3 cps	1	0.5 cps
2	1.7 cps	2	1.2 cps
3	1.4 cps	3	1.0 cps
4	1.9 cps	4	0.9 cps
5	1.0 cps	5	1.3 cps
A□era□e	**1□□ □□□**	**A□era□e**	**1 □□□**

Table 4 - Background Dose Rates Day 2 - Ludlum Model 26-1

□2 D□□e ra□e □ur□ey

The measurements presented in the table below are not background corrected. Elevated results are highlighted in red.

TP 301	***Dose Rate (µSv·h^{-1})***			***Counts Per Second (cps)***		
	Average	***Min***	***Max***	***Average***	***Min***	***Max***
Soil Heap 1	0.12	0.09	0.13	1.2	0.8	1.4
Soil Heap 2	0.11	0.10	0.11	1.1	0.5	1.3
Soil Heap 3	0.10	0.09	0.13	2.7	2.1	3.4
Soil Heap 4	0.11	0.11	0.12	1.0	0.5	1.2
Soil Heap 5	0.11	0.11	0.11	1.3	0.9	1.6
TP 302	***Dose Rate (µSv·h^{-1})***			***Counts Per Second (cps)***		
	Average	***Min***	***Max***	***Average***	***Min***	***Max***
Soil Heap 1	0.13	0.11	0.18	2.6	1.9	3.0
Soil Heap 2	0.11	0.10	0.12	1.0	0.8	1.2
Soil Heap 3	0.12	0.10	0.13	1.2	0.5	1.9
Soil Heap 4	0.12	0.11	0.12	1.2	0.8	1.7
Soil Heap 5	0.11	0.11	0.12	1.2	0.8	1.6

TP 312	Dose Rate (µSv·h^{-1})			Counts Per Second (cps)		
	Average	Min	Max	Average	Min	Max
Soil Heap 1	0.14	0.11	0.15	1.2	0.5	1.8
Soil Heap 2	0.11	0.09	0.11	1.4	0.8	2.0
Soil Heap 3	0.10	0.09	0.13	2.3	1.6	2.9
Soil Heap 4	0.12	0.10	0.15	1.1	0.8	1.4
Soil Heap 5	0.10	0.09	0.11	1.3	0.8	1.8
TP 304	**Dose Rate (µSv·h^{-1})**			**Counts Per Second (cps)**		
	Average	Min	Max	Average	Min	Max
Soil Heap 1	0.10	0.09	0.10	1.3	0.8	1.6
Soil Heap 2	0.11	0.10	0.12	1.4	0.9	1.6
Soil Heap 3	0.12	0.09	0.14	1.9	1.8	2.3
Soil Heap 4	0.11	0.10	0.12	1.4	0.9	1.5
Soil Heap 5	0.12	0.10	0.13	1.1	0.8	1.4
TP 314	**Dose Rate (µSv·h^{-1})**			**Counts Per Second (cps)**		
	Average	Min	Max	Average	Min	Max
Soil Heap 1	0.10	0.09	0.11	1.0	0.5	1.3
Soil Heap 2	0.11	0.10	0.12	1.3	0.9	1.7
Soil Heap 3	0.10	0.09	0.13	1.4	1.1	1.8
Soil Heap 4	0.09	0.09	0.09	1.2	0.7	1.5
TP 310	**Dose Rate (µSv·h^{-1})**			**Counts Per Second (cps)**		
	Average	Min	Max	Average	Min	Max
Soil Heap 1	0.11	0.09	0.13	1.3	0.8	1.7
Soil Heap 2	0.11	0.09	0.11	1.3	0.9	1.5
Soil Heap 3	0.11	0.11	0.11	2.6	1.9	3.3

Soil Heap 4	0.11	0.10	0.12	1.0	0.6	1.4
Soil Heap 5	0.11	0.11	0.11	1.5	0.8	1.4
TP 315	***Dose Rate (μSv·h^{-1})***			***Counts Per Second (cps)***		
	Average	***Min***	***Max***	***Average***	***Min***	***Max***
Soil Heap 1	0.12	0.09	0.13	1.1	0.5	1.5
Soil Heap 2	0.11	0.10	0.11	1.4	1.0	1.9
Soil Heap 3	0.10	0.09	0.13	1.1	0.6	1.5
Soil Heap 4	0.11	0.11	0.12	1.2	0.8	1.4
Soil Heap 5	0.11	0.11	0.11	0.8	0.6	1.1

The majority of the elevated readings were recorded from the white material removed at depths of 1.5m (Fig 7 & Fig 8) in the trenches.



Fig 7 White material with slightly elevated Radiation levels



Fig 8 Depth at which the white material was identified



Fig 9 – Soil heap from trench TP302

In trench TP302 slightly elevated readings were also noted in the first soil heap excavated (Fig 9).

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The radiation survey results indicate average radiation dose rates within the site are in close agreement with local background levels and are consistent with levels normally encountered as a result of naturally occurring radioactive material in soils. Radiation dose rate readings taken from all excavated materials were indistinguishable from natural background radiation levels and it can be concluded that there is no external radiation risk to any individual working on site or handling excavated materials. The maximum radiation dose rate recorded from any excavated material was 0.18 µSv/hr. The annual allowable limit for a member of the public under the Radiological Protection Act 1991 (Ionising Radiation) Regulations 2019 (SI 30 of 2019) is 1 mSv per year (1,000 µSv). If an individual spent a full working year (2,000 hours) working in this area or with these excavated materials they would receive an estimated annual radiation dose of 360 µSv or 0.36mSv. For comparison, on average, a person in Ireland receives an annual radiation dose of 4037 microsieverts (µSv) or 4.6 mSv from all sources of radiation (reference: www.epa.ie, 2020), and the majority of this is from natural radiation sources.

The Ludlum 26-1 contamination monitor did indicate slightly elevated radiation levels (above background levels) from four of the trenches, TP301, TP302, TP312, TP310, i.e. indicating that NORM (Naturally Occurring Radioactive Material) may be present. A total of four soil samples were taken from each of the soil heaps identified in the results in case further analysis is required by the client. The maximum reading from any of the excavated material was 3.4 counts per second (cps). This is just over twice the background level of 1.5 cps. In terms of handling or analysing samples, the risk of internal radiation exposure to the naturally occurring radionuclides present would be minimal, however good standard laboratory practice including wearing gloves when handling samples and handwashing after handling samples would be recommended. The soil samples excavated were wet / moist in nature, however, should the samples be dried out or otherwise processed to a fine powder consistency then the wearing of particle filter respiratory protective equipment (P3) when handling samples would also be recommended to prevent respiration of particulate matter.

The only way to definitively determine if the materials on site should be legally classified as NORM or may be exempted from regulatory control under SI 30 of 2019 is to undertake laboratory analysis by gamma spectroscopy to determine the specific activity levels of Uranium 238, Thorium 232 and K40 present.

Table A Part 2 of SI 30 of 2019 specifies the values for exemption or clearance for naturally occurring radionuclides in solid materials in secular equilibrium with their progeny as follows:

- Natural radionuclides from the U-238 series 1 kBq kg-1
- Natural radionuclides from the Th-232 series 1 kBq kg-1
- K-40 10 kBq kg -1

For this reason, one representative 1kg sample of excavated material was forwarded to the Irish Environmental Protection Agency for analysis by gamma spectroscopy. The results of analysis are shown below.

Laboratory Test Report

Environmental Protection Agency
An Ghníomhaireacht um Chaomhnú Comhshaoil

McCumiskey House, Richview,
Clonskeagh Road, Dublin 14, Ireland,
D14 YR62

Teach Mhic Chumascaigh Dea-
Radharc, Bóthar Cluain Sceach, Baile
Átha Cliath 14, Éire, D14 YR62

T: +353 1 268 0100
F: +353 1 268 0199
E: info@epa.ie
W: www.epa.ie

LoCall: 1890 33 55 99

Report Date: 14th January 2021

Samples Tested on Behalf of: Radiation Safety Ireland
Shetland Road
Termonfeckin
Co. Louth
A92TP65

Laboratory Analysis: High resolution gamma spectroscopy

Sample Type: Soil

Date of Receipt: November 2020

Date of Analysis: November - December 2020

Results:

ORP Reference	Client Reference	Coordinates	Nuclide	Activity Concentration (B /kg, dry)[1]	
	TP301 Sample 1	Not Provided	K-40	2.74 ± 1.59	
			I-131	nd	
			Cs-134	nd	
			Cs-137	nd	
			Pb-212	2.78 ± 0.14	
			Ra-226	535 ± 29	
			Ra-228	2.73 ±0.57	
			U-235	2.19 ± 0.45	
			Am-241	nd	CT2000497

Note:
(1) Quoted uncertainties are ±1 SD counting statistics
(2) nd not detected

The analysis report shows that, as would be expected, no artificial radionuclides were present but naturally occurring radionuclides from the Uranium 238 and Thorium 232 series were present along with naturally occurring K40.
All levels were well below the limits where the soil / excavated material, would need to be be legally classified as NORM (Naturally Occurring Radioactive Material).

As aforementioned, Table A Part 2 of SI 30 of 2019 specifies the values for exemption or clearance for naturally occurring radionuclides in solid materials in secular equilibrium with their progeny as follows:

- Natural radionuclides from the U-238 series 1 kBq kg-1
- Natural radionuclides from the Th-232 series 1 kBq kg-1
- K-40 10 kBq kg -1

The highest result in the analysis report is for Ra 226 (535 Bq/kg). This is a daughter product of the U-238 series, but the result is almost half of the exemption limit of 1,000 Bq/kg.

The excavated material can therefore be treated as non-radioactive and does not require classification as 'NORM'.

If you have any queries please don't hesitate to contact me.

Dr. Elaine Doorly

Dr. Elaine Doorly
Chartered Radiation Protection Professional
EPA Approved Radiation Protection Advisor

26-01-2021

Date:

Dr Elaine Doorly, B.Sc. M.Sc. PhD
Radiation Safety Ireland
E-Mail: elaine@radiationsafety.ie
Web Site: www.radiationsafety.ie
Phone: 087-2644107

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IRISH DRILLING LIMITED

Summary Classification Test Results

Project No.: 2020WW102

Project Name: Arklow Bank Windpark

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
BH301	2	1.00		D		Dark grey slightly sandy gravelly SILT / CLAY.			26.0						
BH301	7	2.00	2.50	B		Brown slightly gravelly slightly sandy SILT.			45.0	85	44	31	13		MI
BH301	18	6.50	7.00	B		Dark grey silty very sandy medium GRAVEL.			19.0	16					
BH302	5	1.50		D		Bluish-grey slightly gravelly slightly sandy SILT.			37.0						
BH302	12	4.00	4.50	B		Dark grey slightly gravelly slightly sandy SILT.			89.0	85	76	51	25		MV
BH302	26	9.50	10.00	B		Reddish-brown slightly sandy slightly gravelly SILT.			32.0	74					
BH303	2	1.00		D		Reddish-brown slightly sandy gravelly SILT.			15.0						
BH303	15	5.00	5.50	B		Black slightly sandy SILT.			190.0	98	187	163	24		MEO
BH303	23	8.00	8.50	B		Grey slightly sandy medium and coarse GRAVEL.			4.0	3					
BH303	28	11.00	11.50	B		Grey very sandy coarse GRAVEL.			3.4	4					
BH303	45	17.50	18.00	B		Grey slightly silty very sandy medium GRAVEL.			5.0	7					
BH304	2	1.00		D		Dark greyish-brown slightly gravelly sandy SILT.			9.8						
BH304	19	6.50	7.00	B		Dark grey slightly gravelly sandy SILT. Sand is coarse.			76.0	64	119	84	35		MEO
BH304	25	9.50	10.00	B		Dark grey silty coarse SAND and f&m GRAVEL.			25.0	19					
BH305	10	3.00	3.50	B		Orange-brown silty gravelly medium SAND.			7.8	63					
BH305	15	5.00	5.50	B		Brown slightly sandy slightly gravelly SILT.			19.0	57					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : Liquid Limit; 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 01/08/2021 00:00

QC From No: R1

Approved By:

Table 1 sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED

Summary Classification Test Results

Project No.: 2020WW102

Project Name: Arklow Bank Windpark

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP301	5	1.60	1.70	B		Brown slightly sandy SILT.			56.0	98	58	41	17		MH
TP301	7	2.90	3.00	B		Grey slightly sandy SILT.			56.0	100	64	35	29		MH
TP302	6	3.10	3.20	B		Grey slightly sandy SILT.			50.0	100	56	31	25		MH
TP303	6	4.40	4.50	B		Dark grey slightly sandy SILT.			60.0	100	69	40	29		MH
TP304	4	1.60	1.70	B		Brown slightly sandy SILT.			59.0	99	51	33	18		MH
TP304	7	4.40	4.50	B		Dark grey slightly gravelly slightly sandy SILT.			178.0	94	204	105	99		MEO
TP305	5	1.90	2.00	B		Dark brown slightly gravelly slightly sandy SILT.			75.0	91	107	59	48		ME
TP305	6	2.50	2.60	B		Dark grey slightly gravelly silty fine and medium SAND.			49.0	75					NP
TP305	8	2.80	2.90	B		Grey slightly silty coarse SAND and fine GRAVEL.			14.0	9					
TP306	5	1.80	1.90	B		Brown slightly sandy SILT.			68.0	97	64	40	24		MH
TP307	4	2.30	2.60	B		Dark brown sandy SILT. Sand is fine and medium.			45.0	95					
TP307	7	3.50	3.70	B		Dark grey slightly sandy SILT.			71.0	100	78	46	32		MV
TP309	4	1.90	2.00	B		Dark grey slightly sandy SILT.			67.0	100	99	66	33		ME
TP309	5	2.90	3.00	B		Dark grey silty very gravelly medium and coarse SAND.			32.0	26					
TP310	3	1.00	1.10	B		Brown silty very sandy medium GRAVEL.			16.0	28	46	30	16		MI
TP310	7	3.50	3.60	B		Dark grey slightly sandy SILT.			69.0	100	87	52	35		MV
TP311	3	1.10	1.20	B		Dark grey silty very sandy medium GRAVEL.			10.0	19	38	27	11		MI
TP311	8	3.90	4.00	B		Dark grey slightly sandy SILT.			129.0	97	132	93	39		MEO
TP312	7	3.00	3.10	B		Dark grey slightly sandy SILT.			85.0	100	71	50	21		MV
TP313	5	1.60	1.70	B		Dark blue-grey slightly sandy SILT.			55.0	97	63	39	24		MH
TP313	7	2.70	2.80	B		Dark grey slightly gravelly sandy SILT.			46.0						
TP313	8	3.30	3.40	B		Dark grey slightly gravelly sandy SILT.			38.0	71					
TP314	5	1.80	1.90	B		Dark grey slightly sandy SILT.			83.0	97	113	62	51		ME
TP314	7	2.90	3.00	B		Grey slightly silty very gravelly coarse SAND. Gravel is fine.			14.0	9					
TP315	4	1.50	1.60	B		Dark grey slightly sandy SILT.			79.0	99	100	49	51		ME
TP315	7	3.40	3.50	B		Grey very sandy fine GRAVEL. Sand is coarse.			10.0	5					

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 01/08/2021 00:00

QC From No: R1

Approved By: DCD

Table 1

sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

Summary Classification Results

Project No.: 2020WW102

Project Name: Arklow Bank Windpark

Hole No.	Sample Ref	Top	Base	Type		Soil Description	Density bulk Mg/m3	Density dry Mg/m3	w %	Passing 425µm %	LL %	PL %	PI %	Particle density Mg/m3	Remarks
TP316	2	0.80	1.00	B		Brown silty sandy medium and coarse GRAVEL.			11.0	17					
TP316	6	2.00	2.50	B		Dark grey slightly sandy SILT.			57.0	100	77	45	32		MV
TP317	4	1.90	2.00	B		Dark brown slightly sandy SILT.			61.0	98	82	57	25		MV
TP317	6	3.10	3.20	B		Dark brown sandy SILT. Sand is fine and medium.			40.0	88	41	30	11		MI
TP317	7	3.40	3.50	B		Dark grey silty gravelly medium and coarse SAND.			29.0	32					
TP318	4	2.00	2.10	B		Brown slightly gravelly slightly sandy SILT.			50.0	97	62	36	26		MH
TP319	6	3.50	3.60	B		Grey slightly sandy SILT.			52.0	99	58	34	24		MH
TP320	4	1.50	1.60	B		Brown slightly sandy SILT.			56.0	99	46	36	10		MI
TP320	7	4.00	4.10	B		Dark grey slightly sandy SILT.			50.0	100	52	31	21		MH
TP321	4	1.60	1.70	B		Dark grey slightly sandy SILT.			51.0	95					
TP321	8	3.00	3.10	B		Dark grey sandy SILT. Sand is medium and fine.			32.0	95	35	27	8		MI
TP321	9	3.90	4.00	B		Black SILT.			138.0						
TP322	5	2.00	2.50	B		Dark brown slightly sandy SILT.			174.0	98	178	129	49		MEO
TP322	6	2.70	2.80	B		Dark grey slightly silty very sandy medium and fine GRAVEL.			22.0	16					
TP323	3	1.40	1.50	B		Brown slightly sandy gravelly SILT.			19.0						
TP323	7	2.50	2.60	B		Dark grey slightly silty very sandy fine and medium GRAVEL.			7.8	8					
TP325	4	1.70	1.80	B		Dark brown SILT.			79.0						
TP325	6	2.80	2.90	B		Dark grey slightly silty very gravelly coarse SAND.			23.0	11					NP

All tests performed in accordance with BS1377:1990 unless specified otherwise

Key: w = water content, LL = Liquid Limit, PL = Plastic Limit, PI = Plasticity Index

Density test: wd - water displacement; wi - immersion in water

Linear measurement unless : 4pt cone unless : 1pt - single point test; NP - Non Plastic

Particle density: sp - small pyknometer; gj - gas jar

Date Printed: 01/08/2021 00:00

QC From No: R1

Approved By: DCD

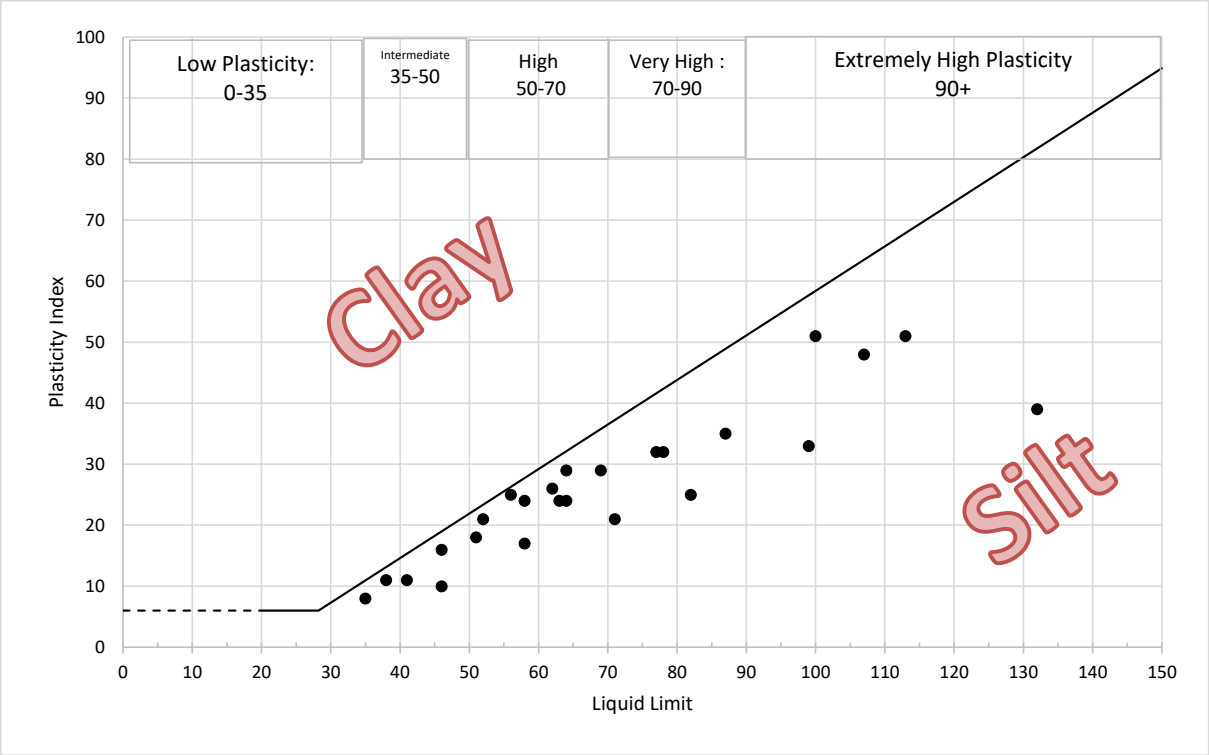
Table 1

sheet 2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□a□□□□y □A□□ne□□□ar□	Project Number
Project Name:	Ar□□□□ □an□ □ nd□ar□	
Location:		2020WW102



Abreviations in the remarks column of the Classification Summary Sheet: C = Clay, M = Silt

Plasticity abeviations: L = Low, I = Intermediate = H = High, V = Very High, E = Extremely High.

The letter O is added to the symbol of any material containing a significant proportion of organic material.

Chart taken from BS5930: 2010

QC Form: R1

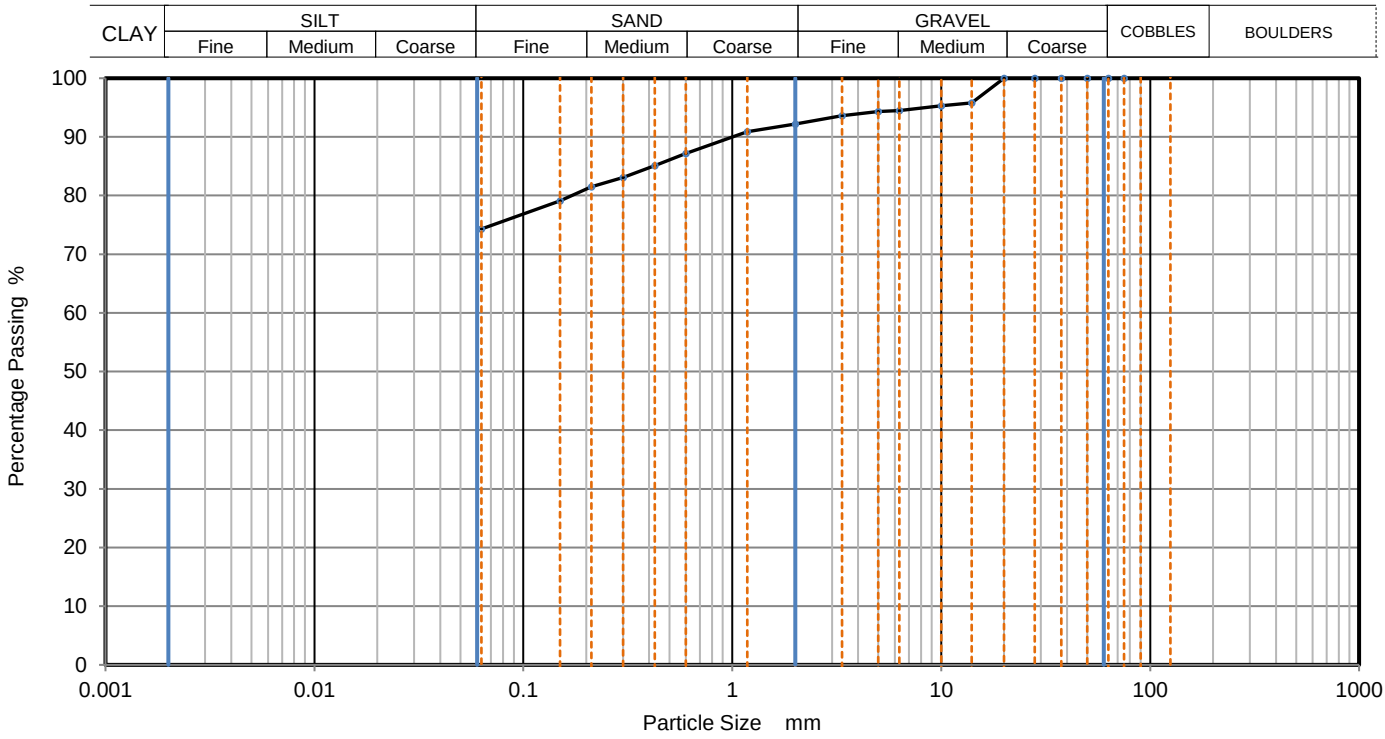
National Materials Testing Laboratory Ltd.

SUMMARY OF TEST RESULTS

				Particle			Index Properties		Bulk	Cell	Undrained Triaxial Tests			
BH/TP	Depth	sample	Moisture	Density	<425um	LL	PL	PI	Density	Presssure	Compressive	Strain at	CU	Remarks
No	m	No.	%	Mg/m3	%	%	%	%	Mg/m3	kPa	Stress kPa	Failure %	kPa	
BH302	8.0-8.50	B21	4.7											

NMTL	Notes :	Job ref No.	NMTL 3333	IDL Project ID:	2020WW102
	1. All BS tests carried out using preferred (definitive) method unless otherwise stated.	Location	Arklow Bank		

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	BH301
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020102763



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	96		
10	95		
6.3	95		
5	94		
3.35	94		
2	92		
1.18	91		
0.6	87		
0.425	85		
0.3	83		
0.212	82		
0.15	79		
0.063	74		

Dry Mass of sample, g	618

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	8
Sand	18
Fines <0.063mm	74

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

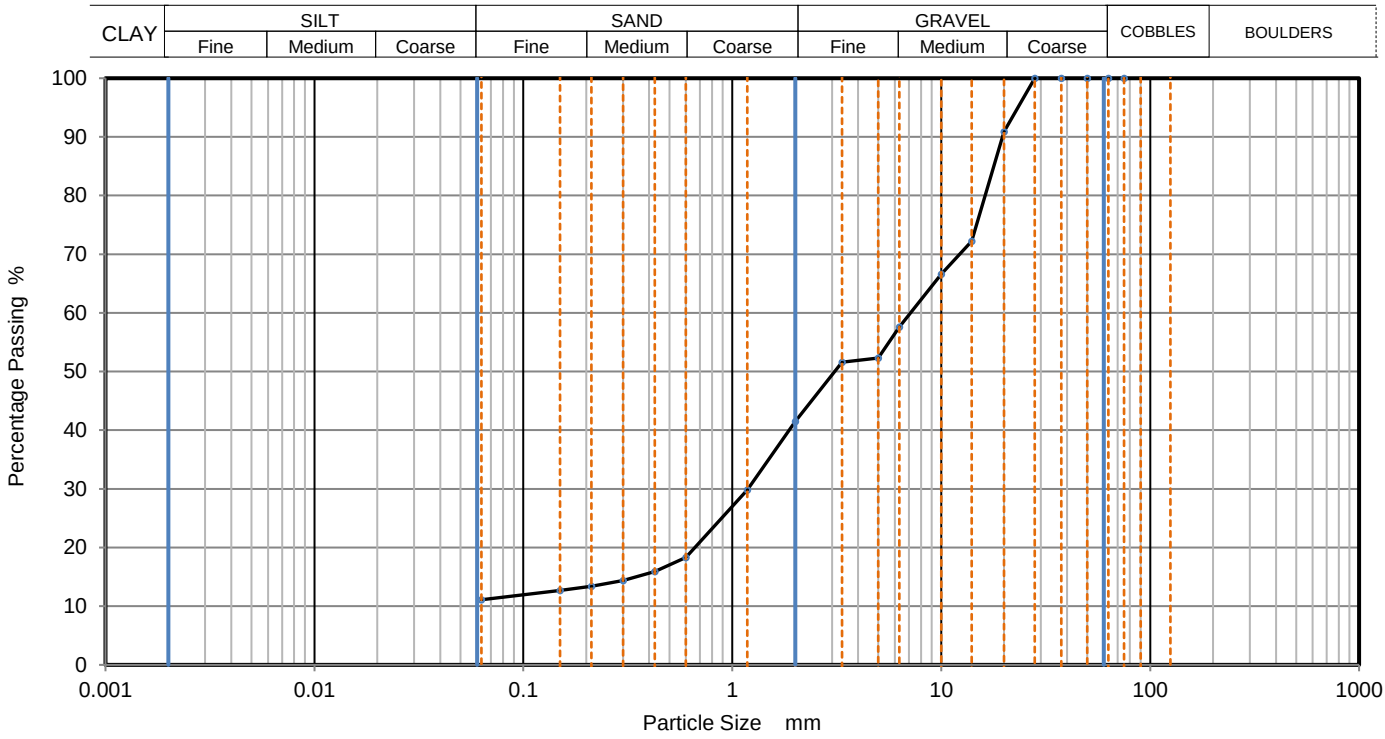
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:14	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	BH301
Site Name	Arklow Bank Windpark			Sample No.	18
Soil Description	Dark grey silty very sandy medium GRAVEL.			Depth, m	6.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020102774



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	91		
14	72		
10	67		
6.3	58		
5	52		
3.35	52		
2	42		
1.18	30		
0.6	18		
0.425	16		
0.3	14		
0.212	13		
0.15	13		
0.063	11		

Dry Mass of sample, g	1090

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	59
Sand	30
Fines <0.063mm	11

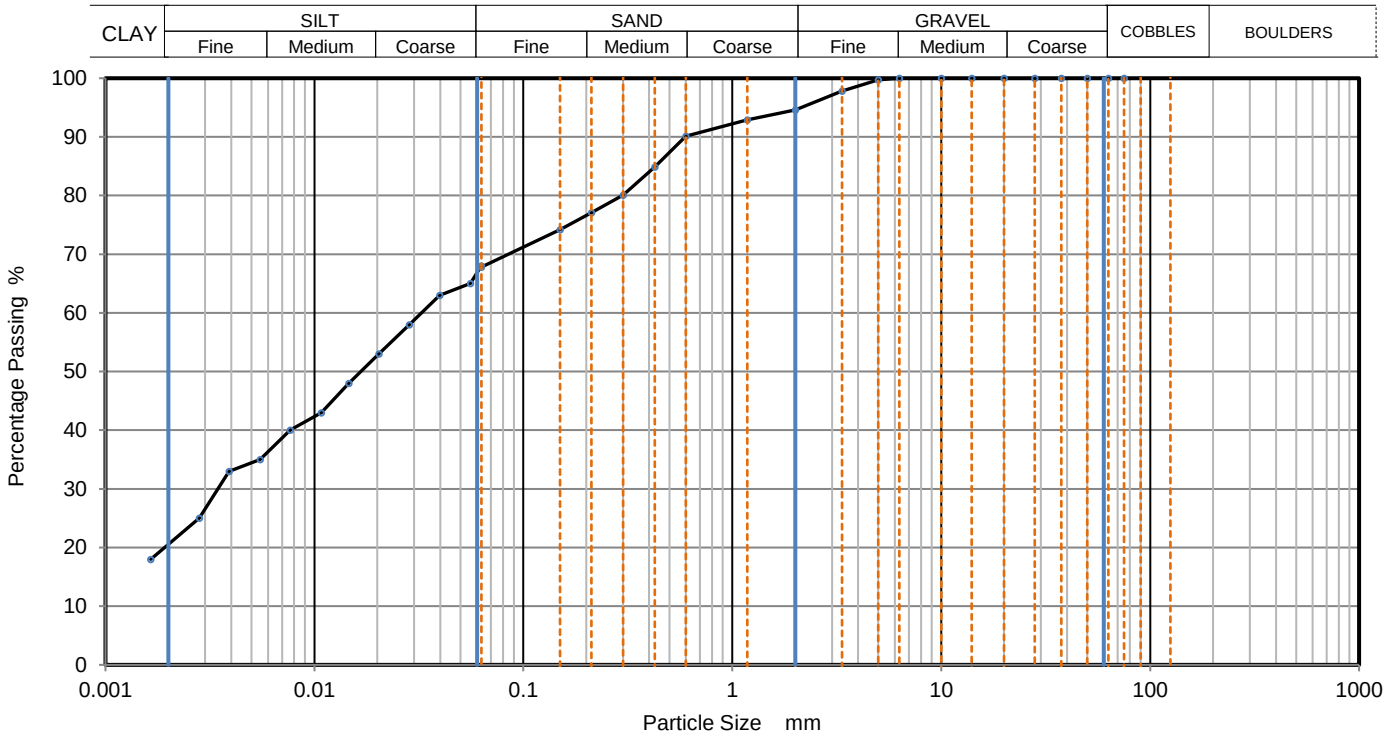
□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	7.12
D30	mm	1.19
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:15	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	BH302
Site Name	Arklow Bank Windpark			Sample No.	12
Soil Description	Dark grey slightly gravelly slightly sandy SILT.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020102789



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	98
2	95
1.18	93
0.6	90
0.425	85
0.3	80
0.212	77
0.15	74
0.063	68

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	68
0.0558	65
0.0397	63
0.0284	58
0.0204	53
0.0146	48
0.0108	43
0.0077	40
0.0055	35
0.0039	33
0.0028	25
0.0016	18
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	259

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	5
Sand	27
Silt	47
Clay	20

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.033
D30	mm	0.00348
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

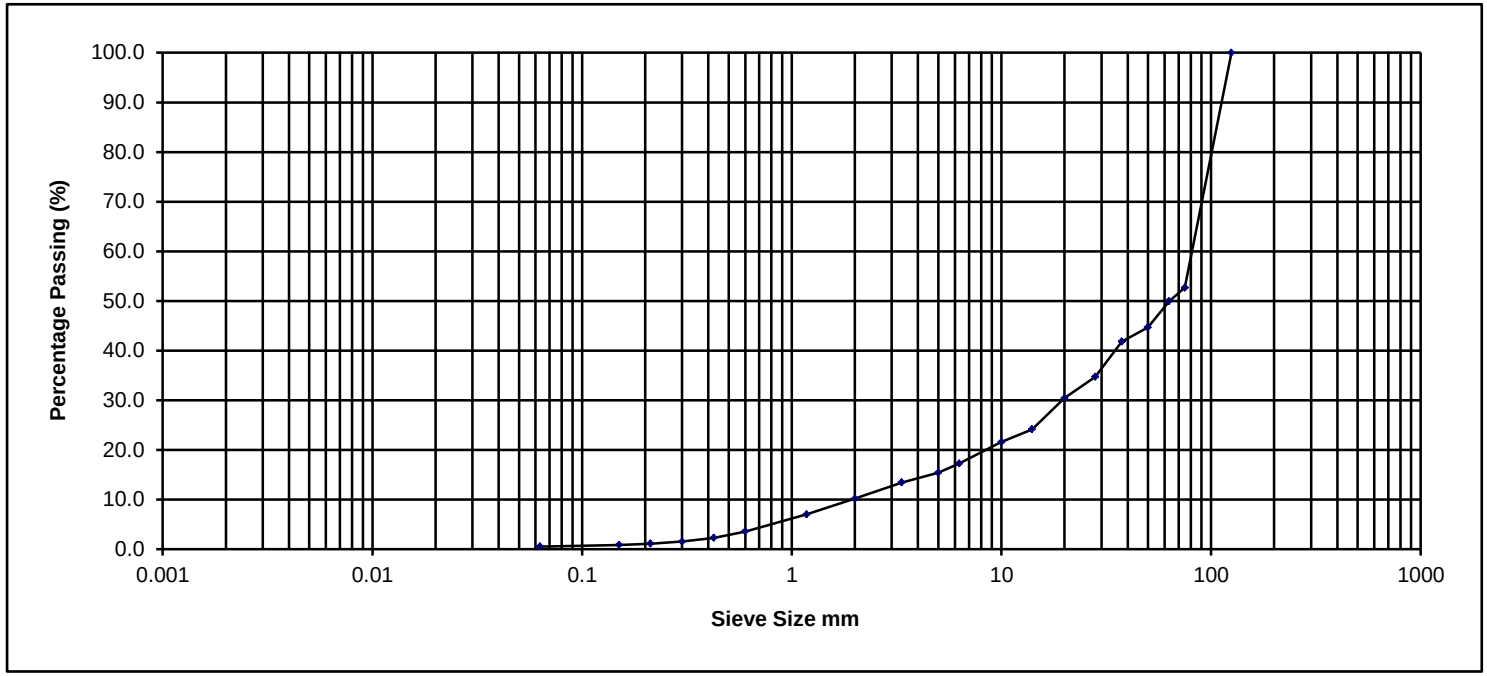
Operator	Checked	Approved	Sheet printed	1
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NMTL Ltd

Determination of Particle Size Distribution

BS 1377 : 1990 : Part 2 : Clauses 9.2 & 9.5

Sieve Size mm	% Passing
125.000	100.0
75.000	52.7
63.000	50.0
50.000	44.7
37.500	41.8
28.000	34.7
20.000	30.4
14.000	24.2
10.000	21.6
6.300	17.3
5.000	15.4
3.350	13.5
2.000	10.2
1.180	7.0
0.600	3.6
0.425	2.3
0.300	1.5
0.212	1.1
0.150	0.9
0.063	0.6



Percentage Particle Size

Clay	Fine Silt	Medium Silt	Coarse Silt	Fine Sand	Medium Sand	Coarse Sand	Fine Gravel	Medium Gravel	Coarse Gravel	Cobbles	Boulder
		0.6			9.6			39.8		50.0	0.0

Sample Description: Grey sandy fine to coarse GRAVEL.

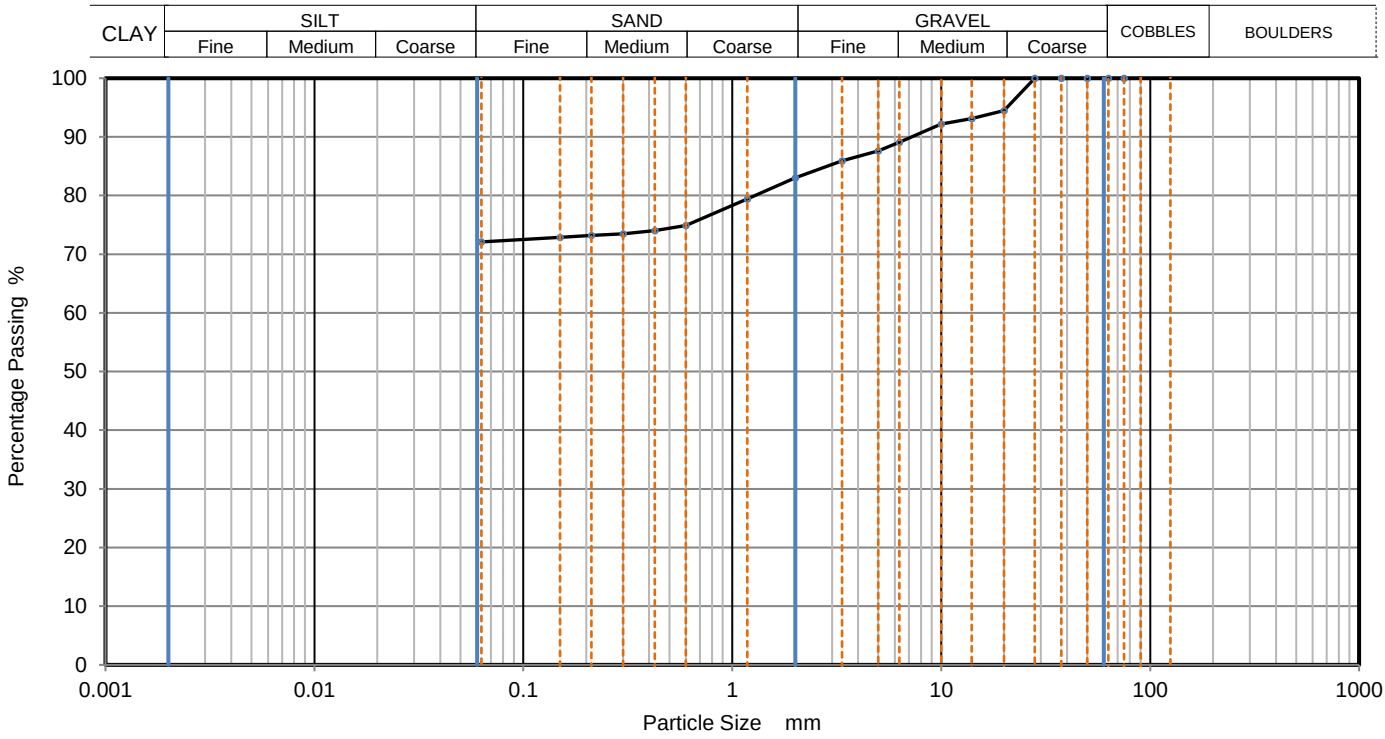
Project: Arklow Bank — IDL Project ID-2020WW102

Operator	Checked	Approved	Date sample tested
Tzr	Nc	Bc	16/12/2020

Project No.	NMTL 3333
BH/TP No.	BH302
Sample No.	B21
Depth	8.0-8.50m

NM TL Ltd

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	BH302
Site Name	Arklow Bank Windpark			Sample No.	26
Soil Description	Reddish-brown slightly sandy slightly gravelly SILT.			Depth, m	9.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201027103



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	95		
14	93		
10	92		
6.3	89		
5	88		
3.35	86		
2	83		
1.18	79		
0.6	75		
0.425	74		
0.3	74		
0.212	73		
0.15	73		
0.063	72		

Dry Mass of sample, g	635

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	17
Sand	11
Fines <0.063mm	72

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

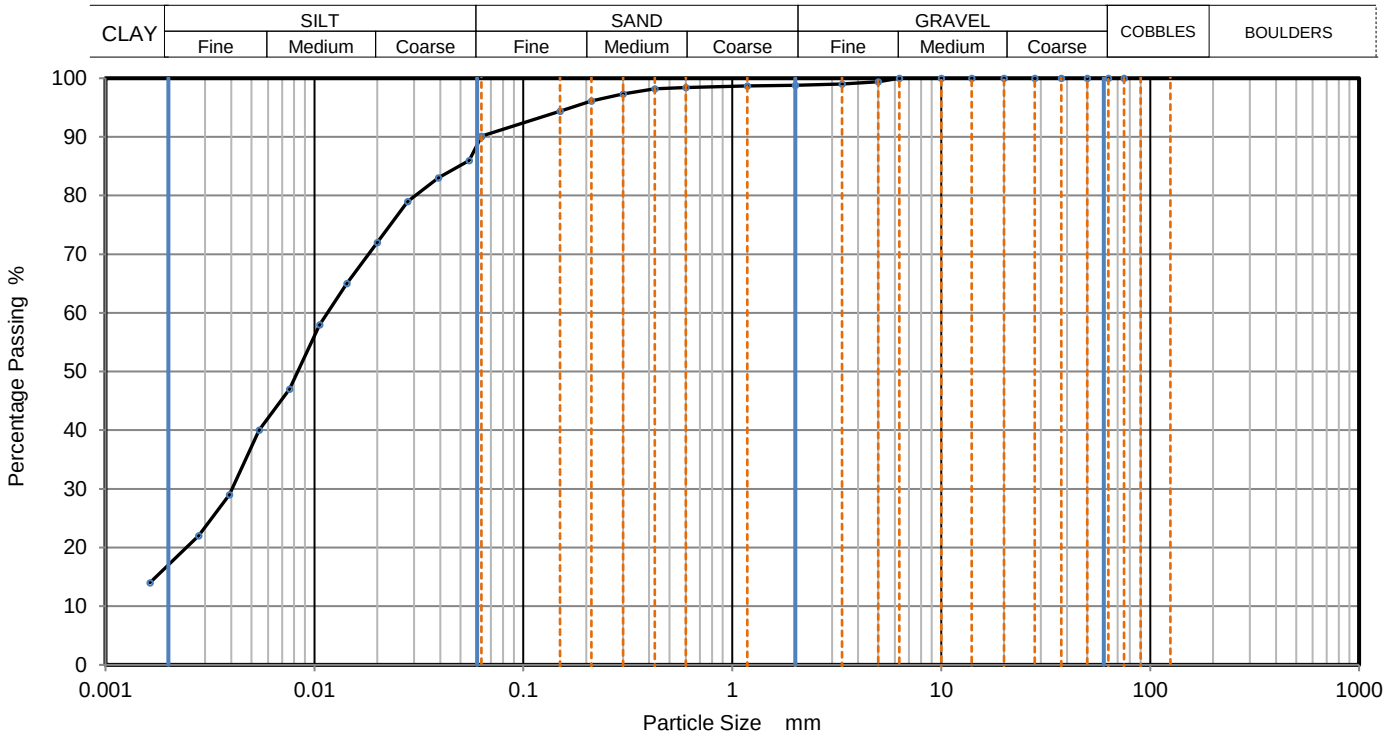
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	BH303
Site Name	Arklow Bank Windpark			Sample No.	15
Soil Description	Black slightly sandy SILT.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201027121



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	99
3.35	99
2	99
1.18	99
0.6	98
0.425	98
0.3	97
0.212	96
0.15	94
0.063	90

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	90
0.0551	86
0.0392	83
0.0279	79
0.0200	72
0.0143	65
0.0106	58
0.0076	47
0.0054	40
0.0039	29
0.0028	22
0.0016	14
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	192

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	1
Sand	9
Silt	73
Clay	17

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0117
D30	mm	0.00405
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

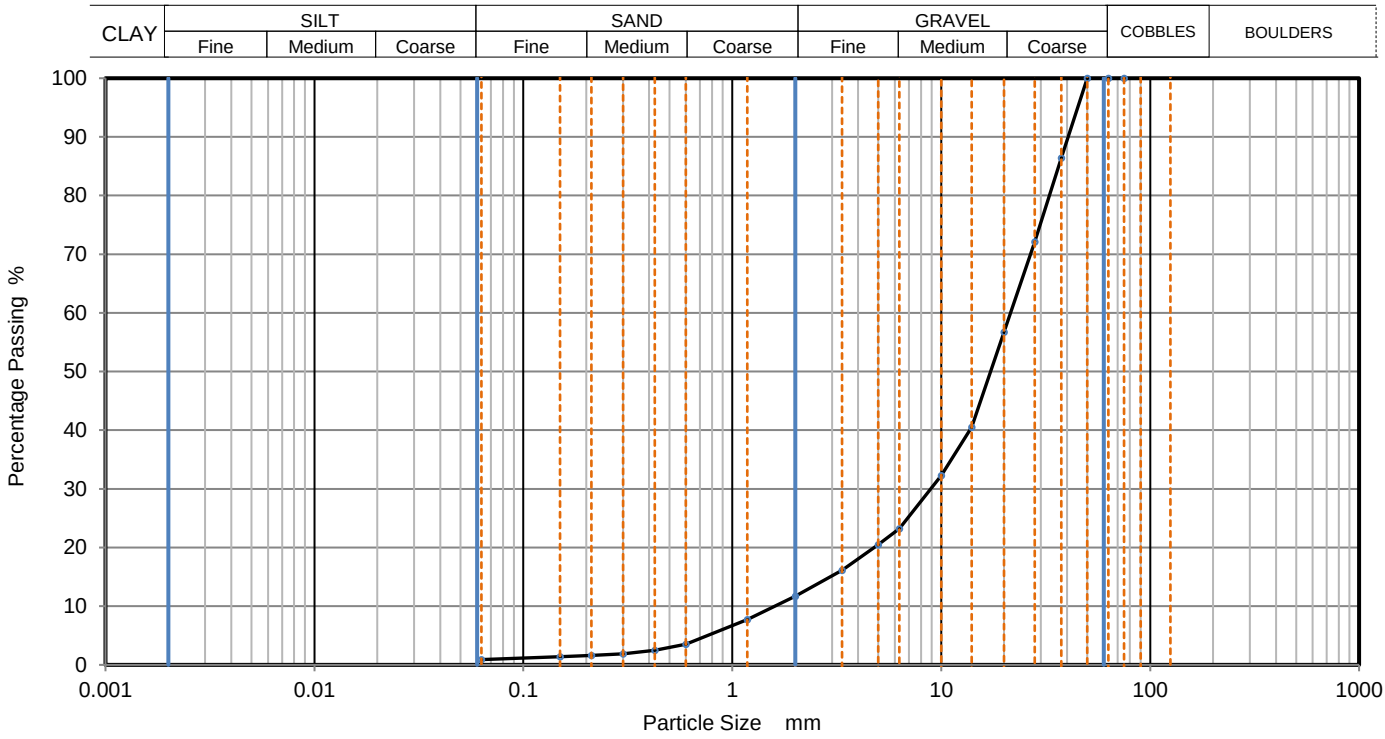
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	BH303
Site Name	Arklow Bank Windpark			Sample No.	23
Soil Description	Grey slightly sandy medium and coarse GRAVEL.			Depth, m	8.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201027129



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	86		
28	72		
20	57		
14	41		
10	32		
6.3	23		
5	21		
3.35	16		
2	12		
1.18	8		
0.6	4		
0.425	3		
0.3	2		
0.212	2		
0.15	1		
0.063	1		

Dry Mass of sample, g	997

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	88
Sand	11
Fines <0.063mm	1

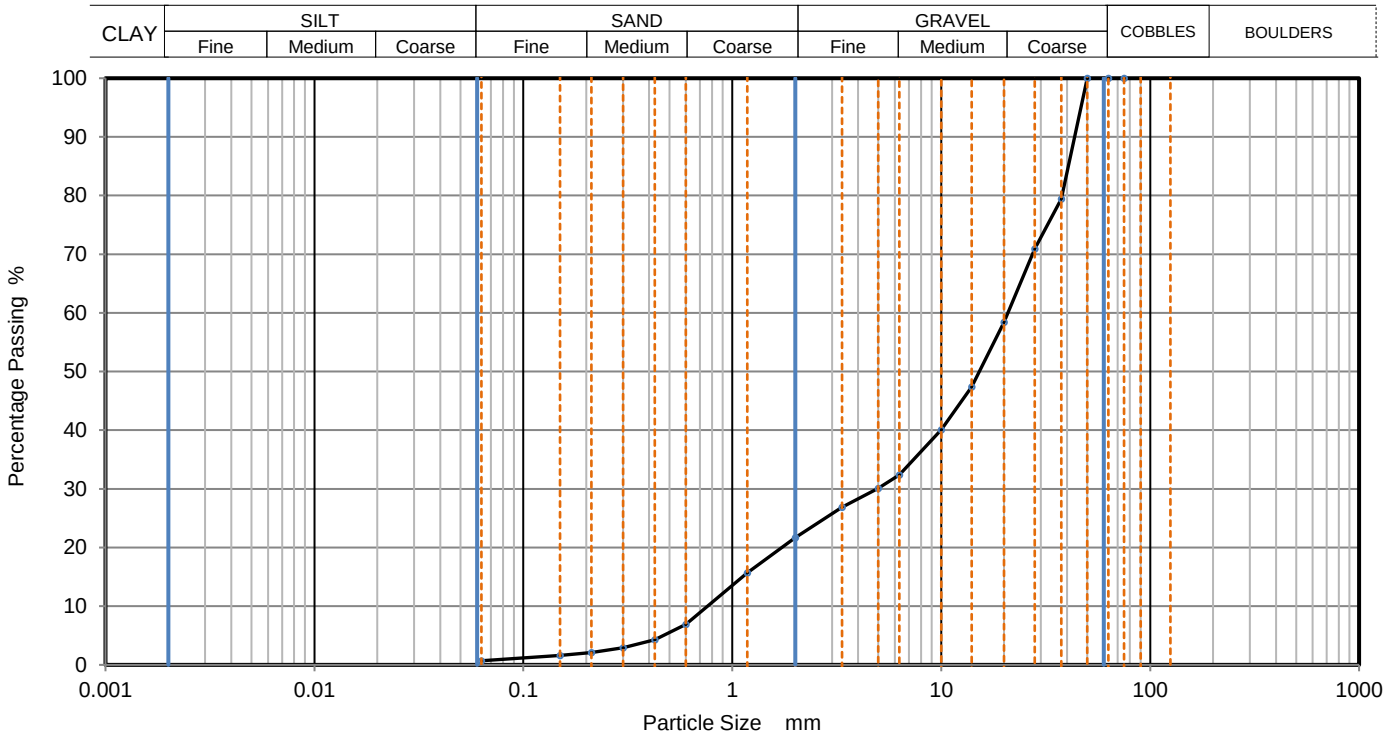
□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	21.5
D30	mm	8.88
D10	mm	1.6
Uniformity Coefficient		13
Curvature Coefficient		2.3

Remarks

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				Borehole/Pit No.	BH303
Site Name	Arklow Bank Windpark			Sample No.	28
Soil Description	Grey very sandy coarse GRAVEL.			Depth, m	11.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201027134



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	79		
28	71		
20	58		
14	47		
10	40		
6.3	32		
5	30		
3.35	27		
2	22		
1.18	16		
0.6	7		
0.425	4		
0.3	3		
0.212	2		
0.15	2		
0.063	1		

Dry Mass of sample, g	1136

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	78
Sand	21
Fines <0.063mm	1

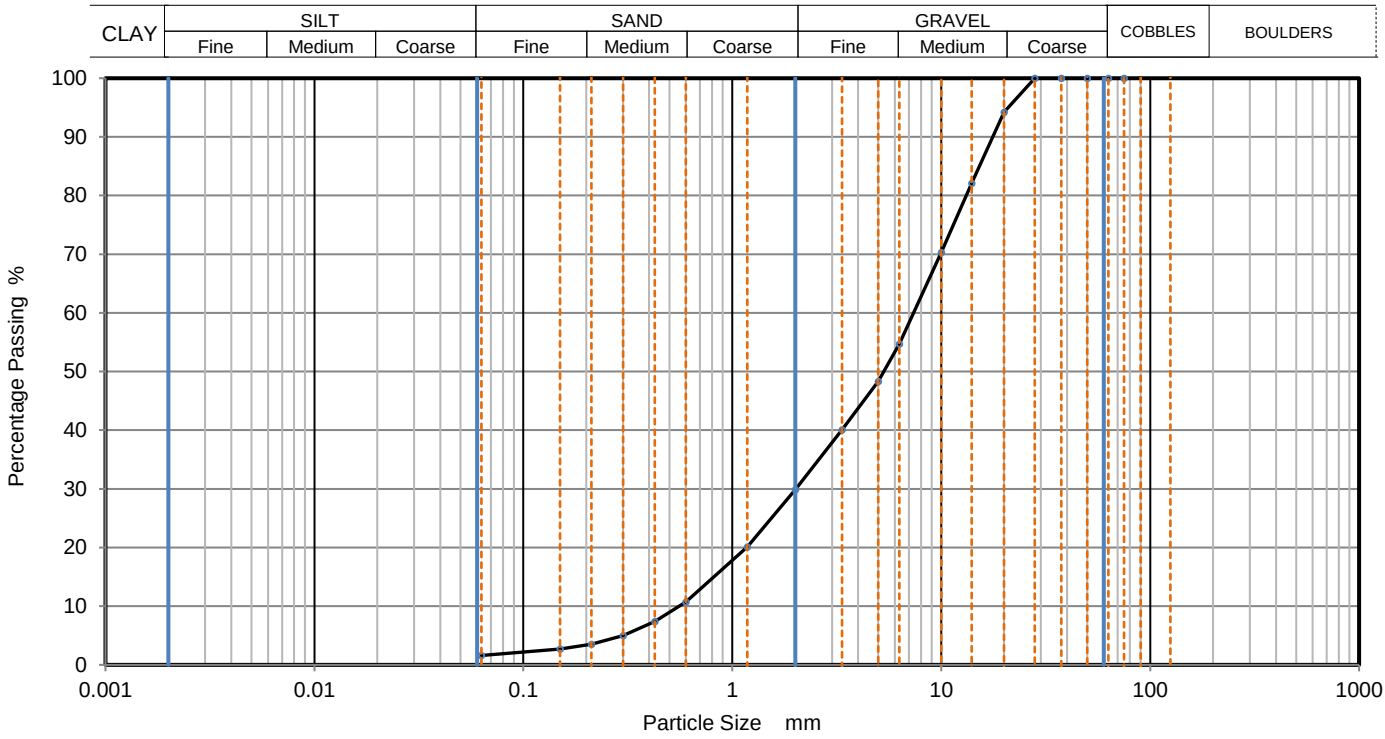
□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	20.9
D30	mm	4.93
D10	mm	0.763
Uniformity Coefficient		27
Curvature Coefficient		1.5

Remarks

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IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	BH303
Site Name	Arklow Bank Windpark			Sample No.	45
Soil Description	Grey slightly silty very sandy medium GRAVEL.			Depth, m	17.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201027151



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	82		
10	70		
6.3	55		
5	48		
3.35	40		
2	30		
1.18	20		
0.6	11		
0.425	7		
0.3	5		
0.212	4		
0.15	3		
0.063	2		

Dry Mass of sample, g	717

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	70
Sand	28
Fines <0.063mm	2

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	7.36
D30	mm	2.01
D10	mm	0.559
Uniformity Coefficient		13
Curvature Coefficient		0.98

Remarks

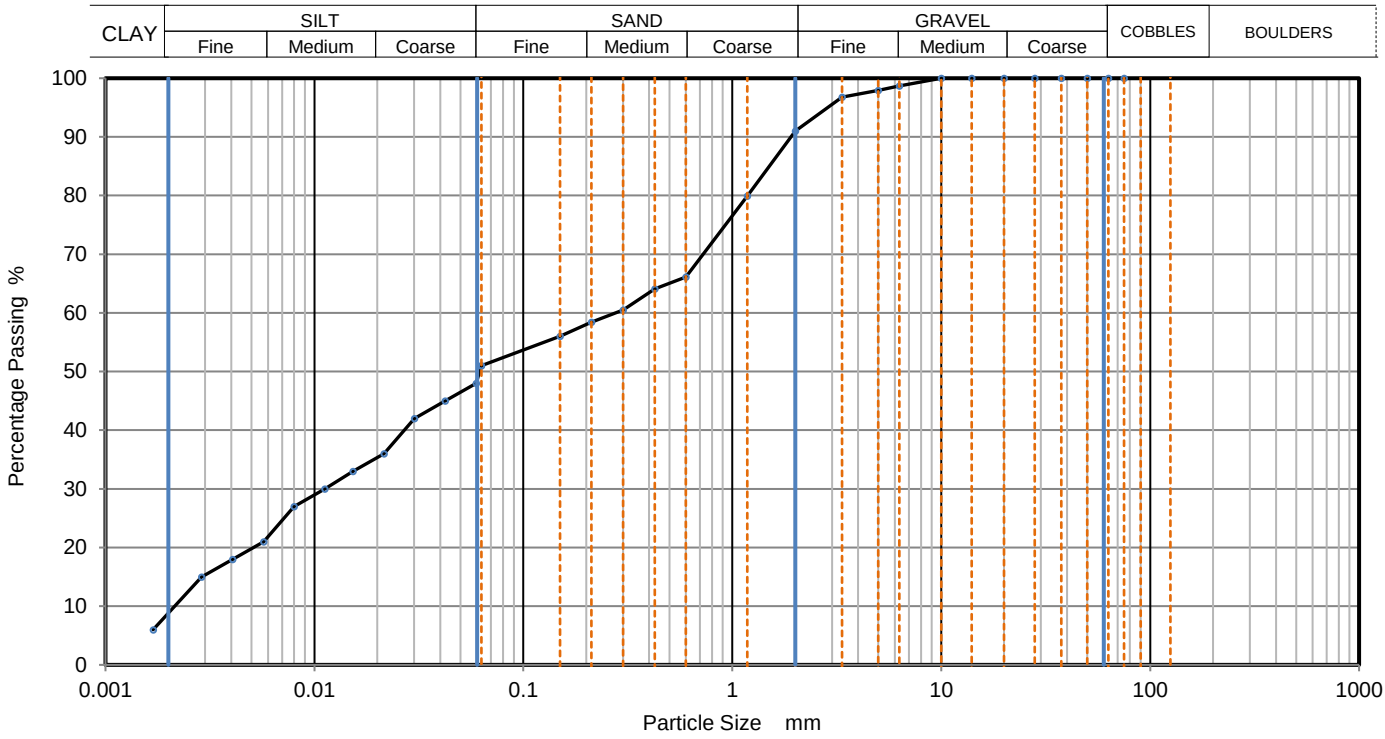
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	BH304
Site Name	Arklow Bank Windpark			Sample No.	19
Soil Description	Dark grey slightly gravelly sandy SILT. Sand is coarse.			Depth, m	6.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201027186



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	99
5	98
3.35	97
2	91
1.18	80
0.6	66
0.425	64
0.3	61
0.212	58
0.15	56
0.063	51

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	51
0.0594	48
0.0423	45
0.0301	42
0.0215	36
0.0153	33
0.0112	30
0.0080	27
0.0057	21
0.0041	18
0.0029	15
0.0017	6
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	368

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	9
Sand	40
Silt	42
Clay	9

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.277
D30	mm	
D10	mm	0.00214
Uniformity Coefficient		130
Curvature Coefficient		

Remarks

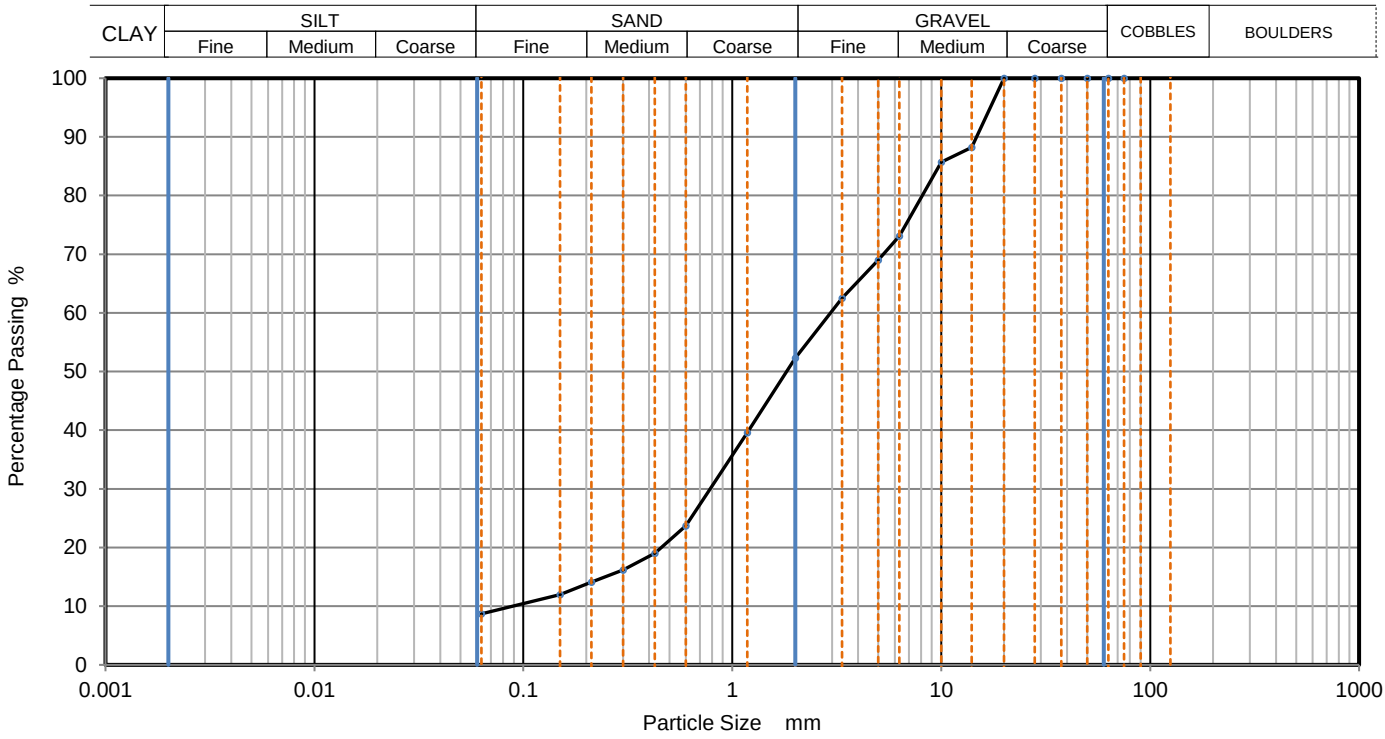
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	BH304
Site Name	Arklow Bank Windpark			Sample No.	25
Soil Description	Dark grey silty coarse SAND and f&m GRAVEL.			Depth, m	9.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201027192



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	88		
10	86		
6.3	73		
5	69		
3.35	63		
2	52		
1.18	40		
0.6	24		
0.425	19		
0.3	16		
0.212	14		
0.15	12		
0.063	9		

Dry Mass of sample, g	799

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	48
Sand	44
Fines <0.063mm	9

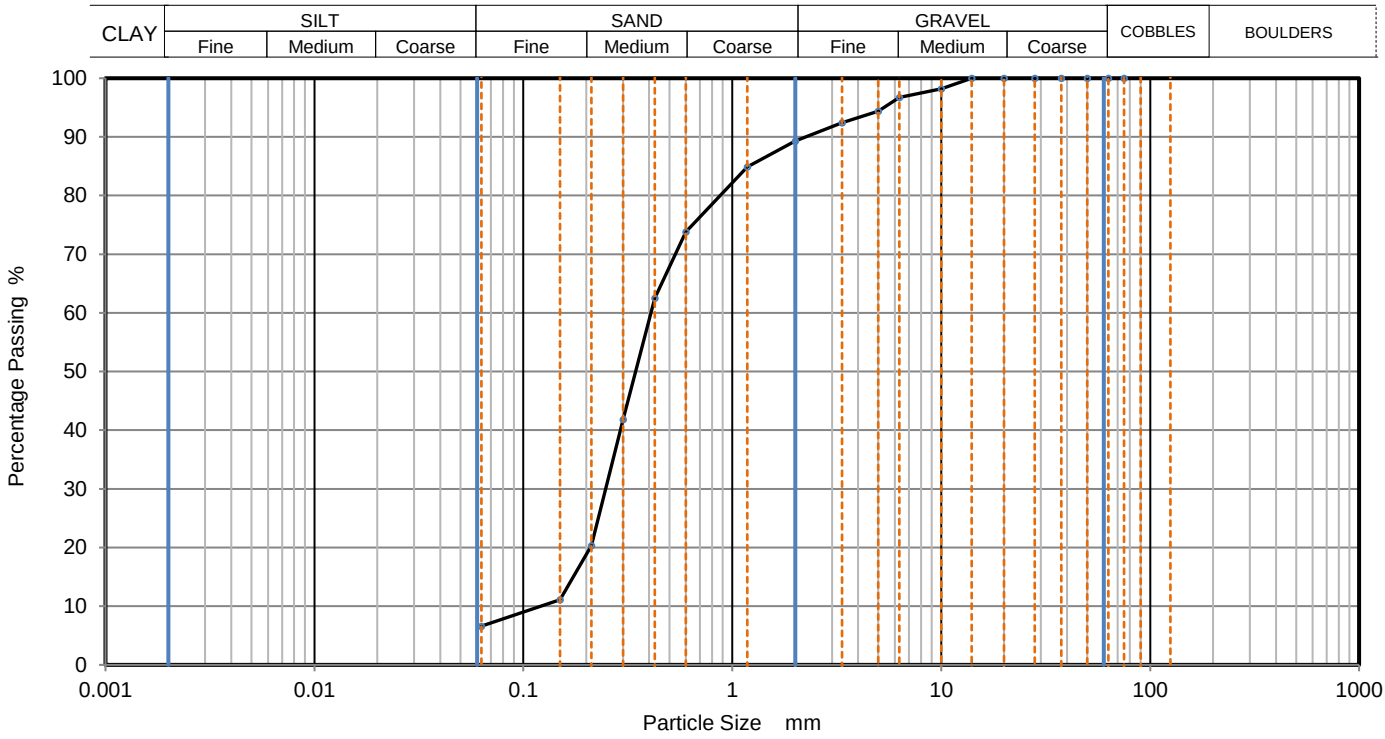
□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	2.95
D30	mm	0.785
D10	mm	0.0881
Uniformity Coefficient		33
Curvature Coefficient		2.4

Remarks

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IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□□102
				Borehole/Pit No.	BH305
Site Name	Arklow Bank Windpark			Sample No.	10
Soil Description	Orange-brown silty gravelly medium SAND.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201027210



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	97		
5	94		
3.35	92		
2	89		
1.18	85		
0.6	74		
0.425	63		
0.3	42		
0.212	20		
0.15	11		
0.063	7		

Dry Mass of sample, g	659

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	11
Sand	83
Fines <0.063mm	7

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	0.408
D30	mm	0.248
D10	mm	0.122
Uniformity Coefficient		3.4
Curvature Coefficient		1.2

Remarks

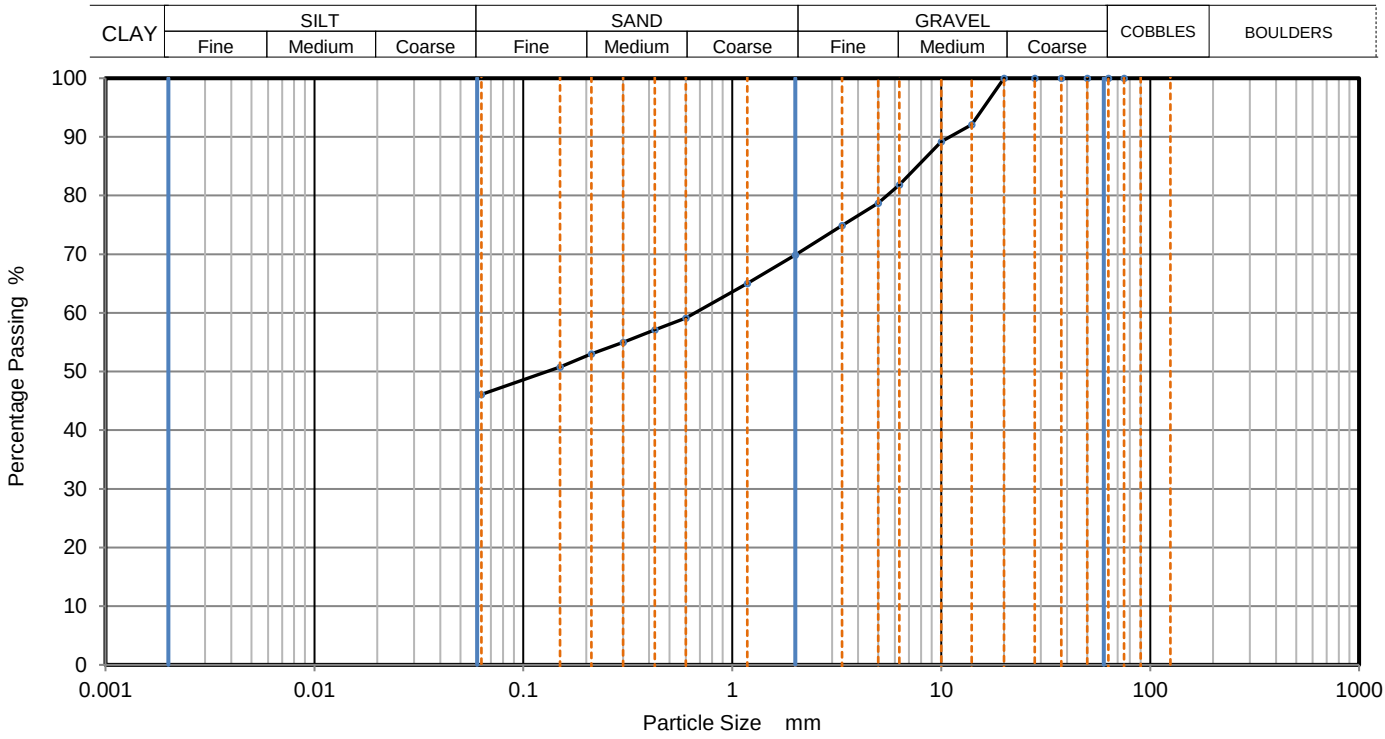
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	BH305
Site Name	Arklow Bank Windpark			Sample No.	15
Soil Description	Brown slightly sandy slightly gravelly SILT.			Depth, m	5.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201027215



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	92		
10	89		
6.3	82		
5	79		
3.35	75		
2	70		
1.18	65		
0.6	59		
0.425	57		
0.3	55		
0.212	53		
0.15	51		
0.063	46		

Dry Mass of sample, g	694

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	30
Sand	24
Fines <0.063mm	46

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.666
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

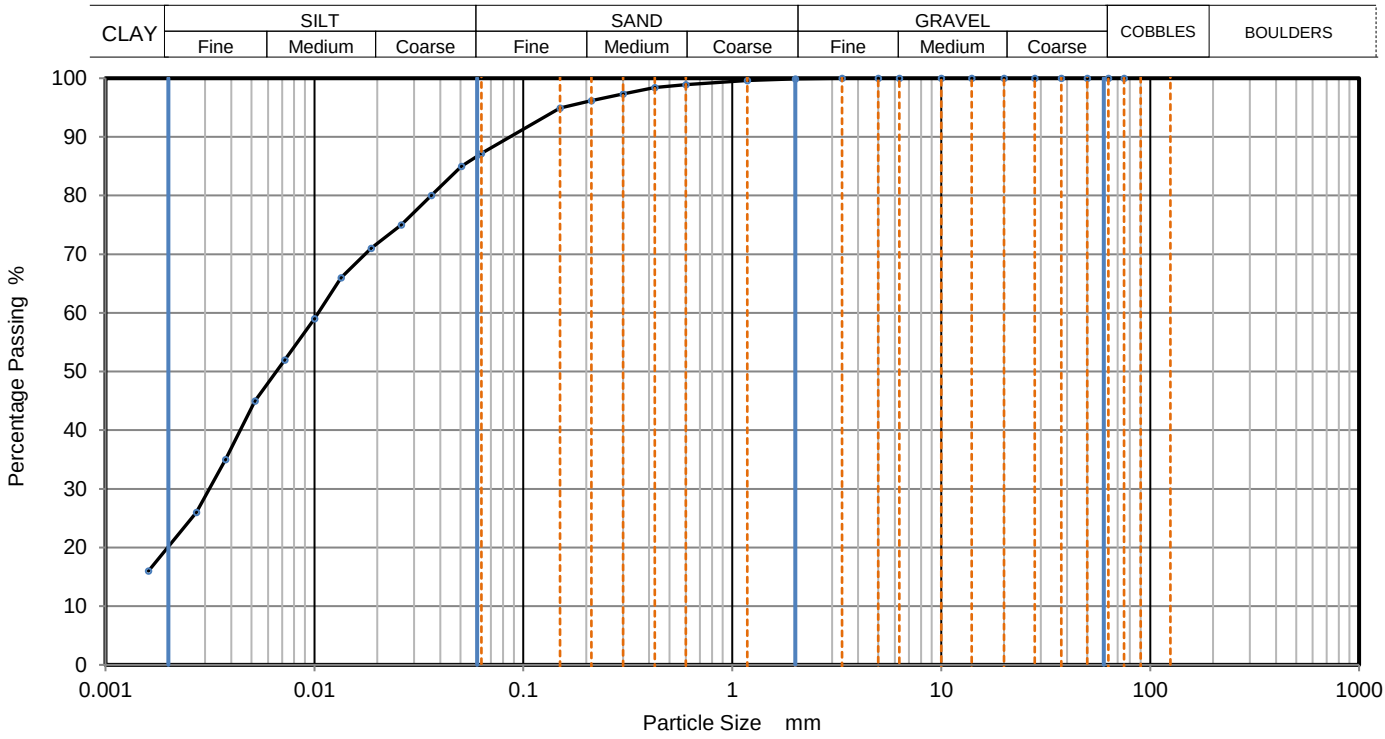
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:15	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP301
Site Name	Arklow Bank Windpark			Sample No.	5
Soil Description	Brown slightly sandy SILT.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110426



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	99
0.425	98
0.3	97
0.212	96
0.15	95
0.063	87

□ed□men□a□□n	
Particle Size mm	% Passing
0.0621	87
0.0506	85
0.0363	80
0.0261	75
0.0187	71
0.0134	66
0.0100	59
0.0072	52
0.0052	45
0.0038	35
0.0027	26
0.0016	16
Particle density (assumed)	
2.65 Mg/m3	

Dry Mass of sample, g	308

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	13
Silt	67
Clay	20

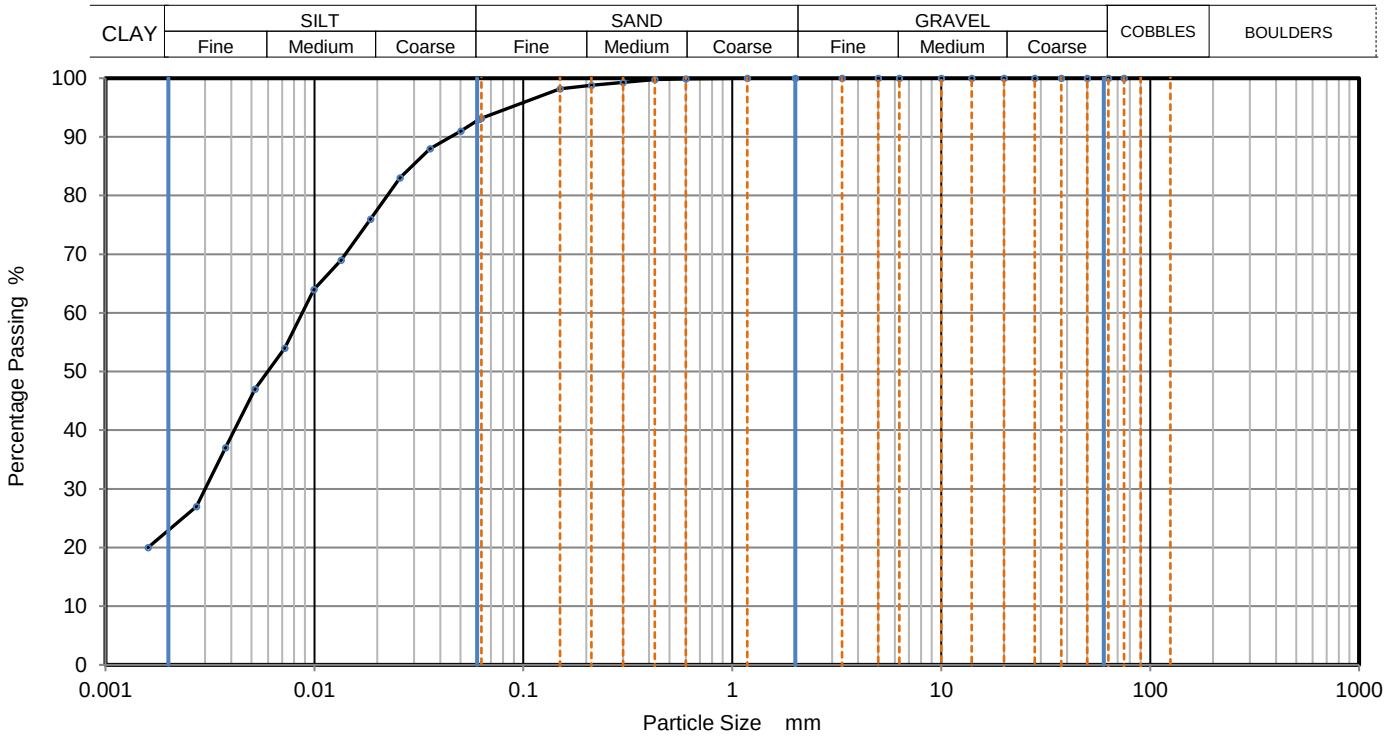
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0105
D30	mm	0.00313
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP301
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Grey slightly sandy SILT.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110429



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	99
0.212	99
0.15	98
0.063	93

□ed□men□a□□n	
Particle Size mm	% Passing
0.0616	93
0.0502	91
0.0358	88
0.0257	83
0.0186	76
0.0134	69
0.0099	64
0.0072	54
0.0052	47
0.0038	37
0.0027	27
0.0016	20
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	350

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	7
Silt	71
Clay	23

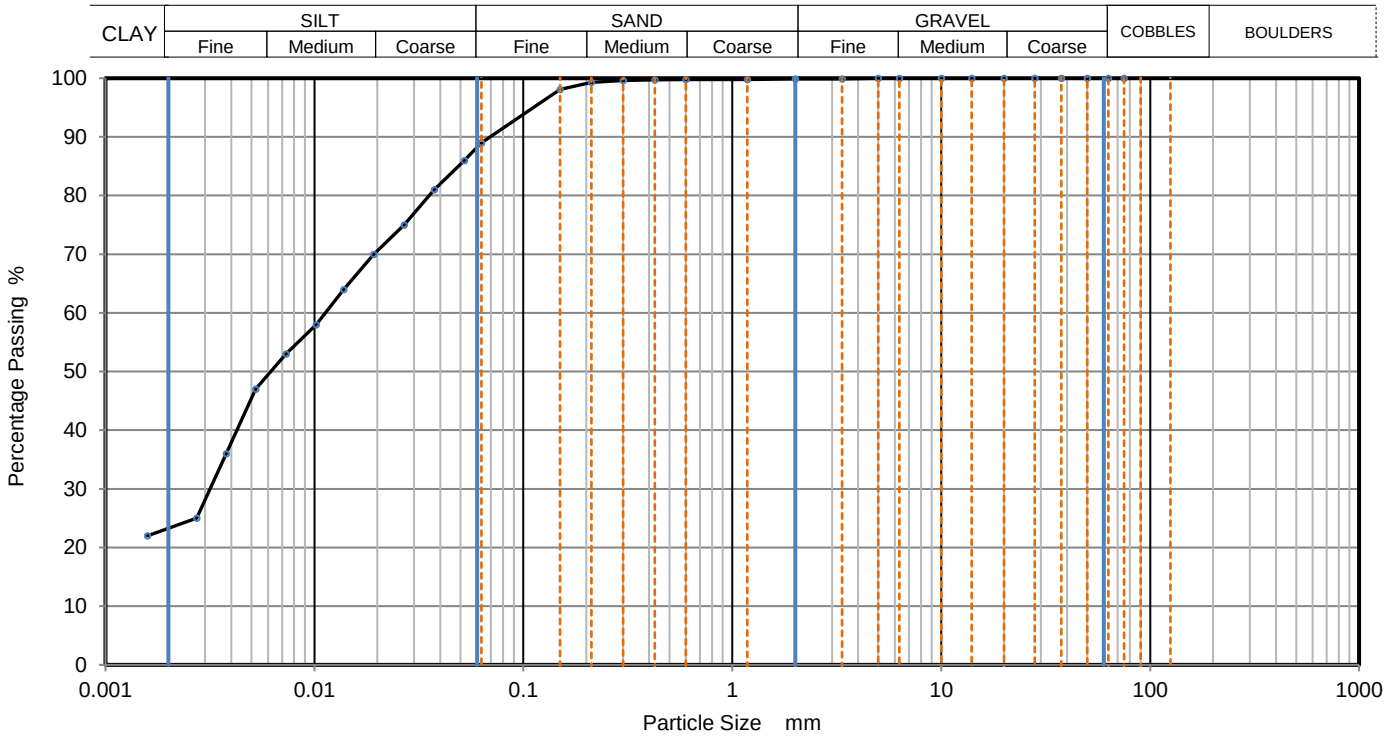
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.00878
D30	mm	0.00301
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP302
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Grey slightly sandy SILT.			Depth, m	3.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110436



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	100
0.212	99
0.15	98
0.063	89

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	89
0.0523	86
0.0375	81
0.0269	75
0.0193	70
0.0138	64
0.0102	58
0.0073	53
0.0052	47
0.0038	36
0.0027	25
0.0016	22
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	388

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	11
Silt	66
Clay	23

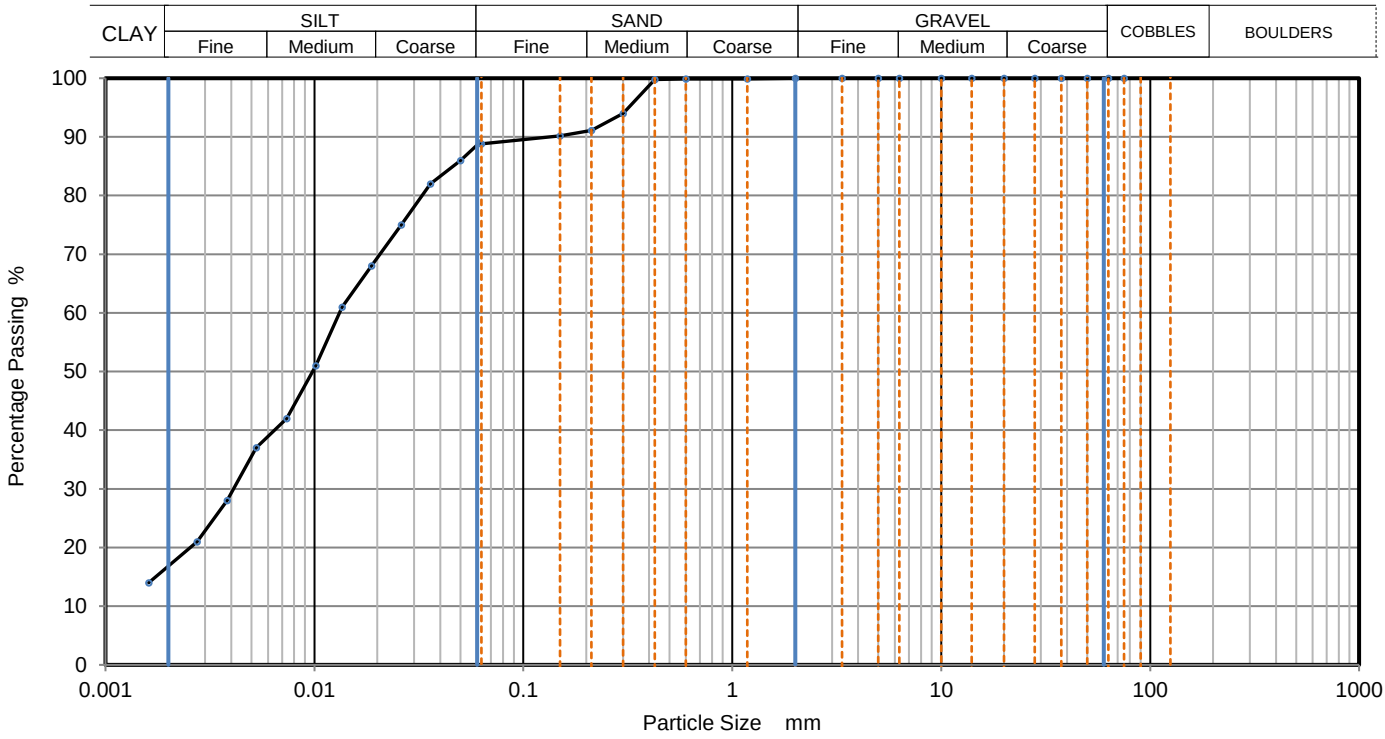
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0111
D30	mm	0.00316
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP303
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Dark grey slightly sandy SILT.			Depth, m	4.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028331



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	94
0.212	91
0.15	90
0.063	89

□ed□men□a□□n	
Particle Size mm	% Passing
0.0616	89
0.0501	86
0.0360	82
0.0260	75
0.0188	68
0.0136	61
0.0102	51
0.0074	42
0.0053	37
0.0038	28
0.0027	21
0.0016	14
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	313

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	11
Silt	72
Clay	17

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0132
D30	mm	0.00409
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

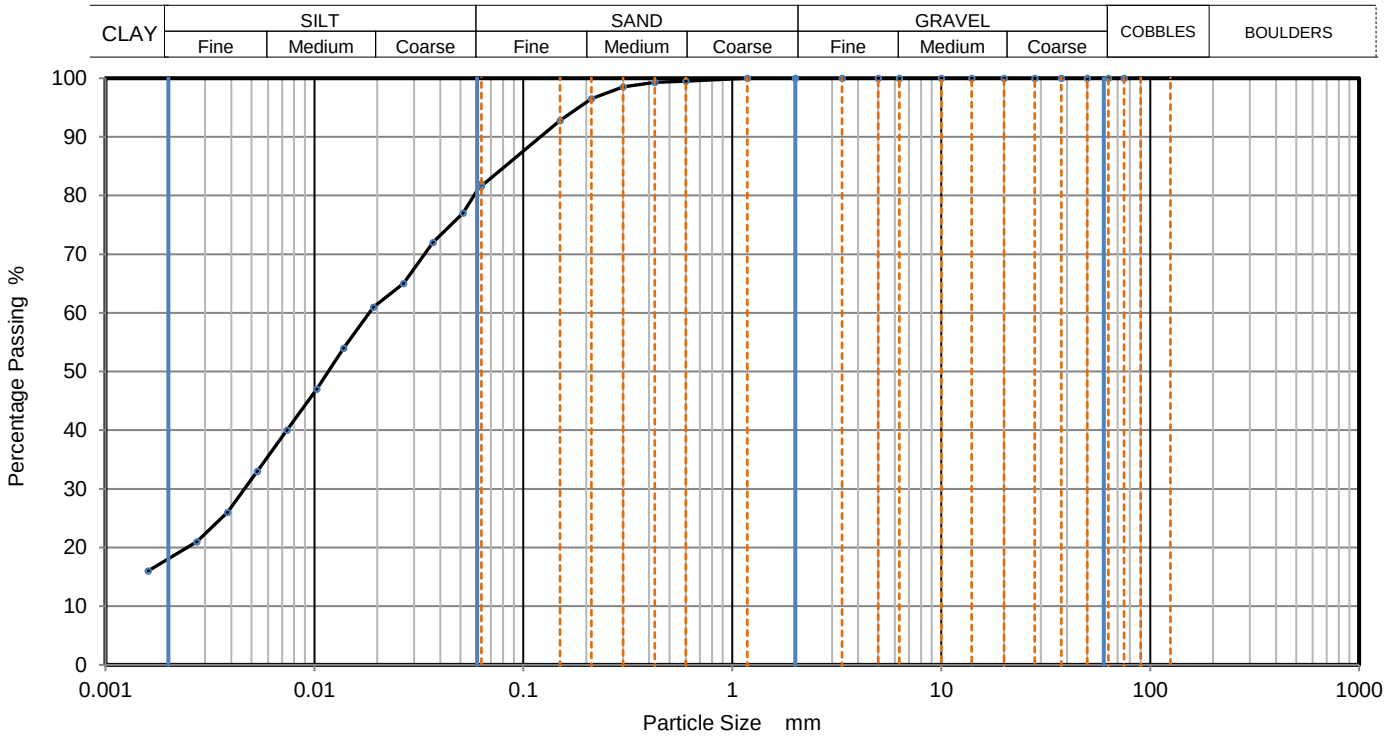
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
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Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP304
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Brown slightly sandy SILT.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110440



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	99
0.3	99
0.212	97
0.15	93
0.063	82

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	82
0.0515	77
0.0370	72
0.0267	65
0.0191	61
0.0138	54
0.0103	47
0.0074	40
0.0053	33
0.0038	26
0.0027	21
0.0016	16
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	361

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	18
Silt	63
Clay	18

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0186
D30	mm	0.0047
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

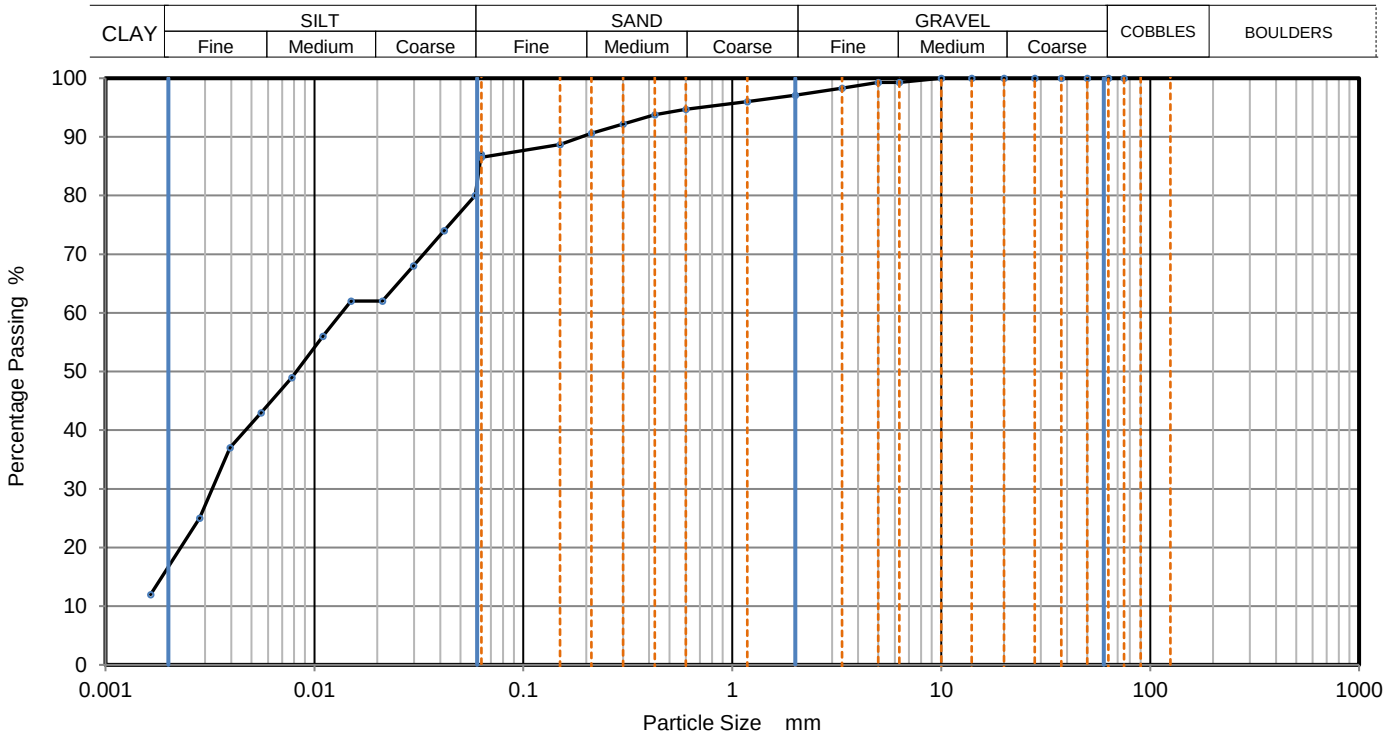
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP304
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Dark grey slightly gravelly slightly sandy SILT.			Depth, m	4.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110443



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	99
5	99
3.35	98
2	97
1.18	96
0.6	95
0.425	94
0.3	92
0.212	91
0.15	89
0.063	87

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	87
0.0588	80
0.0418	74
0.0297	68
0.0211	62
0.0150	62
0.0110	56
0.0078	49
0.0055	43
0.0039	37
0.0028	25
0.0016	12
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g: 144

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	3
Sand	11
Silt	70
Clay	17

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0137
D30	mm	0.00325
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

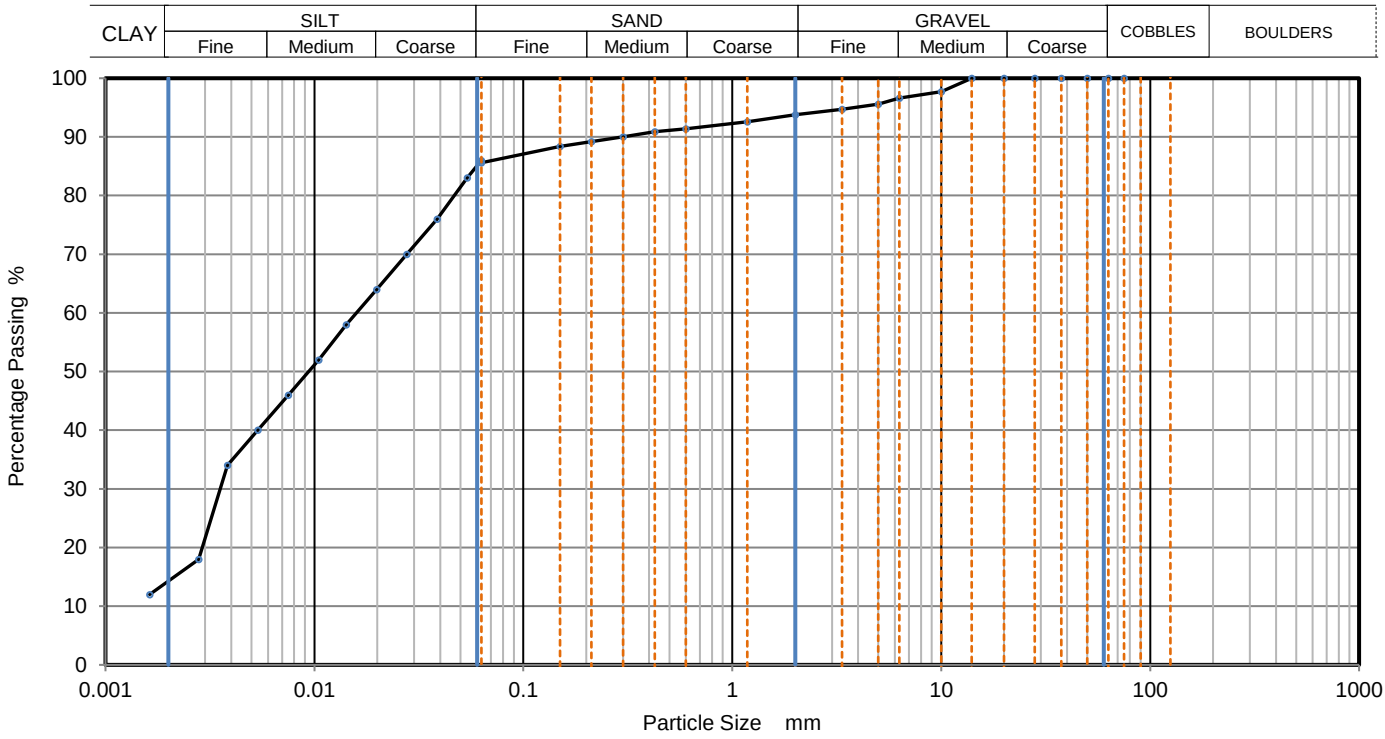
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	1
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP305
Site Name	Arklow Bank Windpark			Sample No.	5
Soil Description	Dark brown slightly gravelly slightly sandy SILT.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028336



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	98
6.3	97
5	96
3.35	95
2	94
1.18	93
0.6	91
0.425	91
0.3	90
0.212	89
0.15	88
0.063	86

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	86
0.0539	83
0.0386	76
0.0277	70
0.0198	64
0.0142	58
0.0105	52
0.0075	46
0.0054	40
0.0038	34
0.0028	18
0.0016	12
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	295

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	6
Sand	8
Silt	71
Clay	15

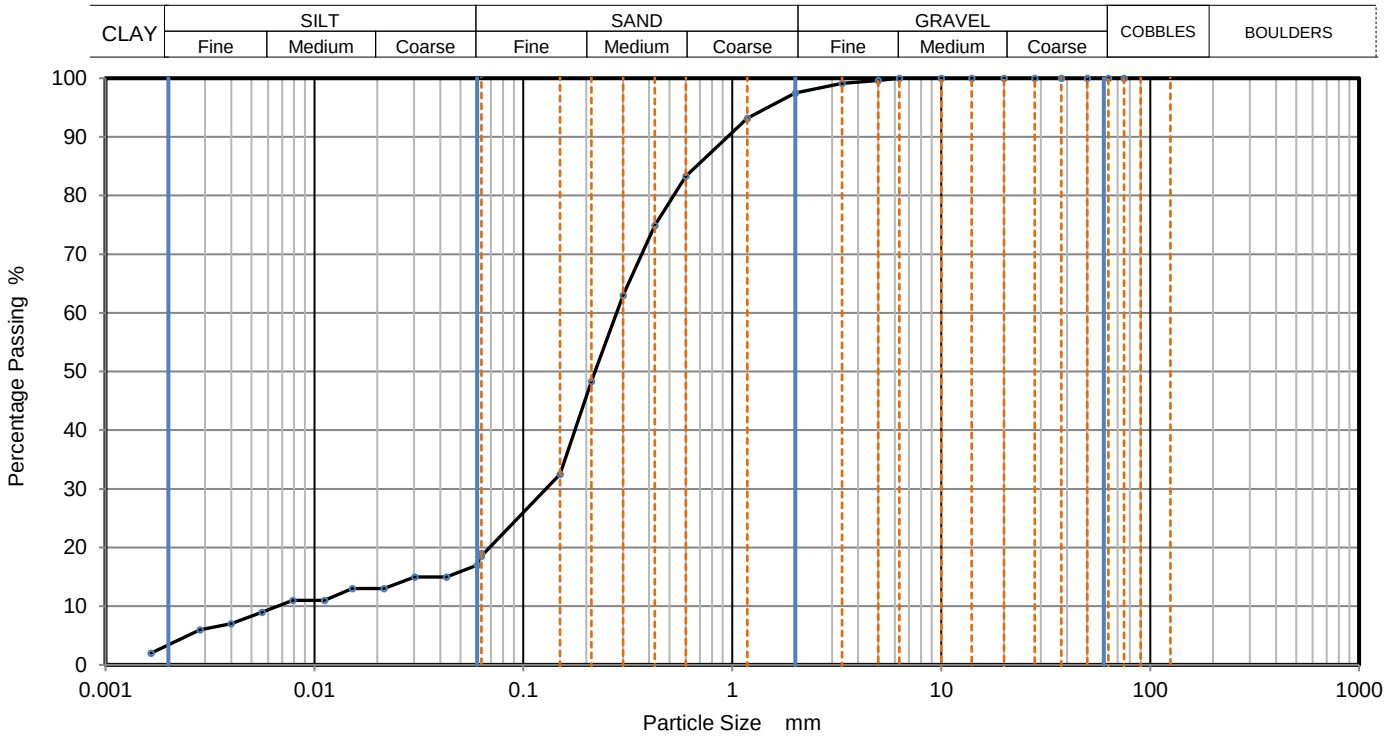
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0158
D30	mm	0.00356
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP305
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Dark grey slightly gravelly silty fine and medium SAND.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028337



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	99
2	98
1.18	93
0.6	83
0.425	75
0.3	63
0.212	48
0.15	33
0.063	19

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	19
0.0601	17
0.0428	15
0.0302	15
0.0215	13
0.0152	13
0.0112	11
0.0079	11
0.0056	9
0.0040	7
0.0028	6
0.0017	2
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	468

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	3
Sand	79
Silt	15
Clay	3

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.279
D30	mm	0.128
D10	mm	0.00644
Uniformity Coefficient		43
Curvature Coefficient		9.2

Remarks

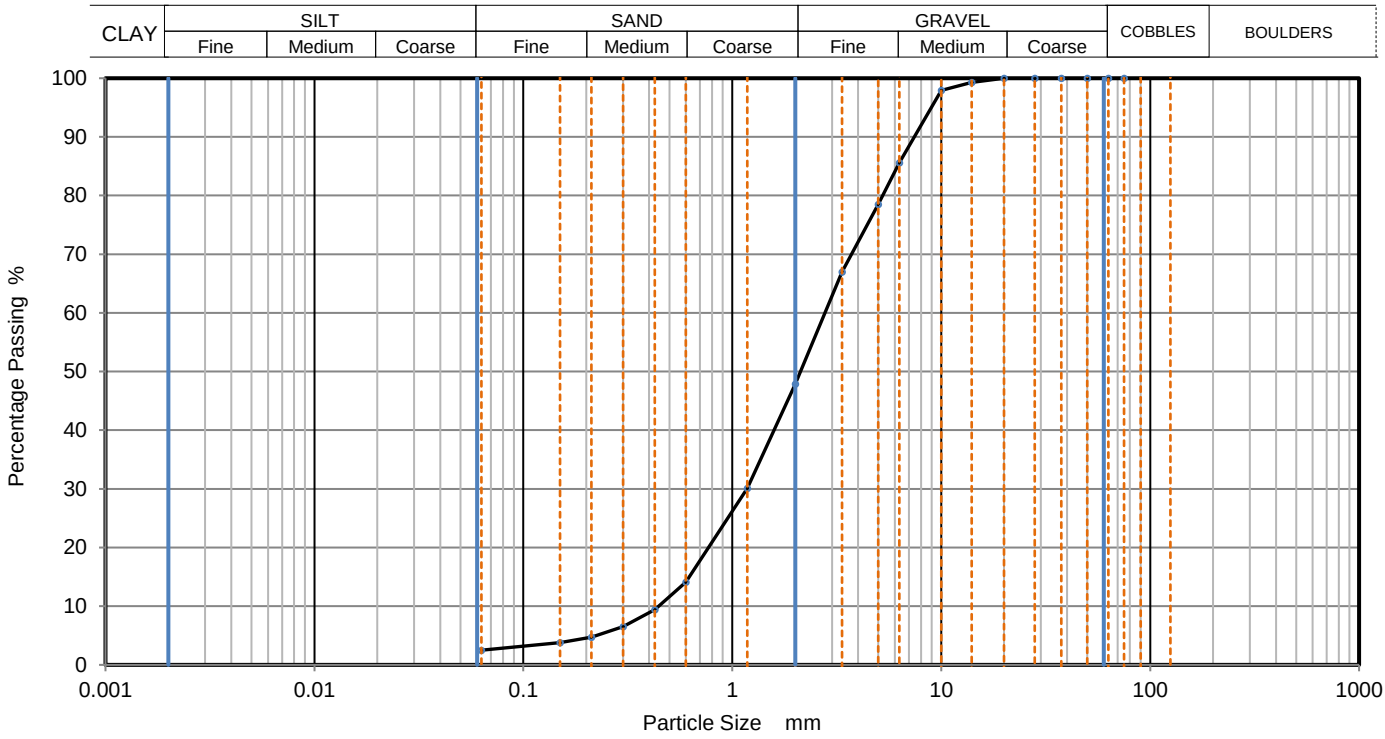
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP305
Site Name	Arklow Bank Windpark			Sample No.	8
Soil Description	Grey slightly silty coarse SAND and fine GRAVEL.			Depth, m	2.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201028339



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	99		
10	98		
6.3	86		
5	79		
3.35	67		
2	48		
1.18	30		
0.6	14		
0.425	9		
0.3	7		
0.212	5		
0.15	4		
0.063	3		

Dry Mass of sample, g	523

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	52
Sand	45
Fines <0.063mm	3

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	2.78
D30	mm	1.17
D10	mm	0.443
Uniformity Coefficient		6.3
Curvature Coefficient		1.1

Remarks

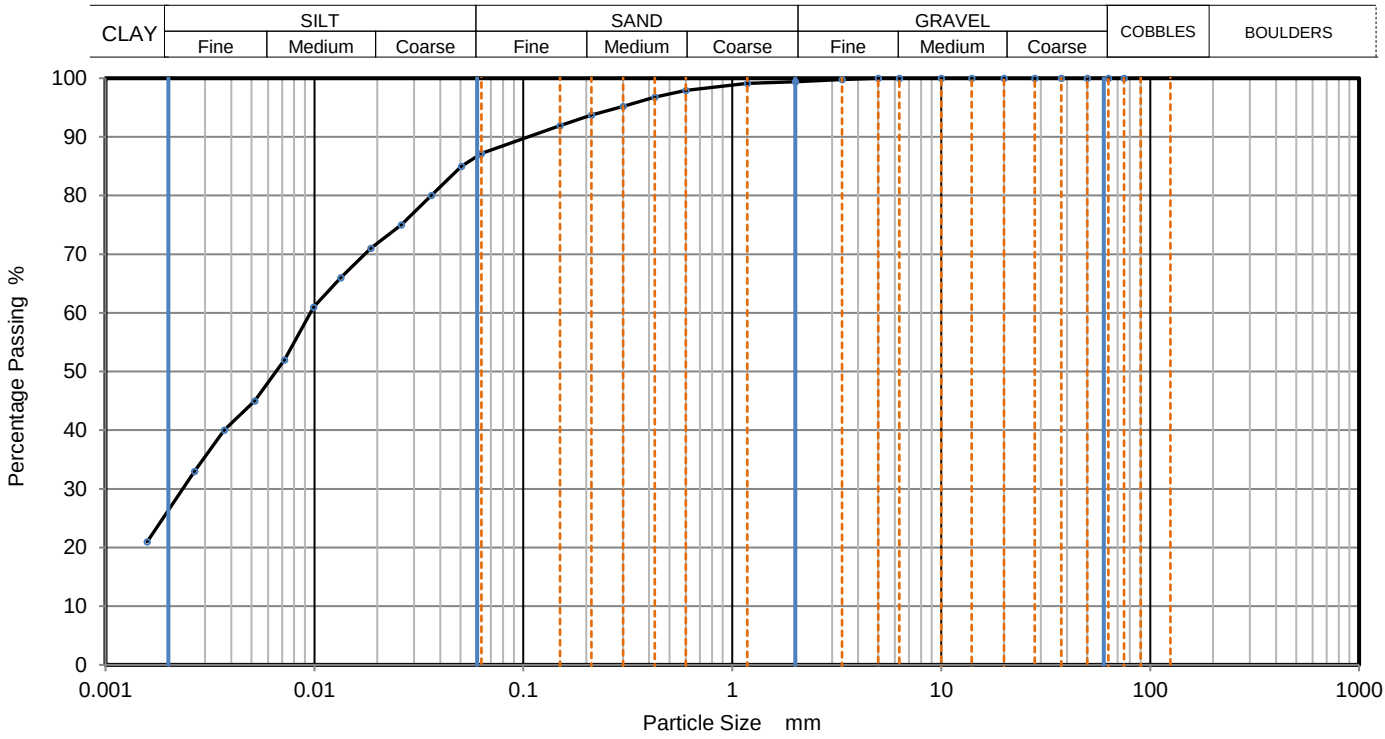
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP306
Site Name	Arklow Bank Windpark			Sample No.	5
Soil Description	Brown slightly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028345



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	99
1.18	99
0.6	98
0.425	97
0.3	95
0.212	94
0.15	92
0.063	87

□ed□men□a□□n	
Particle Size mm	% Passing
0.0621	87
0.0505	85
0.0362	80
0.0260	75
0.0187	71
0.0134	66
0.0099	61
0.0072	52
0.0052	45
0.0037	40
0.0027	33
0.0016	21
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	272

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	1
Sand	12
Silt	61
Clay	27

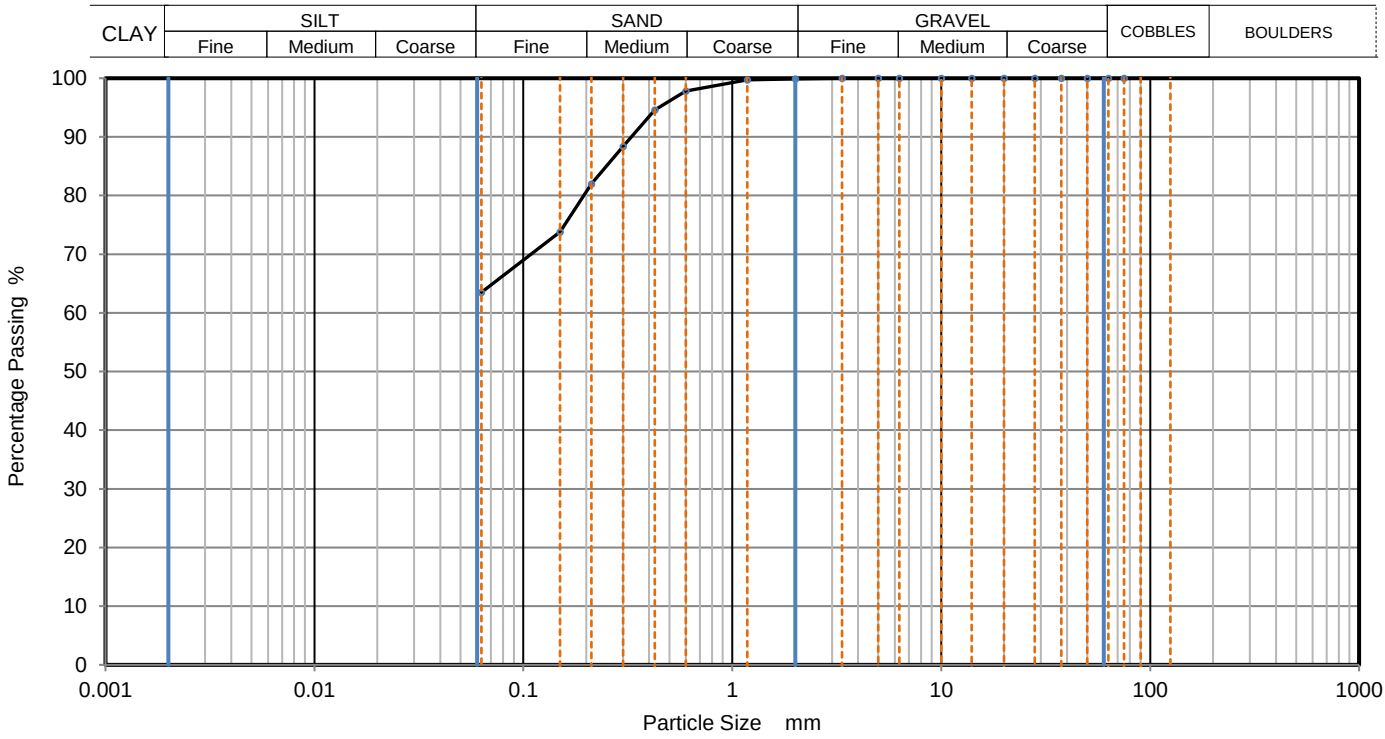
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.00948
D30	mm	0.00234
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP307
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Dark brown sandy SILT. Sand is fine and medium.			Depth, m	2.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201028353



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	98		
0.425	95		
0.3	88		
0.212	82		
0.15	74		
0.063	64		

Dry Mass of sample, g	499

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	36
Fines <0.063mm	63

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

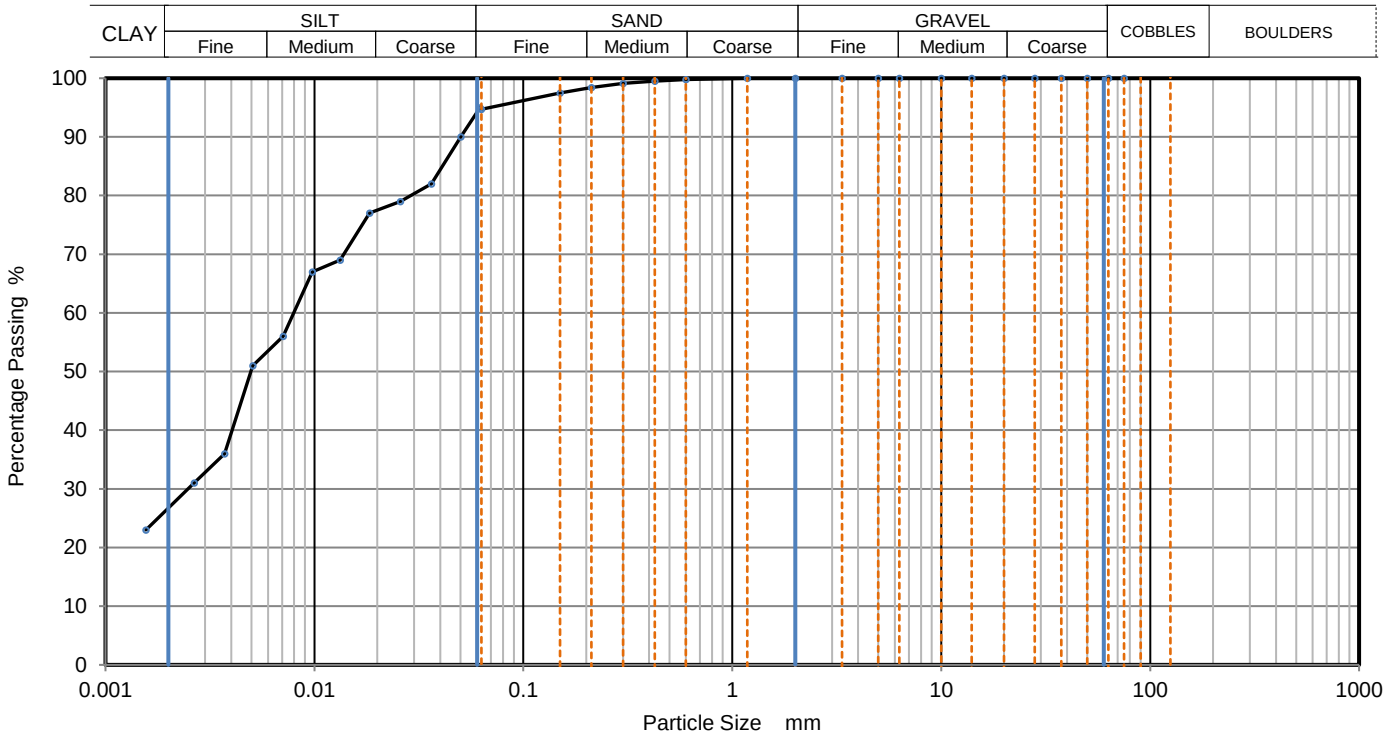
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP307
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Dark grey slightly sandy SILT.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028356



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	99
0.212	98
0.15	98
0.063	95

□ed□men□a□□n	
Particle Size mm	% Passing
0.0621	95
0.0501	90
0.0362	82
0.0258	79
0.0184	77
0.0133	69
0.0098	67
0.0071	56
0.0051	51
0.0037	36
0.0027	31
0.0016	23
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	304

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	5
Silt	68
Clay	27

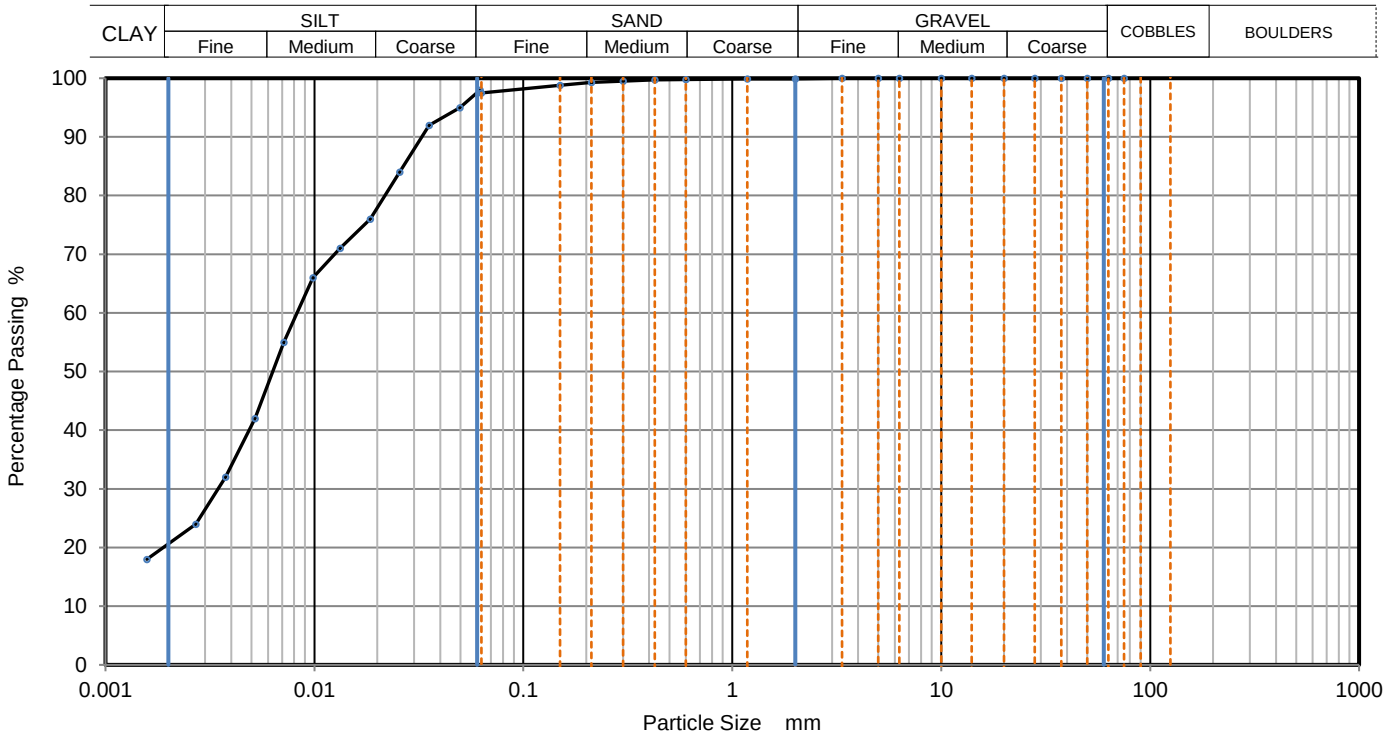
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.00795
D30	mm	0.00253
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP309
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Dark grey slightly sandy SILT.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110320



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	100
0.212	99
0.15	99
0.063	98

□ed□men□a□□n	
Particle Size mm	% Passing
0.0621	98
0.0497	95
0.0354	92
0.0256	84
0.0185	76
0.0133	71
0.0098	66
0.0071	55
0.0052	42
0.0038	32
0.0027	24
0.0016	18
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	326

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	2
Silt	77
Clay	21

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.00822
D30	mm	0.00352
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

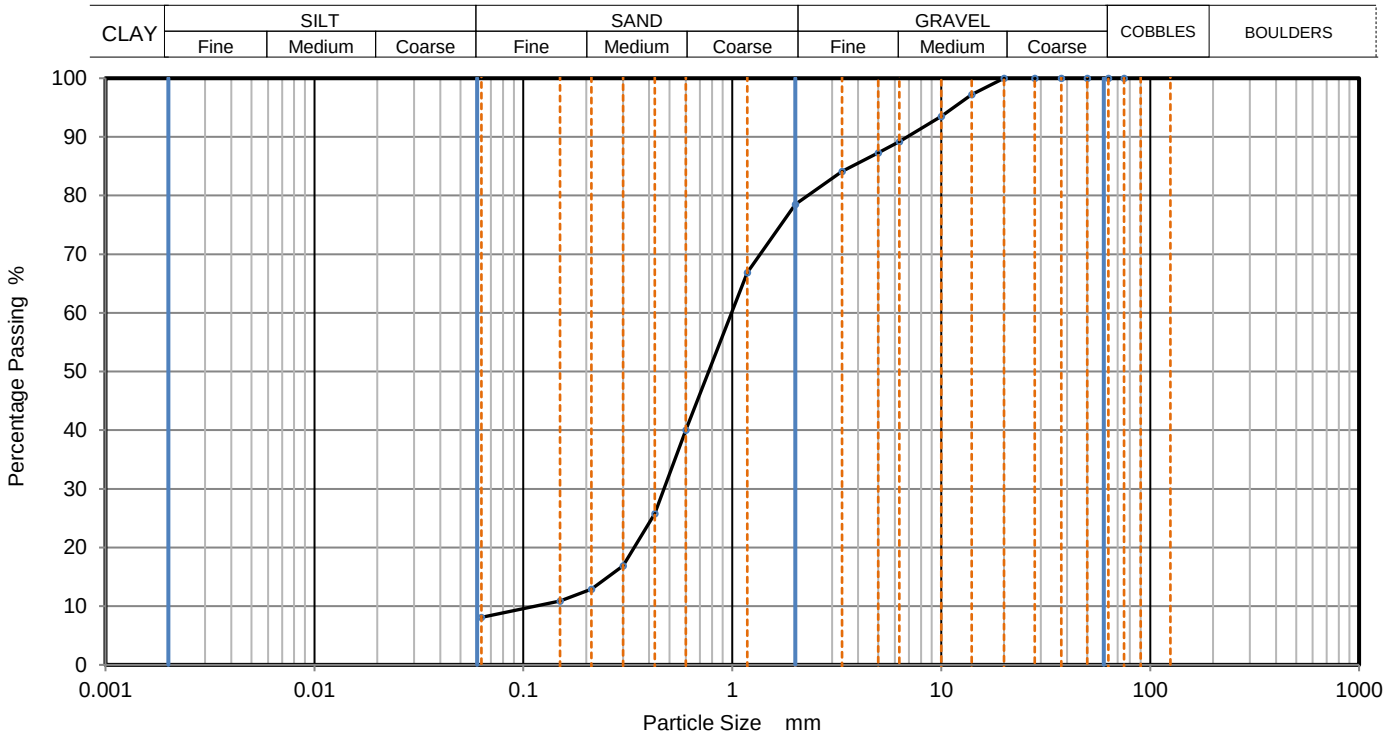
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP309
Site Name	Arklow Bank Windpark			Sample No.	5
Soil Description	Dark grey silty very gravelly medium and coarse SAND.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201028370



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	89		
5	87		
3.35	84		
2	79		
1.18	67		
0.6	40		
0.425	26		
0.3	17		
0.212	13		
0.15	11		
0.063	8		

Dry Mass of sample, g	431

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	22
Sand	70
Fines <0.063mm	8

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	0.993
D30	mm	0.471
D10	mm	0.113
Uniformity Coefficient		8.8
Curvature Coefficient		2

Remarks

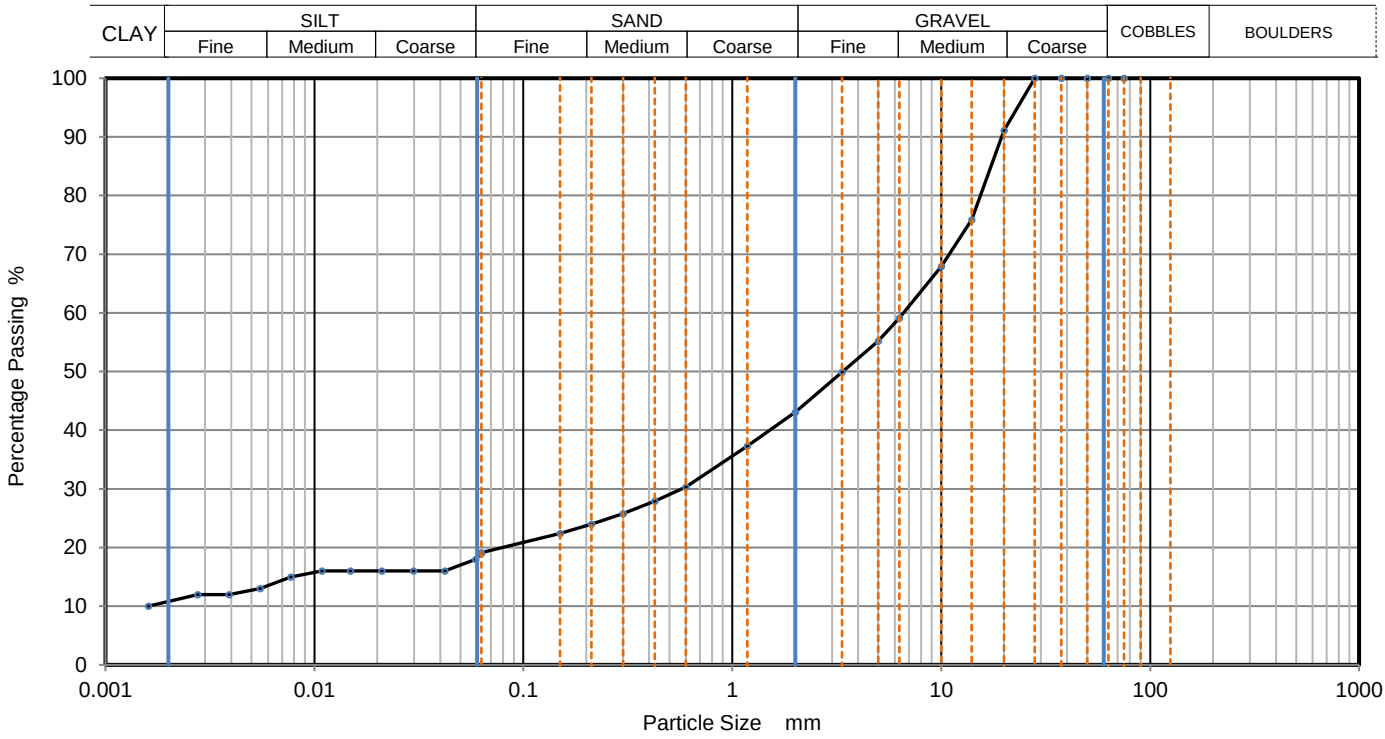
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP310
Site Name	Arklow Bank Windpark			Sample No.	3
Soil Description	Brown silty very sandy medium GRAVEL.			Depth, m	1.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110446



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	91
14	76
10	68
6.3	59
5	55
3.35	50
2	43
1.18	37
0.6	30
0.425	28
0.3	26
0.212	24
0.15	22
0.063	19

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	19
0.0591	18
0.0421	16
0.0297	16
0.0210	16
0.0149	16
0.0109	16
0.0077	15
0.0055	13
0.0039	12
0.0028	12
0.0016	10
Particle density (assumed)	
2.65 Mg/m3	

Dry Mass of sample, g	670

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	57
Sand	24
Silt	8
Clay	11

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	6.61
D30	mm	0.573
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

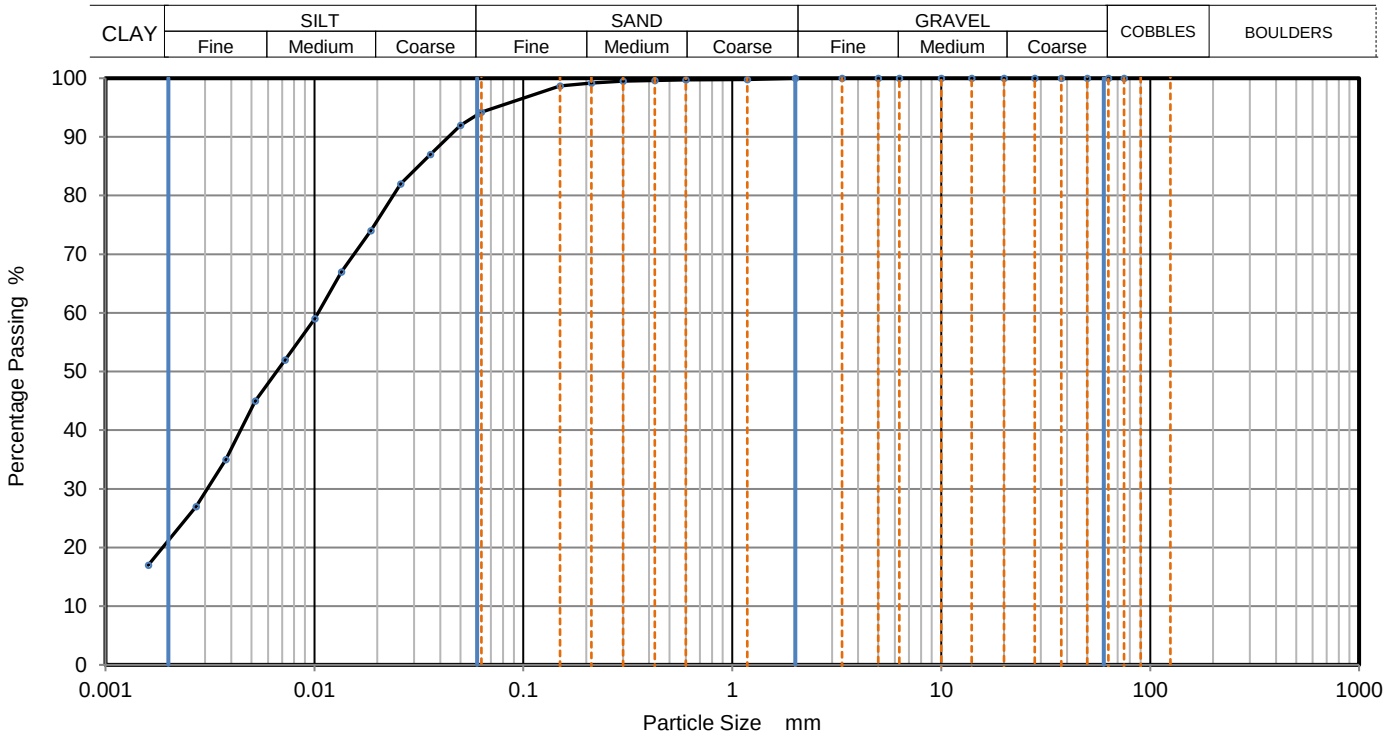
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:19	QC From No:R2

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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP310
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Dark grey slightly sandy SILT.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110450



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	100
0.212	99
0.15	99
0.063	94

□ed□men□a□□n	
Particle Size mm	% Passing
0.0616	94
0.0501	92
0.0360	87
0.0258	82
0.0187	74
0.0135	67
0.0100	59
0.0072	52
0.0052	45
0.0038	35
0.0027	27
0.0016	17
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	287

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	6
Silt	73
Clay	22

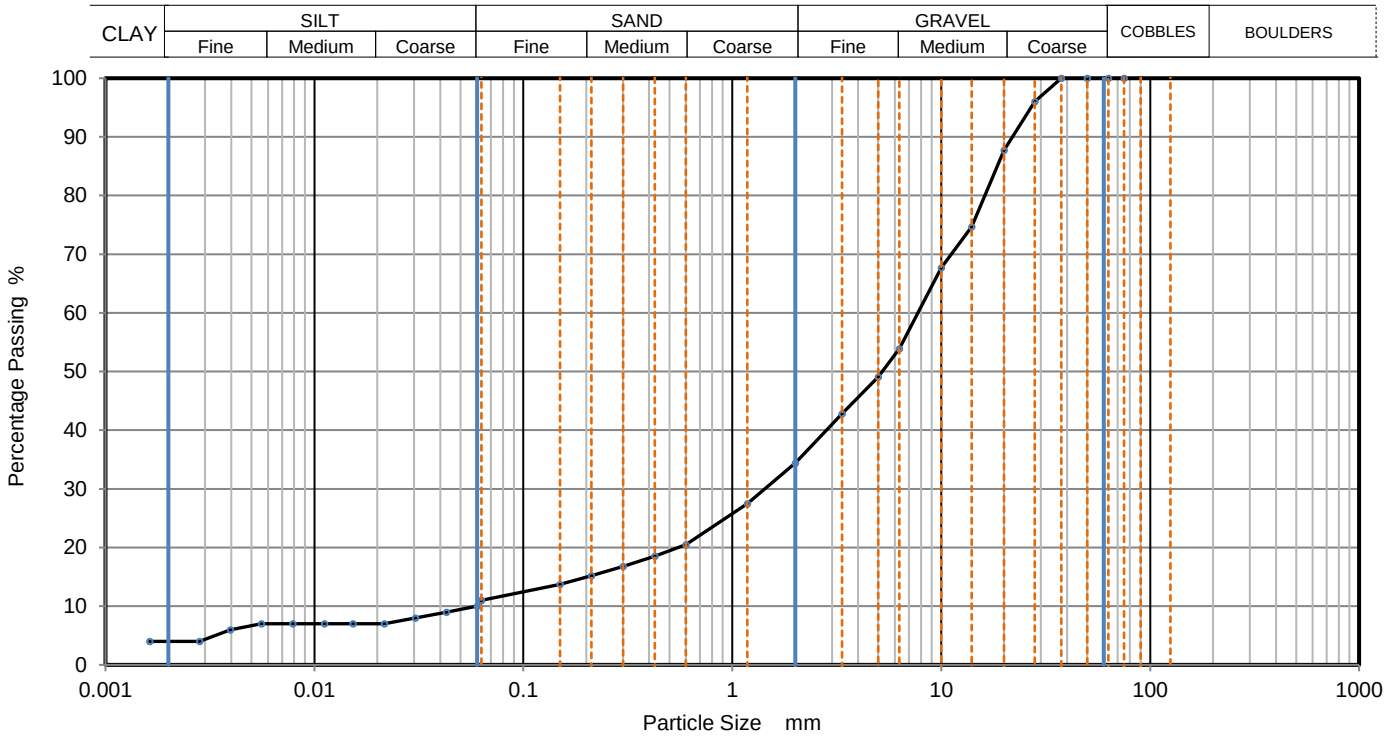
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0102
D30	mm	0.00306
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:20	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP311
Site Name	Arklow Bank Windpark			Sample No.	3
Soil Description	Dark grey silty very sandy medium GRAVEL.			Depth, m	1.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028373



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	96
20	88
14	75
10	68
6.3	54
5	49
3.35	43
2	34
1.18	28
0.6	21
0.425	19
0.3	17
0.212	15
0.15	14
0.063	11

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	11
0.0601	10
0.0428	9
0.0304	8
0.0216	7
0.0153	7
0.0112	7
0.0079	7
0.0056	7
0.0040	6
0.0028	4
0.0016	4
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	600

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	66
Sand	23
Silt	7
Clay	4

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	7.72
D30	mm	1.43
D10	mm	0.0604
Uniformity Coefficient		130
Curvature Coefficient		4.4

Remarks

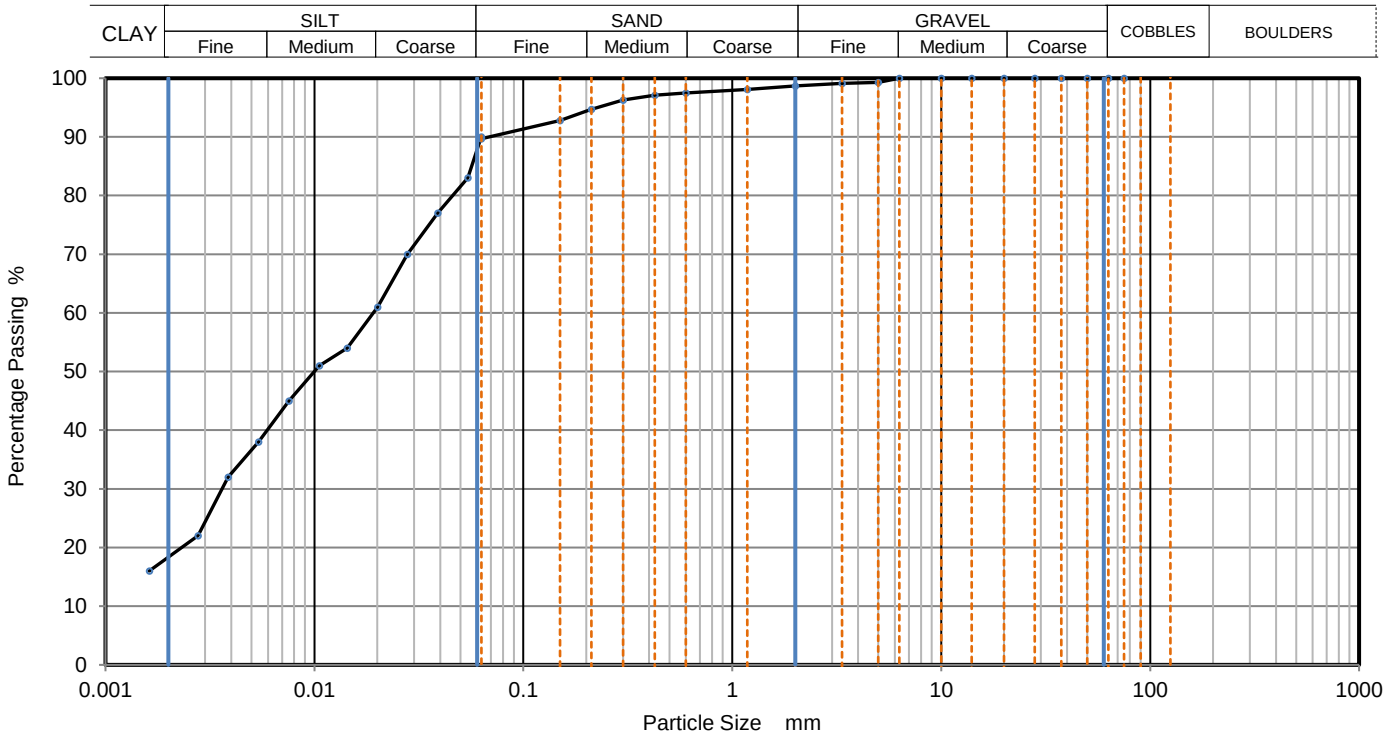
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Operator	Checked	Approved	Sheet printed	
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:20	1
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP311
Site Name	Arklow Bank Windpark			Sample No.	8
Soil Description	Dark grey slightly sandy SILT.			Depth, m	3.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028379



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	99
3.35	99
2	99
1.18	98
0.6	98
0.425	97
0.3	96
0.212	95
0.15	93
0.063	90

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	90
0.0542	83
0.0389	77
0.0278	70
0.0201	61
0.0144	54
0.0106	51
0.0075	45
0.0054	38
0.0039	32
0.0028	22
0.0016	16
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	224

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	1
Sand	9
Silt	71
Clay	19

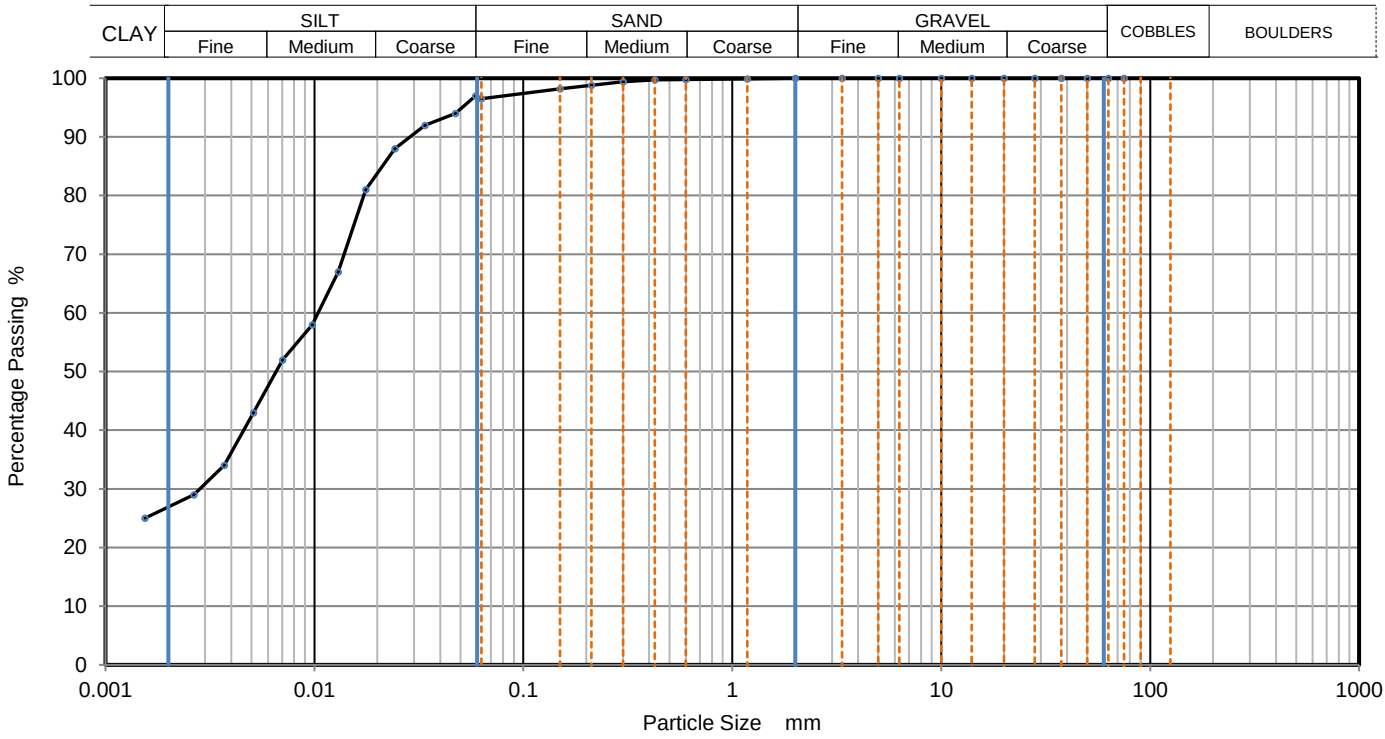
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0192
D30	mm	0.0036
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:20	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP312
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Dark grey slightly sandy SILT.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110458



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	99
0.212	99
0.15	98
0.063	97

□ed□men□a□□n	
Particle Size mm	% Passing
0.0591	97
0.0473	94
0.0338	92
0.0243	88
0.0176	81
0.0130	67
0.0098	58
0.0070	52
0.0051	43
0.0037	34
0.0026	29
0.0015	25
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	333

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	4
Silt	70
Clay	27

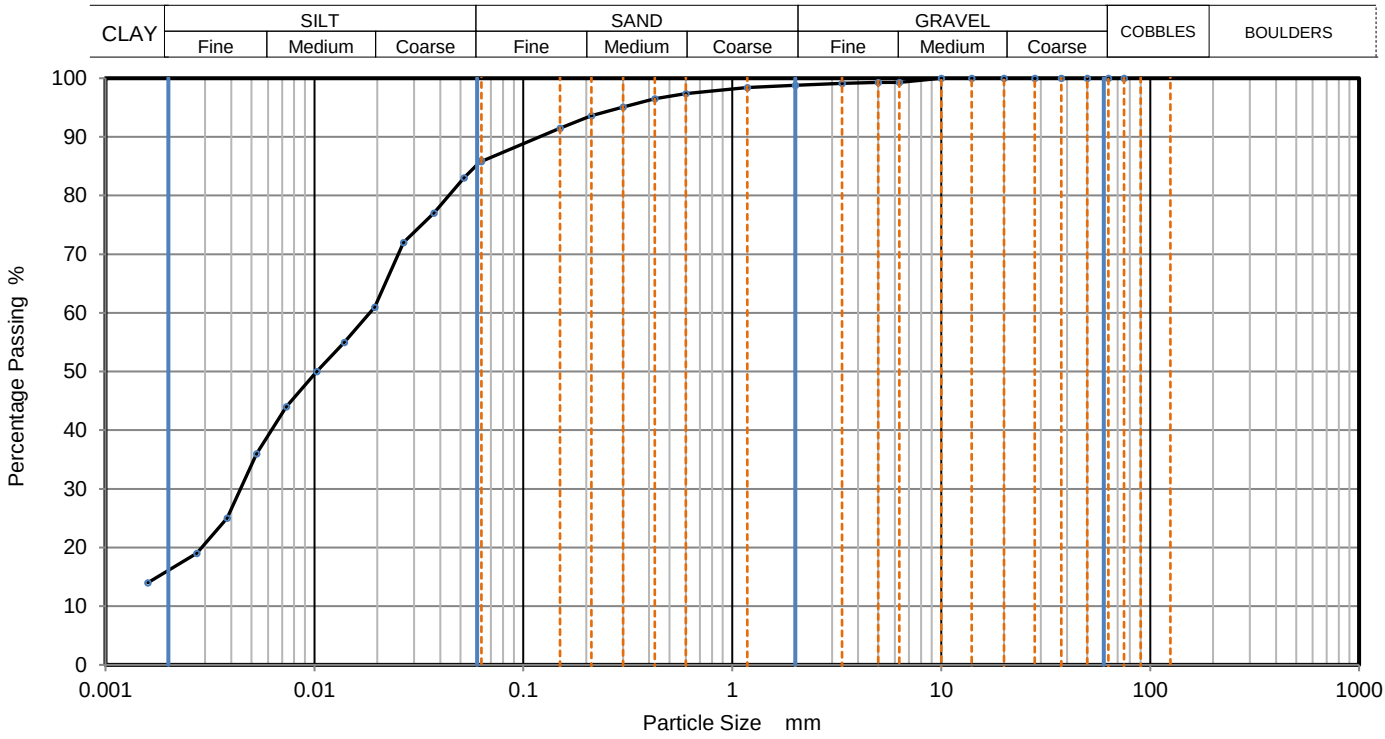
□rad□n□ Ana□y□□		
D_{100}	mm	
D_{60}	mm	0.0103
D_{30}	mm	0.00281
D_{10}	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	08/01/2021 14:02	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP313
Site Name	Arklow Bank Windpark			Sample No.	5
Soil Description	Dark blue-grey slightly sandy SILT.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028385



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	99
5	99
3.35	99
2	99
1.18	98
0.6	97
0.425	97
0.3	95
0.212	94
0.15	92
0.063	86

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	86
0.0520	83
0.0373	77
0.0267	72
0.0194	61
0.0139	55
0.0103	50
0.0074	44
0.0053	36
0.0038	25
0.0027	19
0.0016	14
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	431

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	1
Sand	13
Silt	70
Clay	16

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0184
D30	mm	0.00444
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

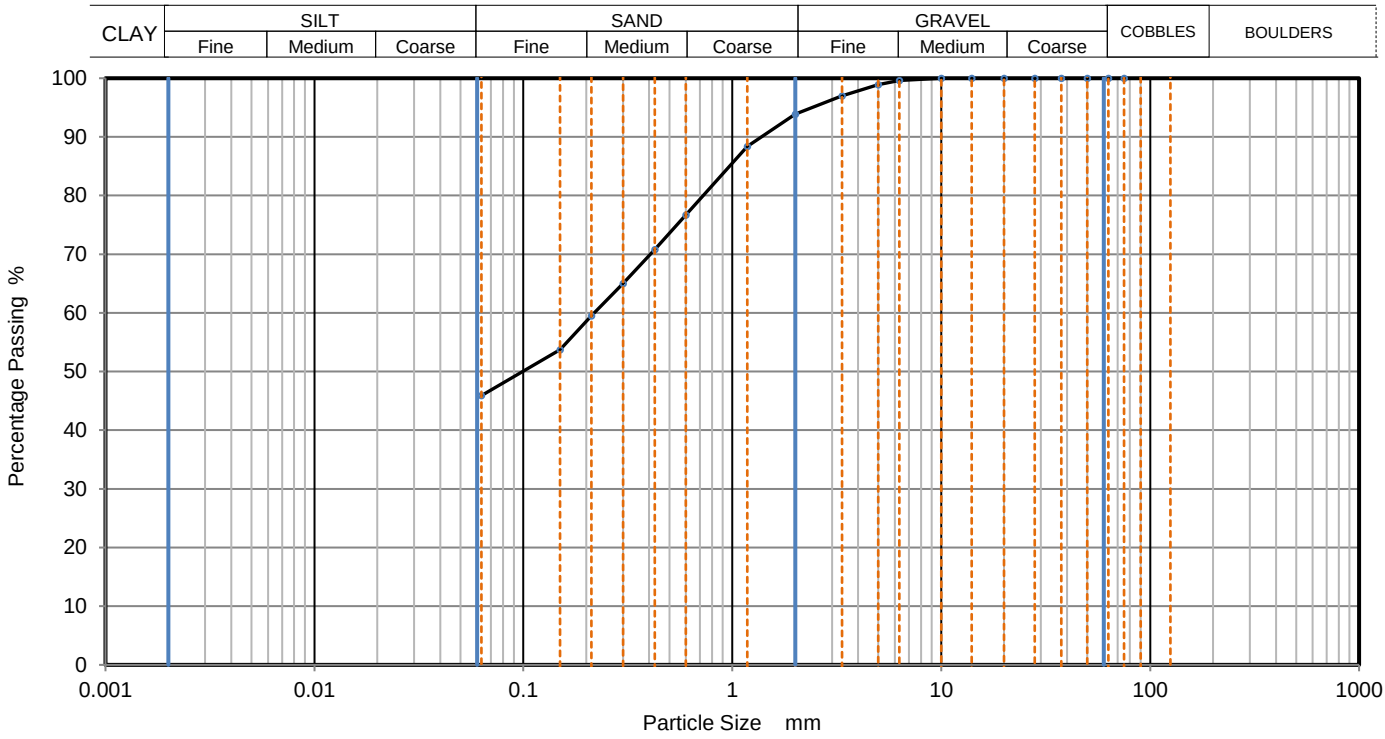
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:20	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP313
Site Name	Arklow Bank Windpark			Sample No.	8
Soil Description	Dark grey slightly gravelly sandy SILT.			Depth, m	3.30
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201028388



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	99		
3.35	97		
2	94		
1.18	88		
0.6	77		
0.425	71		
0.3	65		
0.212	60		
0.15	54		
0.063	46		

Dry Mass of sample, g	449

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	6
Sand	48
Fines <0.063mm	46

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	0.219
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

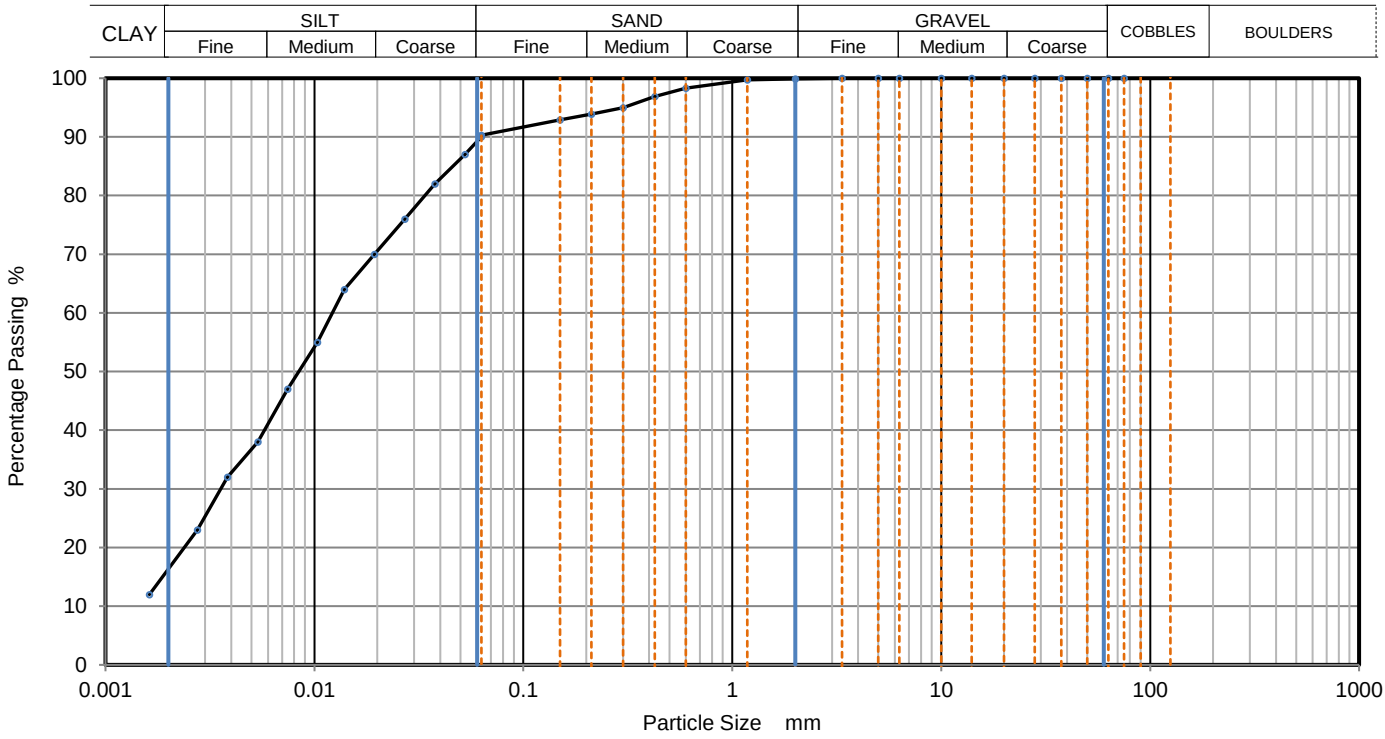
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
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Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP314
Site Name	Arklow Bank Windpark			Sample No.	5
Soil Description	Dark grey slightly sandy SILT.			Depth, m	1.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110464



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	98
0.425	97
0.3	95
0.212	94
0.15	93
0.063	90

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	90
0.0526	87
0.0377	82
0.0271	76
0.0194	70
0.0139	64
0.0103	55
0.0074	47
0.0054	38
0.0038	32
0.0028	23
0.0016	12
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	207

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	10
Silt	74
Clay	16

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0121
D30	mm	0.00355
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

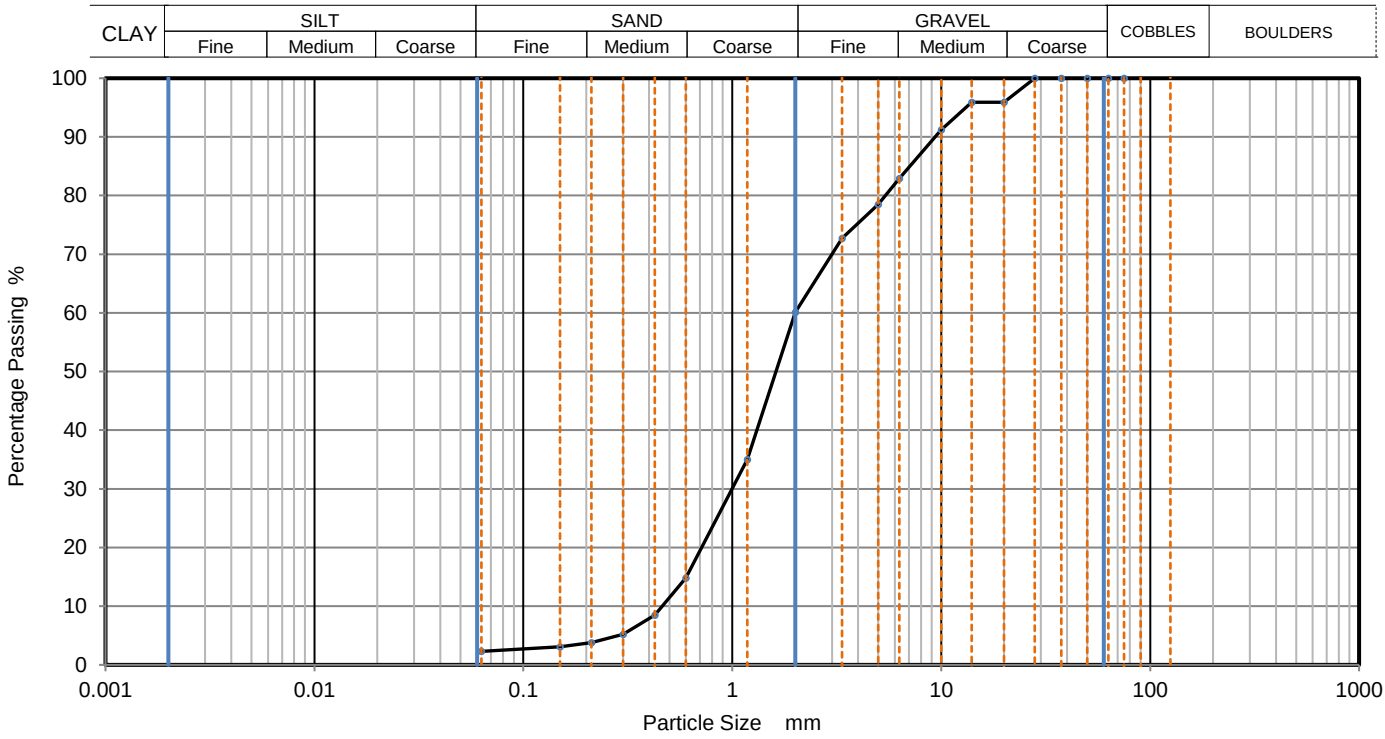
Preparation and testing in accordance with BS1377 unless noted below

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Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP314
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Grey slightly silty very gravelly coarse SAND. Gravel is fine.			Depth, m	2.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020110466



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	96		
14	96		
10	91		
6.3	83		
5	79		
3.35	73		
2	60		
1.18	35		
0.6	15		
0.425	9		
0.3	5		
0.212	4		
0.15	3		
0.063	2		

Dry Mass of sample, g	820

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	40
Sand	58
Fines <0.063mm	2

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	1.99
D30	mm	0.999
D10	mm	0.461
Uniformity Coefficient		4.3
Curvature Coefficient		1.1

Remarks

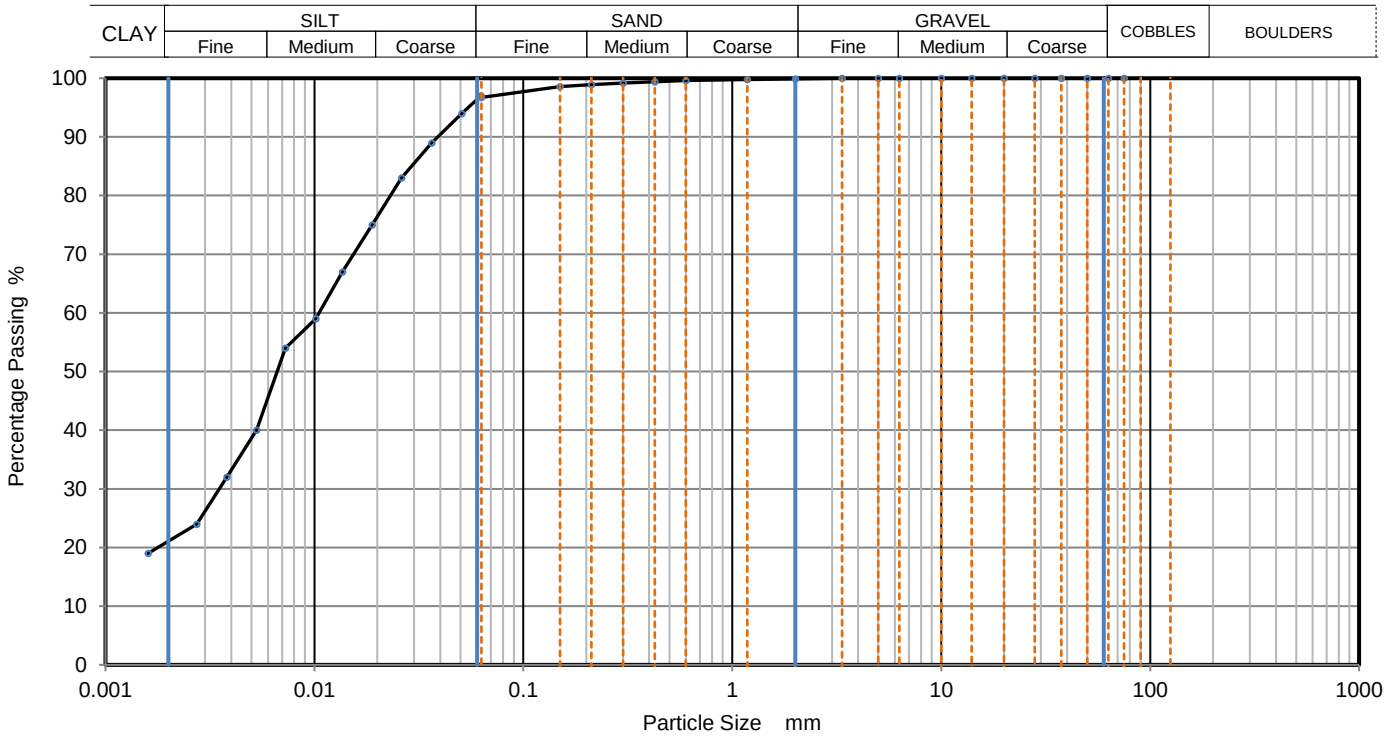
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP315
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Dark grey slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020110471



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	99
0.3	99
0.212	99
0.15	99
0.063	97

□ed□men□a□□n	
Particle Size mm	% Passing
0.0626	97
0.0507	94
0.0364	89
0.0261	83
0.0189	75
0.0136	67
0.0101	59
0.0073	54
0.0053	40
0.0038	32
0.0027	24
0.0016	19
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	280

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	3
Silt	76
Clay	21

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0105
D30	mm	0.00348
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

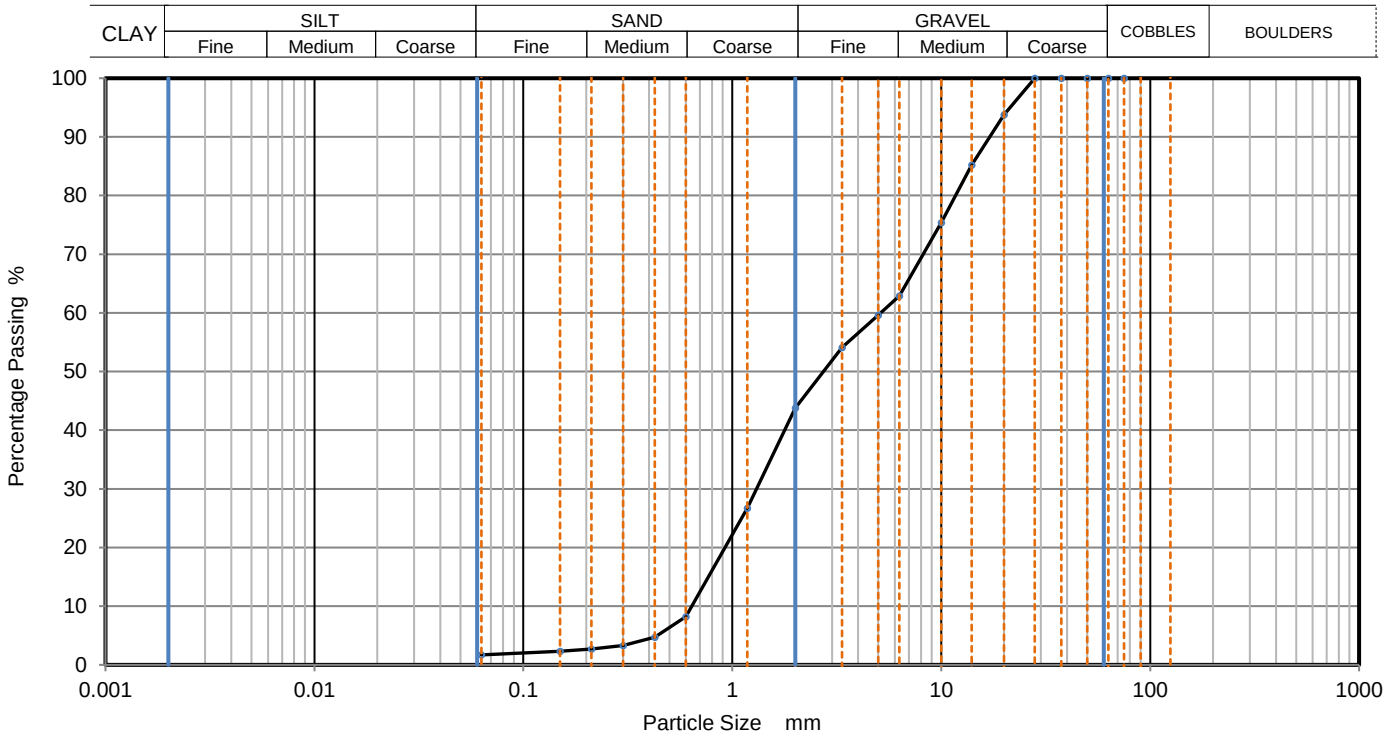
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP315
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Grey very sandy fine GRAVEL. Sand is coarse.			Depth, m	3.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020110474



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	94		
14	85		
10	75		
6.3	63		
5	60		
3.35	54		
2	44		
1.18	27		
0.6	8		
0.425	5		
0.3	3		
0.212	3		
0.15	2		
0.063	2		

Dry Mass of sample, g	874

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	56
Sand	42
Fines <0.063mm	2

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	5.16
D30	mm	1.31
D10	mm	0.64
Uniformity Coefficient		8.1
Curvature Coefficient		0.52

Remarks

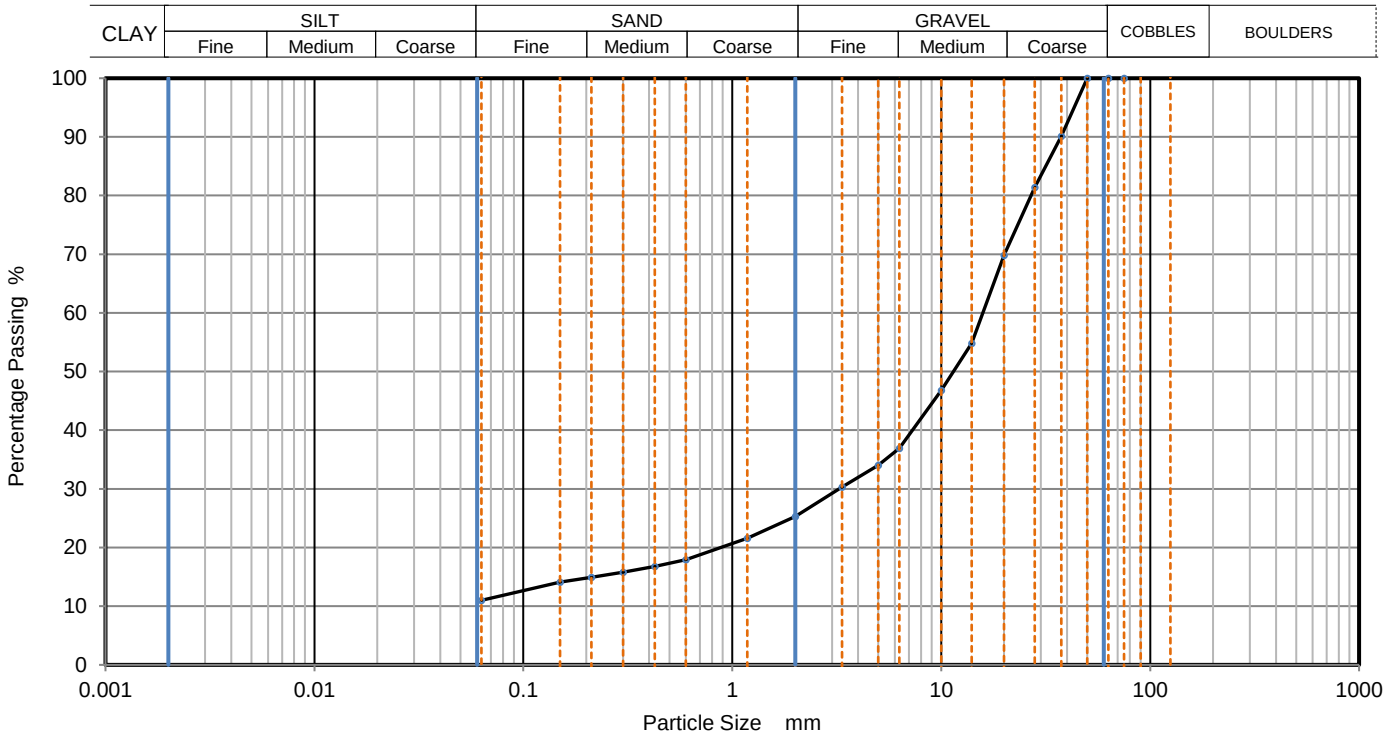
Preparation and testing in accordance with BS1377 unless noted below

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ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:20	1
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP316
Site Name	Arklow Bank Windpark			Sample No.	2
Soil Description	Brown silty sandy medium and coarse GRAVEL.			Depth, m	0.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL120201028390



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	90		
28	81		
20	70		
14	55		
10	47		
6.3	37		
5	34		
3.35	30		
2	25		
1.18	22		
0.6	18		
0.425	17		
0.3	16		
0.212	15		
0.15	14		
0.063	11		

Dry Mass of sample, g	857

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	75
Sand	14
Fines <0.063mm	11

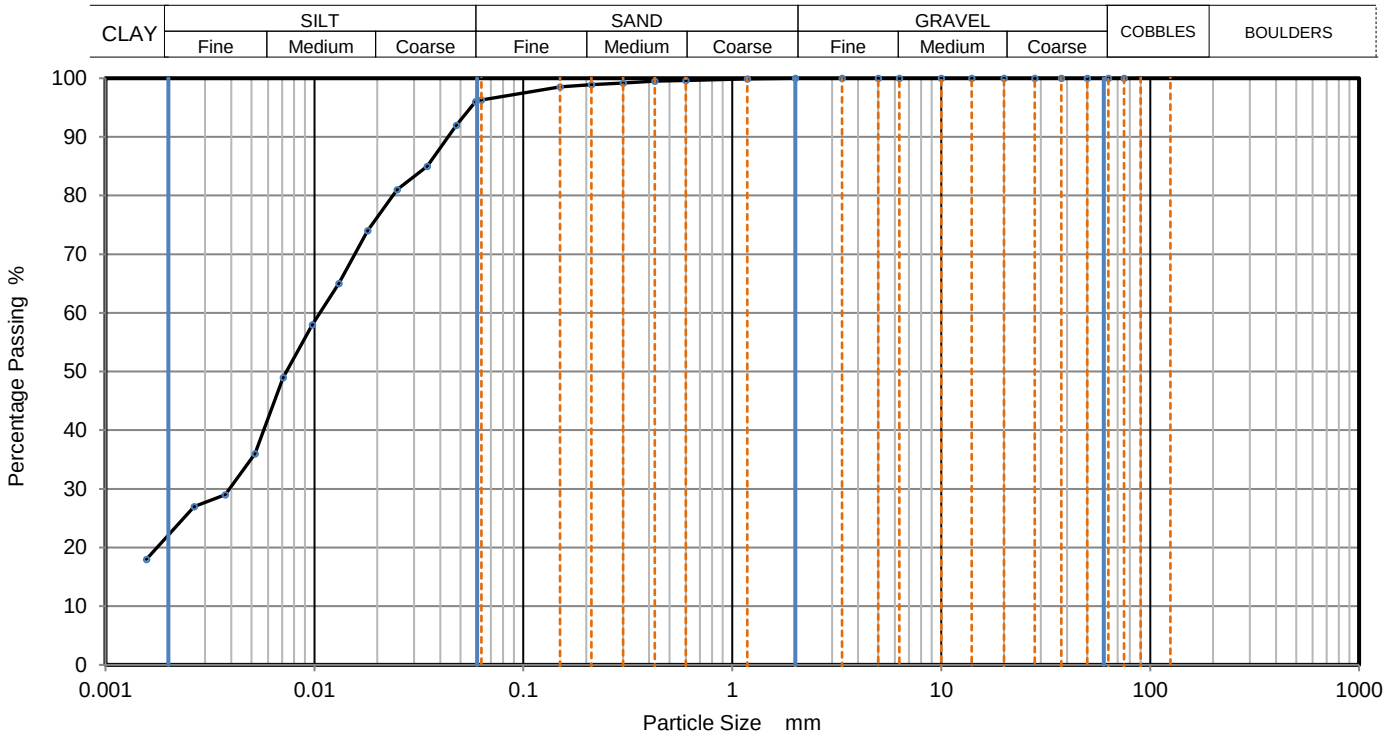
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	15.8
D30	mm	3.26
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:20	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP316
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Dark grey slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028395



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	99
0.212	99
0.15	99
0.063	96

□ed□men□a□□n	
Particle Size mm	% Passing
0.0591	96
0.0478	92
0.0346	85
0.0249	81
0.0180	74
0.0131	65
0.0098	58
0.0071	49
0.0052	36
0.0037	29
0.0027	27
0.0016	18
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	308

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	4
Silt	74
Clay	22

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0105
D30	mm	0.00391
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

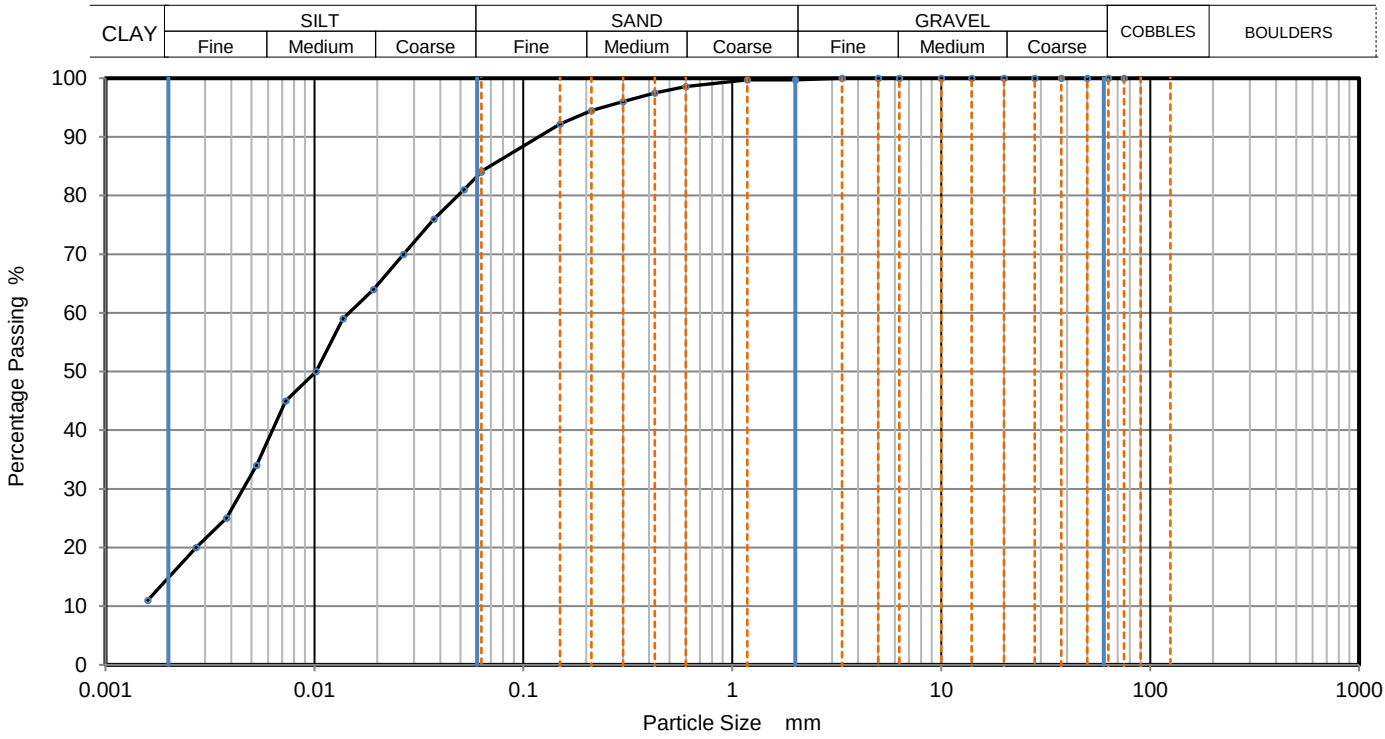
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Operator	Checked	Approved	Sheet printed	1
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Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP317
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Dark brown slightly sandy SILT.			Depth, m	1.90
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028401



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	99
0.425	98
0.3	96
0.212	95
0.15	92
0.063	84

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	84
0.0520	81
0.0373	76
0.0267	70
0.0191	64
0.0137	59
0.0102	50
0.0073	45
0.0053	34
0.0038	25
0.0027	20
0.0016	11
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	251

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	16
Silt	69
Clay	15

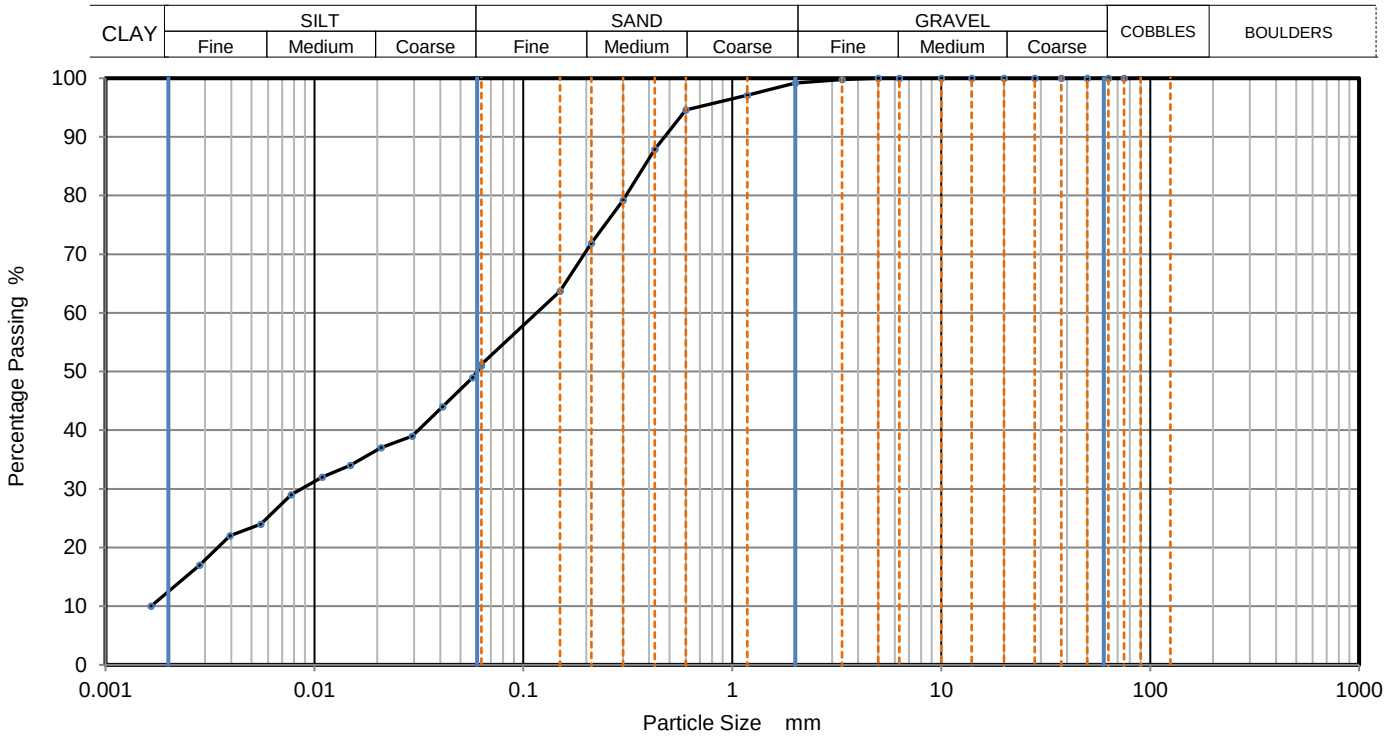
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0147
D30	mm	0.00458
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

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Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:20	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP317
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Dark brown sandy SILT. Sand is fine and medium.			Depth, m	3.10
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028404



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	99
1.18	97
0.6	95
0.425	88
0.3	79
0.212	72
0.15	64
0.063	51

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	51
0.0573	49
0.0410	44
0.0293	39
0.0209	37
0.0148	34
0.0109	32
0.0078	29
0.0055	24
0.0039	22
0.0028	17
0.0017	10
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	364

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	1
Sand	48
Silt	39
Clay	12

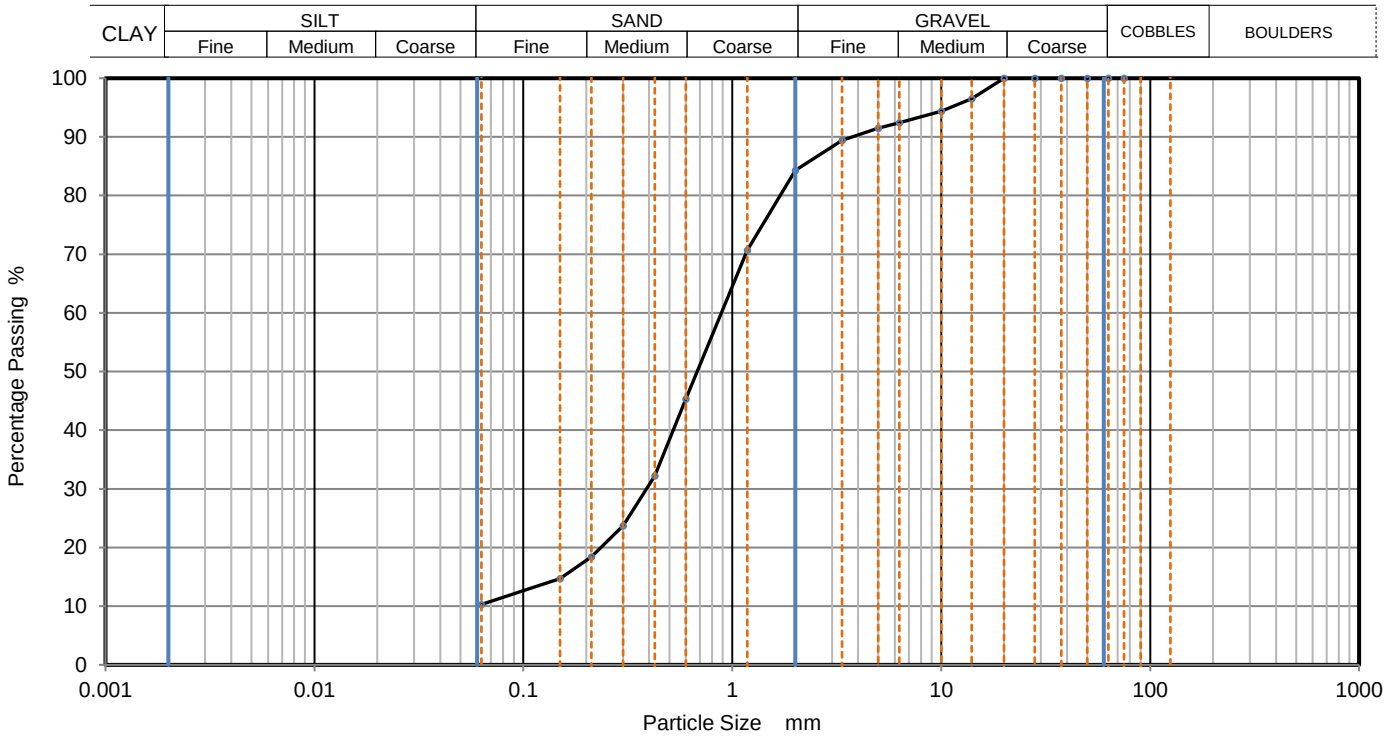
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.116
D30	mm	0.0086
D10	mm	0.00168
Uniformity Coefficient		69
Curvature Coefficient		0.38

Remarks

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IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP317
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Dark grey silty gravelly medium and coarse SAND.			Depth, m	3.40
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020110321



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	97		
10	94		
6.3	92		
5	92		
3.35	89		
2	84		
1.18	71		
0.6	45		
0.425	32		
0.3	24		
0.212	18		
0.15	15		
0.063	10		

Dry Mass of sample, g	575

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	16
Sand	74
Fines <0.063mm	10

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	0.888
D30	mm	0.389
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

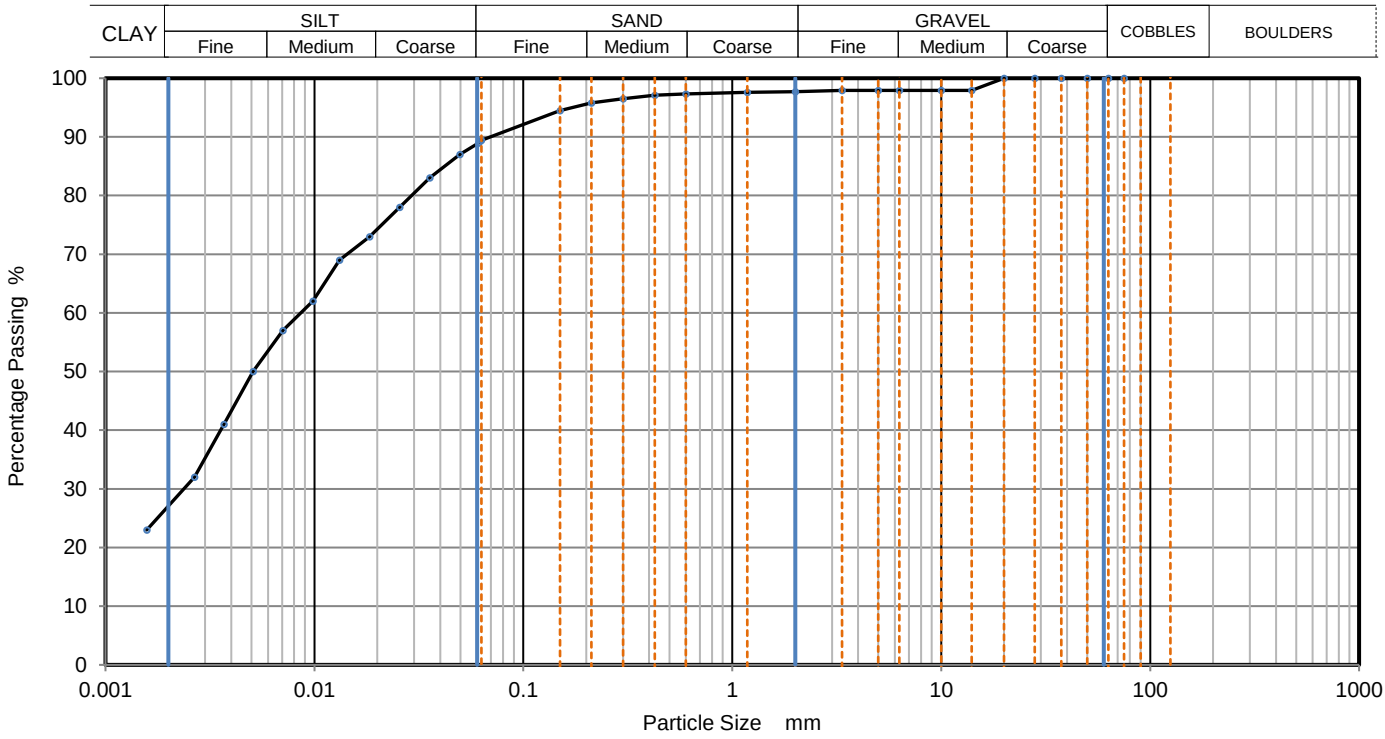
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP318
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Brown slightly gravelly slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028409



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	98
10	98
6.3	98
5	98
3.35	98
2	98
1.18	98
0.6	97
0.425	97
0.3	97
0.212	96
0.15	95
0.063	89

□ed□men□a□□n	
Particle Size mm	% Passing
0.0611	89
0.0497	87
0.0357	83
0.0256	78
0.0184	73
0.0132	69
0.0098	62
0.0071	57
0.0051	50
0.0037	41
0.0027	32
0.0016	23
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	475

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	2
Sand	8
Silt	62
Clay	27

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.00857
D30	mm	0.00237
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

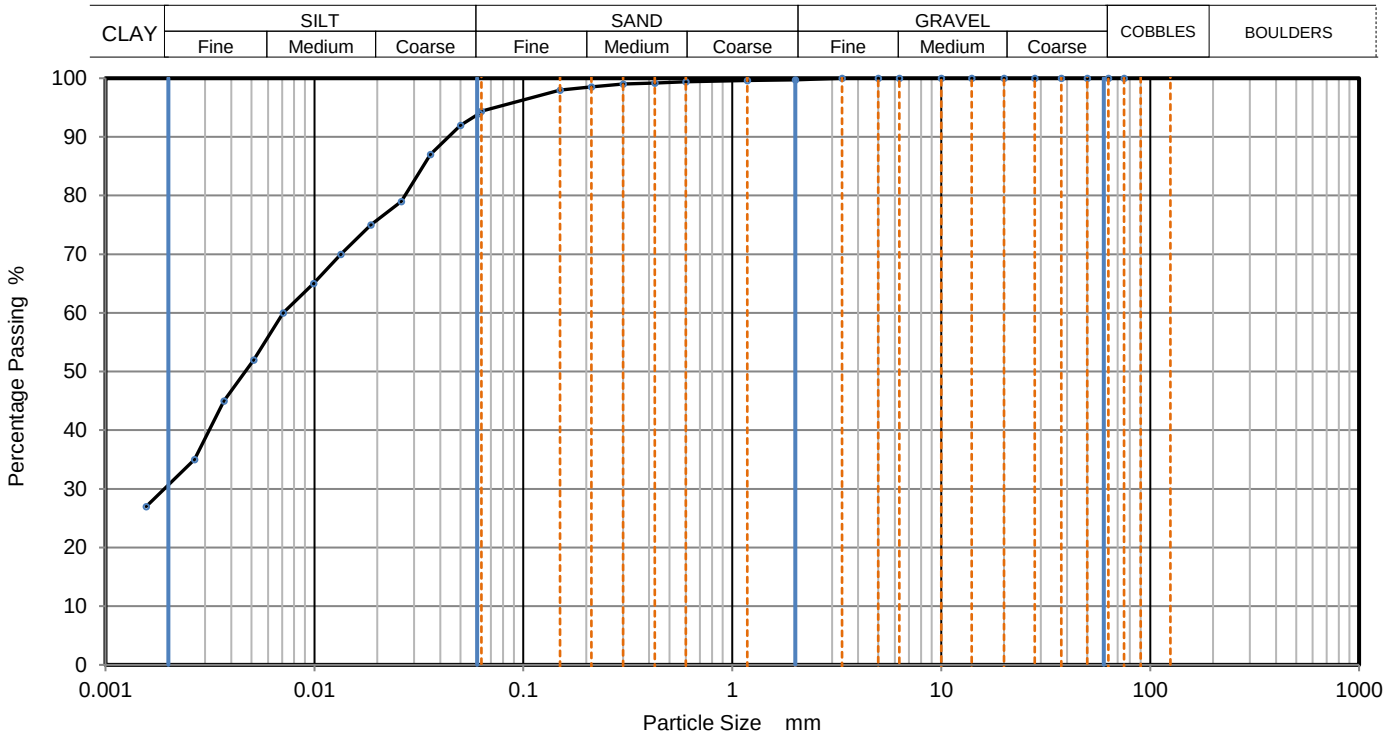
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP319
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Grey slightly sandy SILT.			Depth, m	3.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL120201028418



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	99
0.425	99
0.3	99
0.212	99
0.15	98
0.063	94

□ed□men□a□□n	
Particle Size mm	% Passing
0.0616	94
0.0501	92
0.0360	87
0.0260	79
0.0187	75
0.0134	70
0.0099	65
0.0071	60
0.0051	52
0.0037	45
0.0027	35
0.0016	27
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	372

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	5
Silt	64
Clay	31

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.00728
D30	mm	0.0019
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

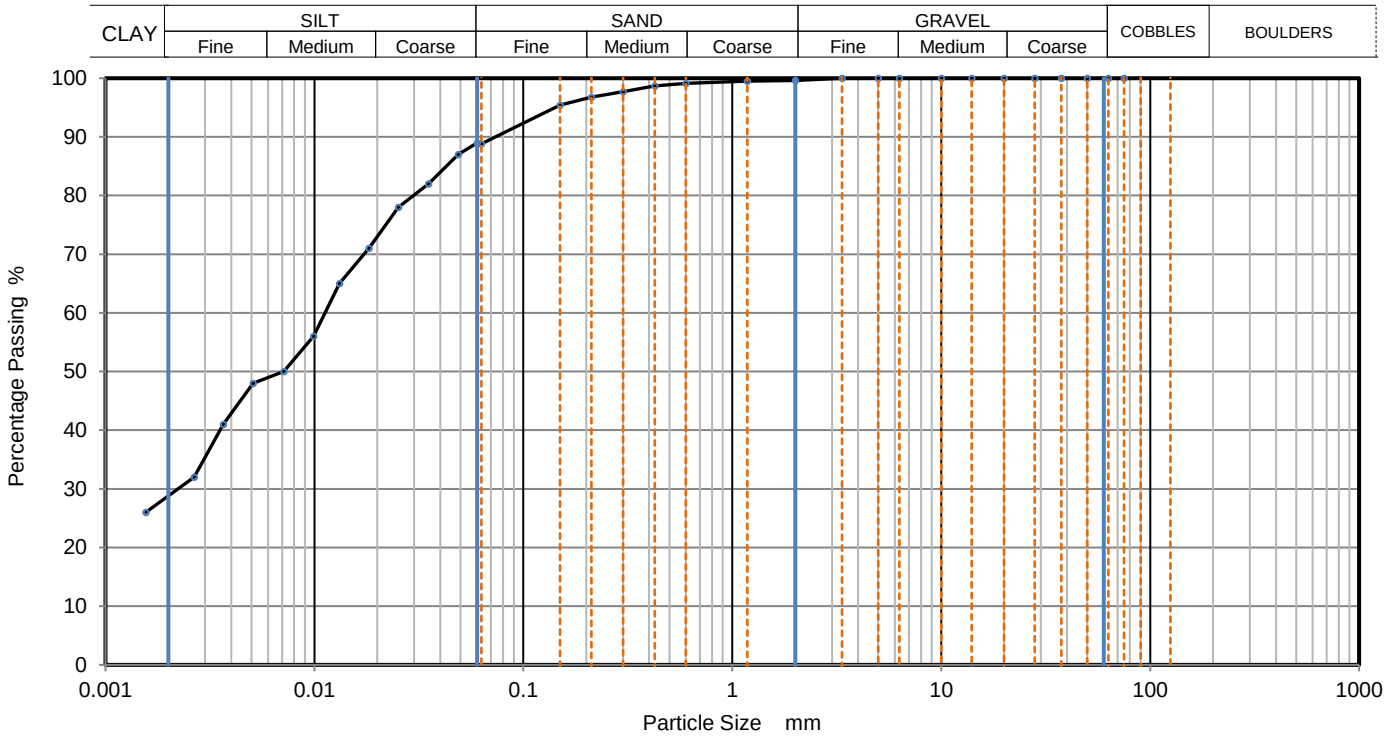
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP320
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Brown slightly sandy SILT.			Depth, m	1.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020102944



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	99
0.425	99
0.3	98
0.212	97
0.15	95
0.063	89

□ed□men□a□□n	
Particle Size mm	% Passing
0.0601	89
0.0489	87
0.0351	82
0.0252	78
0.0183	71
0.0132	65
0.0099	56
0.0071	50
0.0051	48
0.0037	41
0.0027	32
0.0016	26
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	366

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	11
Silt	60
Clay	29

□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0112
D30	mm	0.00216
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

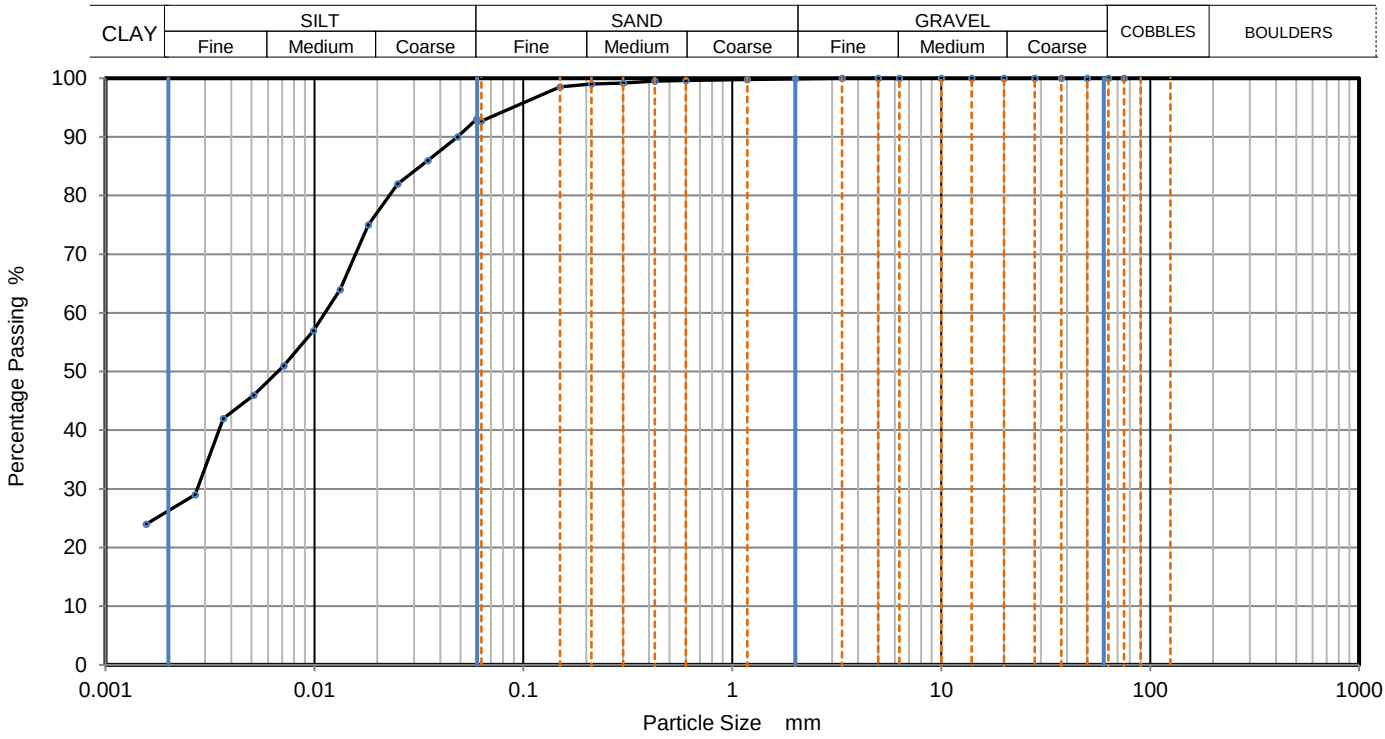
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP320
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Dark grey slightly sandy SILT.			Depth, m	4.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020102947



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	100
0.6	100
0.425	100
0.3	99
0.212	99
0.15	99
0.063	93

□ed□men□a□□n	
Particle Size mm	% Passing
0.0596	93
0.0485	90
0.0348	86
0.0250	82
0.0181	75
0.0133	64
0.0099	57
0.0071	51
0.0051	46
0.0037	42
0.0027	29
0.0016	24
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	387

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	7
Silt	66
Clay	26

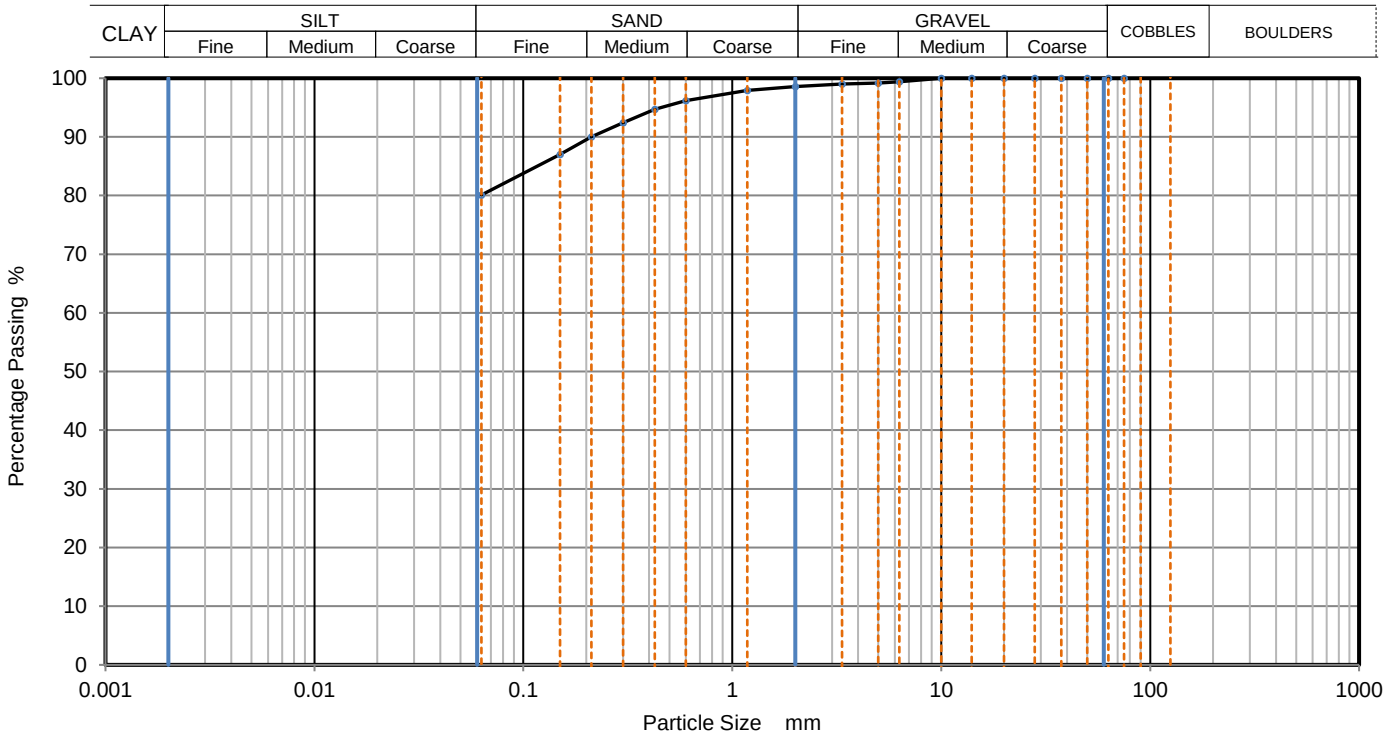
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0111
D30	mm	0.00277
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP321
Site Name	Arklow Bank Windpark			Sample No.	4
Soil Description	Dark grey slightly sandy SILT.			Depth, m	1.60
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020102951



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	99		
5	99		
3.35	99		
2	99		
1.18	98		
0.6	96		
0.425	95		
0.3	92		
0.212	90		
0.15	87		
0.063	80		

Dry Mass of sample, g	326

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	1
Sand	18
Fines <0.063mm	80

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	
D30	mm	
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

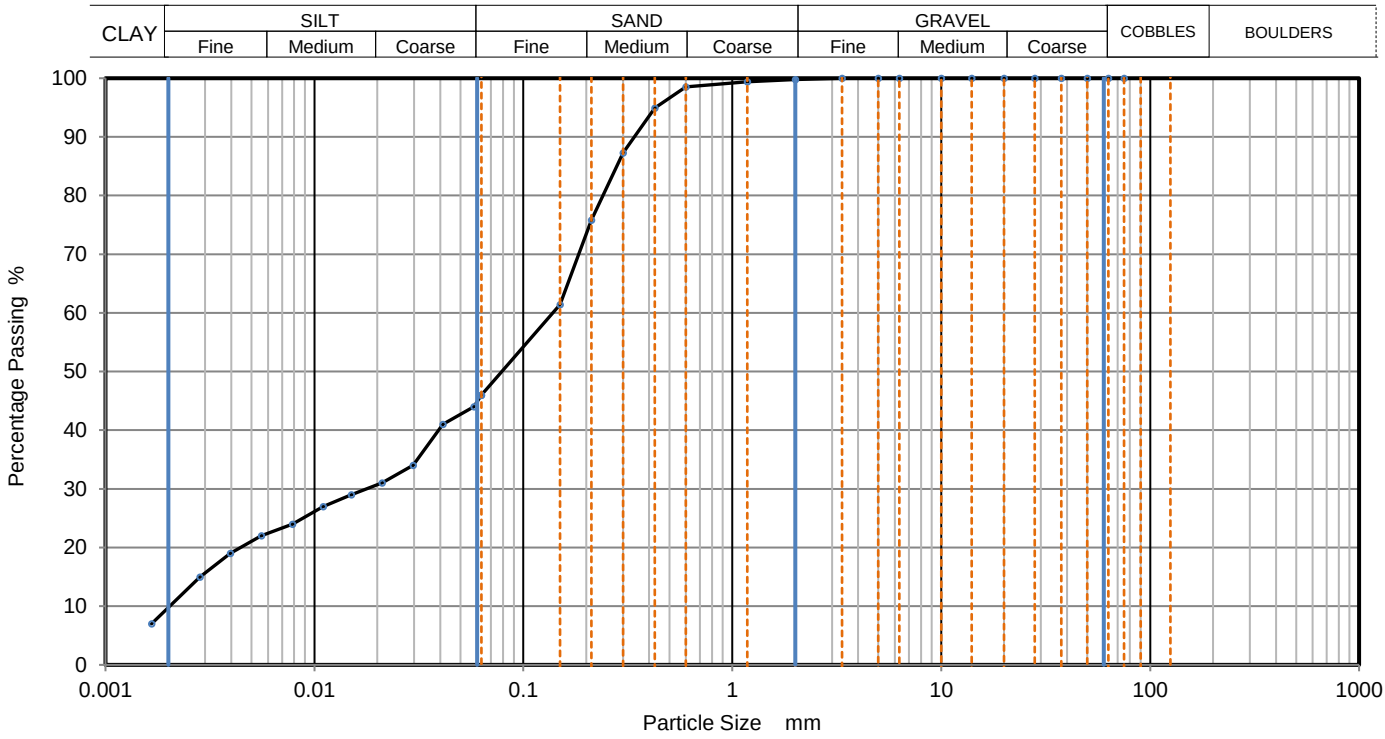
Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	1
				QC From No:R2

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP321
Site Name	Arklow Bank Windpark			Sample No.	8
Soil Description	Dark grey sandy SILT. Sand is medium and fine.			Depth, m	3.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020102956



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	99
0.6	99
0.425	95
0.3	87
0.212	76
0.15	61
0.063	46

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	46
0.0580	44
0.0412	41
0.0297	34
0.0211	31
0.0150	29
0.0110	27
0.0078	24
0.0056	22
0.0040	19
0.0028	15
0.0017	7
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	384

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	54
Silt	36
Clay	10

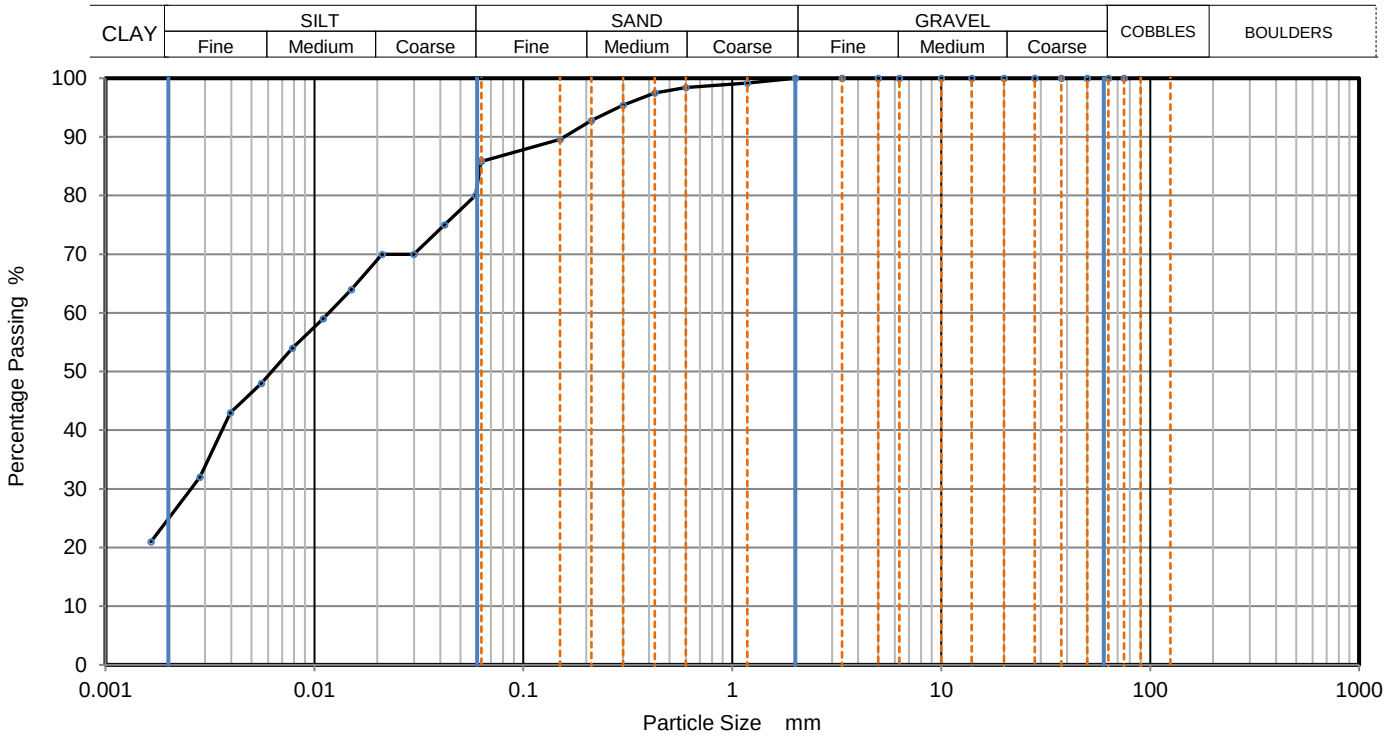
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.138
D30	mm	0.0172
D10	mm	0.00203
Uniformity Coefficient		68
Curvature Coefficient		1

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP322
Site Name	Arklow Bank Windpark			Sample No.	5
Soil Description	Dark brown slightly sandy SILT.			Depth, m	2.00
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clauses 9.2 and 9.5			KeyLAB ID	IDL12020102962



□e□n□	
Particle Size mm	% Passing
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5	100
3.35	100
2	100
1.18	99
0.6	98
0.425	98
0.3	95
0.212	93
0.15	90
0.063	86

□ed□men□a□□n	
Particle Size mm	% Passing
0.0630	86
0.0590	80
0.0420	75
0.0298	70
0.0211	70
0.0150	64
0.0110	59
0.0078	54
0.0056	48
0.0040	43
0.0028	32
0.0017	21
Particle density	(assumed)
2.65	Mg/m3

Dry Mass of sample, g	137

□am□e □r□□□r□□n□	% dry mass
Very coarse	0
Gravel	0
Sand	14
Silt	61
Clay	25

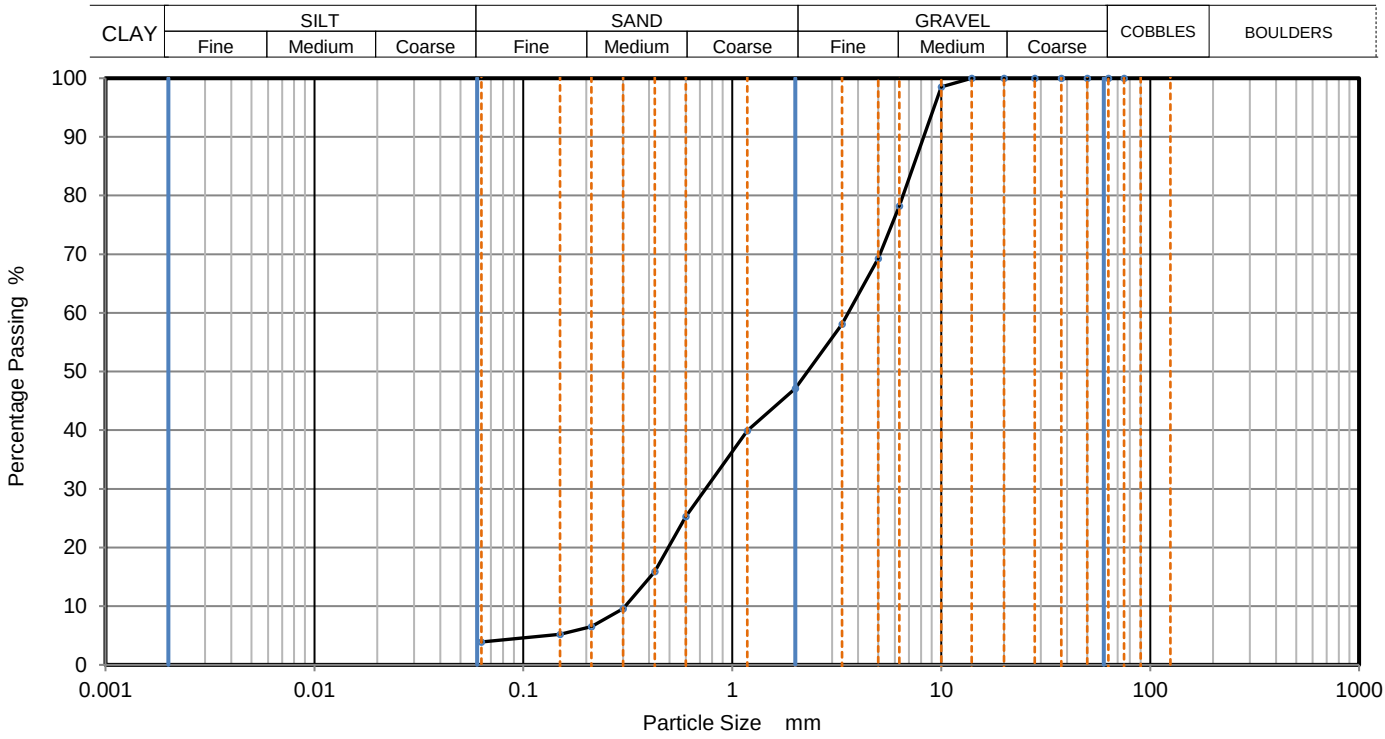
□rad□n□ Ana□y□□		
D100	mm	
D60	mm	0.0117
D30	mm	0.00254
D10	mm	
Uniformity Coefficient		
Curvature Coefficient		

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP322
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Dark grey slightly silty very sandy medium and fine GRAVEL.			Depth, m	2.70
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020102963



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	99		
6.3	78		
5	69		
3.35	58		
2	47		
1.18	40		
0.6	25		
0.425	16		
0.3	10		
0.212	7		
0.15	5		
0.063	4		

Dry Mass of sample, g	538

□am□□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	53
Sand	43
Fines <0.063mm	4

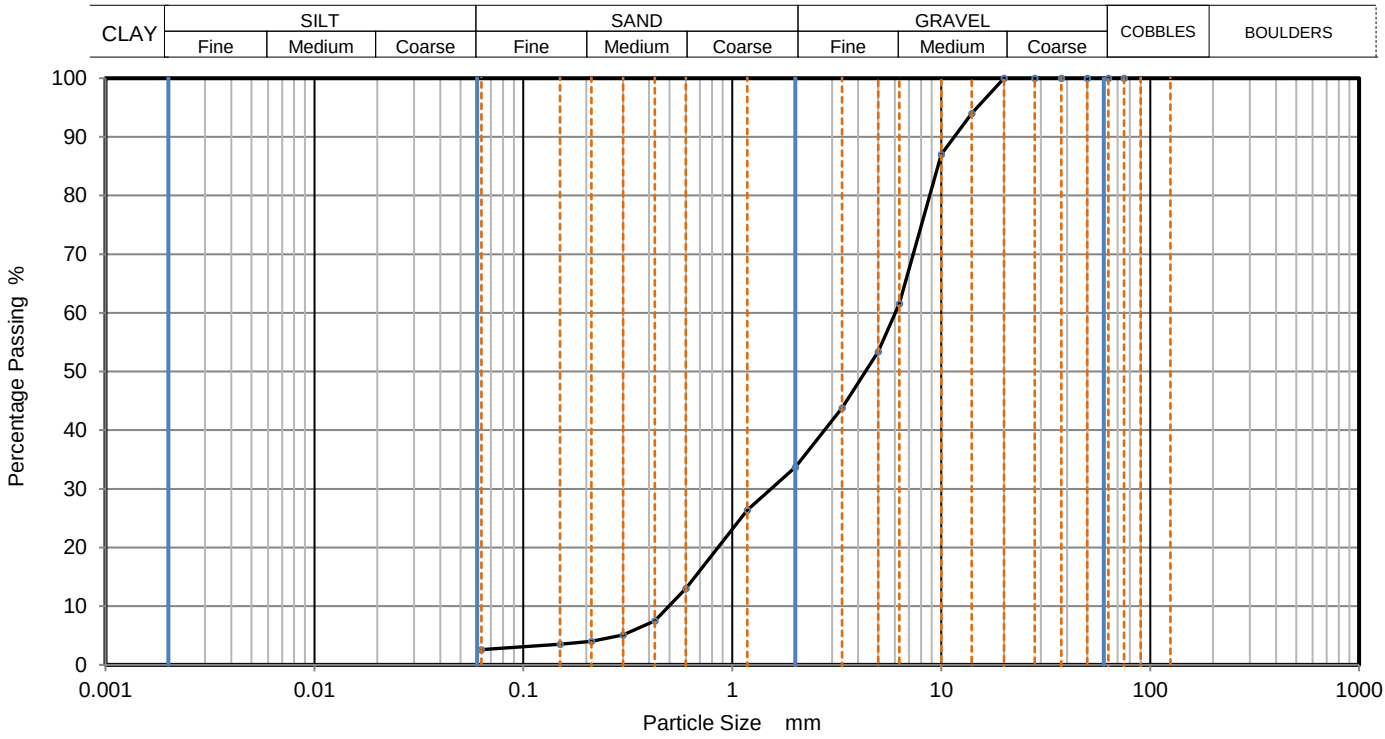
□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	3.59
D30	mm	0.745
D10	mm	0.307
Uniformity Coefficient		12
Curvature Coefficient		0.5

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□□ □□□□ D□□□R□□□□□□			Job Ref	2020□□102
				Borehole/Pit No.	TP323
Site Name	Arklow Bank Windpark			Sample No.	7
Soil Description	Dark grey slightly silty very sandy fine and medium GRAVEL.			Depth, m	2.50
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020102971



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	94		
10	87		
6.3	62		
5	53		
3.35	44		
2	34		
1.18	26		
0.6	13		
0.425	8		
0.3	5		
0.212	4		
0.15	4		
0.063	3		

Dry Mass of sample, g	902

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	66
Sand	31
Fines <0.063mm	3

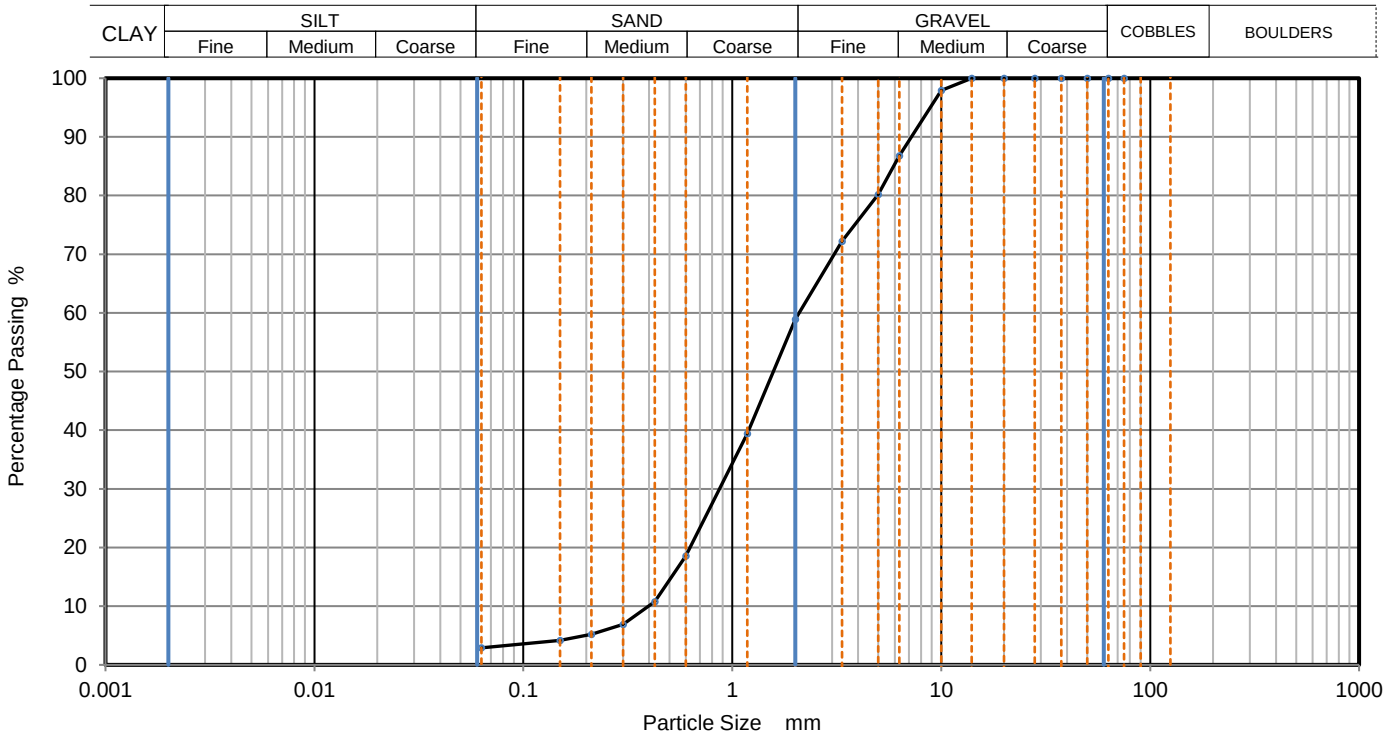
□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	6.02
D30	mm	1.53
D10	mm	0.496
Uniformity Coefficient		12
Curvature Coefficient		0.79

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

IRISH DRILLING LIMITED	□AR□□□□ □□□□ D□□□R□□ □□□□			Job Ref	2020□ □ 102
				Borehole/Pit No.	TP325
Site Name	Arklow Bank Windpark			Sample No.	6
Soil Description	Dark grey slightly silty very gravelly coarse SAND.			Depth, m	2.80
Specimen Reference		Specimen Depth	m	Sample Type	B
Test Method	BS1377:Part 2:1990, clause 9.2			KeyLAB ID	IDL12020110323



□e□n□		□ed□men□a□□n	
Particle Size mm	% Passing	Particle Size mm	% Passing
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	98		
6.3	87		
5	80		
3.35	72		
2	59		
1.18	39		
0.6	19		
0.425	11		
0.3	7		
0.212	5		
0.15	4		
0.063	3		

Dry Mass of sample, g	489

□am□e □r□□□r□□□n□	% dry mass
Very coarse	0
Gravel	41
Sand	56
Fines <0.063mm	3

□rad□n□ Ana□y□□□		
D100	mm	
D60	mm	2.09
D30	mm	0.869
D10	mm	0.395
Uniformity Coefficient		5.3
Curvature Coefficient		0.92

Remarks

Preparation and testing in accordance with BS1377 unless noted below

Operator	Checked	Approved	Sheet printed	1
ED	DCD	Dympna Darcy B.Sc.	07/01/2021 14:21	QC From No:R2

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

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	23 December 2020
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	201216-124
Your Reference:	2020WW102
Location:	Arklow Bank
Report No:	581371

We received 6 samples on Wednesday December 16, 2020 and 6 of these samples were scheduled for analysis which was completed on Wednesday December 23, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

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

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

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

SDG:	201216-124	**Client Reference:**	2020WW102	**Report Number:**	581371
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23446174	BH301	B10	3.00 - 3.50	08/10/2020
23446178	BH302	D22	8.50 - 8.50	07/10/2020
23446180	BH303	B10	3.00 - 3.50	09/10/2020
23446183	BH304	D15	4.50 - 4.50	06/10/2020
23446185	TP301	B8	4.40 - 4.50	28/10/2020
23446188	TP312	B5	2.10 - 2.20	28/10/2020

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

Validated

CERTIFICATE OF ANALYSIS

SDG:	201216-124	**Client Reference:**	2020WW102	**Report Number:**	581371
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X **Test**

N **No Determination Possible**

Sample Types -

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

Lab Sample No(s)			2346174	2346178	2346180	2346183	2346185	2346188
Customer Sample Reference			BH301	BH302	BH303	BH304	TP301	TP312
AGS Reference			B10	D22	B10	D15	B8	B5
Depth (m)			3.00 - 3.50	8.50 - 8.50	3.00 - 3.50	4.50 - 4.50	4.40 - 4.50	2.10 - 2.20
Container			250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S
Anions by Kone (soil)	All	NDPs: 0 Tests: 6	X	X	X	X	X	X
pH	All	NDPs: 0 Tests: 6	X	X	X	X	X	X
Sample description	All	NDPs: 0 Tests: 6	X	X	X	X	X	X
Total Sulphate	All	NDPs: 0 Tests: 6	X	X	X	X	X	X
Total Sulphur	All	NDPs: 0 Tests: 6	X	X	X	X	X	X

CERTIFICATE OF ANALYSIS

SDG:	201216-124	**Client Reference:**	2020WW102	**Report Number:**	581371
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

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
23446174	BH301	3.00 - 3.50	Dark Brown	Loamy Sand	Vegetation	None
23446178	BH302	8.50 - 8.50	Grey	Stone/Soil	None	Stones
23446180	BH303	3.00 - 3.50	Light Brown	Loamy Sand	None	Stones
23446183	BH304	4.50 - 4.50	Grey	Loamy Sand	Vegetation	Stones
23446185	TP301	4.40 - 4.50	Dark Brown	Silt Loam	None	None
23446188	TP312	2.10 - 2.20	Grey	Silt Loam	None	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 ocurring 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.

Validated

CERTIFICATE OF ANALYSIS

SDG:	201216-124	**Client Reference:**	2020WW102	**Report Number:**	581371
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	TP301	TP312
			Depth (m)	3.00 - 3.50	8.50 - 8.50	3.00 - 3.50	4.50 - 4.50	4.40 - 4.50	2.10 - 2.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	07/10/2020	09/10/2020	06/10/2020	28/10/2020	28/10/2020
			Sample Time	.	.	.	.	.	.
			Date Received	16/12/2020	16/12/2020	16/12/2020	16/12/2020	16/12/2020	16/12/2020
			SDG Ref	201216-124	201216-124	201216-124	201216-124	201216-124	201216-124
			Lab Sample No.(s)	23446174	23446178	23446180	23446183	23446185	23446188
			AGS Reference	B10	D22	B10	D15	B8	B5
Moisture Content Ratio (% of as received sample)	%	PM024		40	5.2	22	9.8	45	32
Sulphur, Total	<0.02 %	TM132		0.12 @	<0.02 @	0.0925 @	0.0555 @	0.287 @	0.102 @
Sulphate, Total potential	<0.06 %	TM132		0.36	0.06	0.278	0.167	0.861	0.306
pH	1 pH Units	TM133		4.63 @ M	7.28 @ #	7.41 @ M	3.76 @ M	4.69 @ M	6.49 @ M
Sulphate, Total	<48 mg/kg	TM221		2100 M	<48 #	1250 M	740 M	1540 M	2070 M
Water Soluble Sulphate as SO4 2:1 Extract	<0.004 g/l	TM243		0.908 @ M	0.0276 @ #	0.529 @ M	0.288 @ M	0.365 @ M	0.808 @ M

Table of Results - Appendix

Method No	Reference	Description
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
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
TM221	Inductively Coupled Plasma - Atomic Emission Spectroscopy. An Atlas of Spectral Information: Winge, Fassel, Peterson and Floyd	Determination of Acid extractable Sulphate in Soils by IRIS Emission Spectrometer
TM243		Mixed Anions In Soils By Kone

NA = not applicable.

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

CERTIFICATE OF ANALYSIS

SDG:	201216-124	**Client Reference:**	2020WW102	**Report Number:**	581371
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23446174	23446178	23446180	23446183	23446185	23446188
Customer Sample Ref.	BH301	BH302	BH303	BH304	TP301	TP312
AGS Ref.	B10	D22	B10	D15	B8	B5
Depth	3.00 - 3.50	8.50 - 8.50	3.00 - 3.50	4.50 - 4.50	4.40 - 4.50	2.10 - 2.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (soil)	23-Dec-2020	23-Dec-2020	23-Dec-2020	23-Dec-2020	23-Dec-2020	22-Dec-2020
pH	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020
Sample description	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Total Sulphate	22-Dec-2020	21-Dec-2020	22-Dec-2020	21-Dec-2020	22-Dec-2020	21-Dec-2020
Total Sulphur	21-Dec-2020	21-Dec-2020	21-Dec-2020	21-Dec-2020	21-Dec-2020	21-Dec-2020

Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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. 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 (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.

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. **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.

18. **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**

19. **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, based on HSG 248 (2005).

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.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

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.

Oedometer Settlement Tests

Test Method: BS1377 : Part 5 : 1990 Clause 3

Sample Details

Soil description:		Firm dark grey/brown /black peaty CLAY
Initial height (mm)		20.0
Diameter (mm)		50
Initial wet weight of specimen (gms)		57.09
Bulk density (Mg/m3)		1.45
Particle density	(Assumed)	2.65

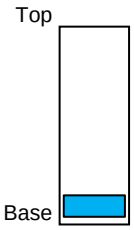
Initial conditions

Settlement Channel	1108
Moisture content (%)	102.45
Dry density (Mg/m3)	0.72
Initial Voids Ratio	2.6907
Deg of Saturation (%)	100.9
Swelling pressure (kPa)	n/a

Final conditions

Moisture Content (%)	78.0
Dry Density (Mg/m3)	0.85
Final voids ratio	2.1037
Final degree of saturation (%)	98.3
Final settlement	3.181

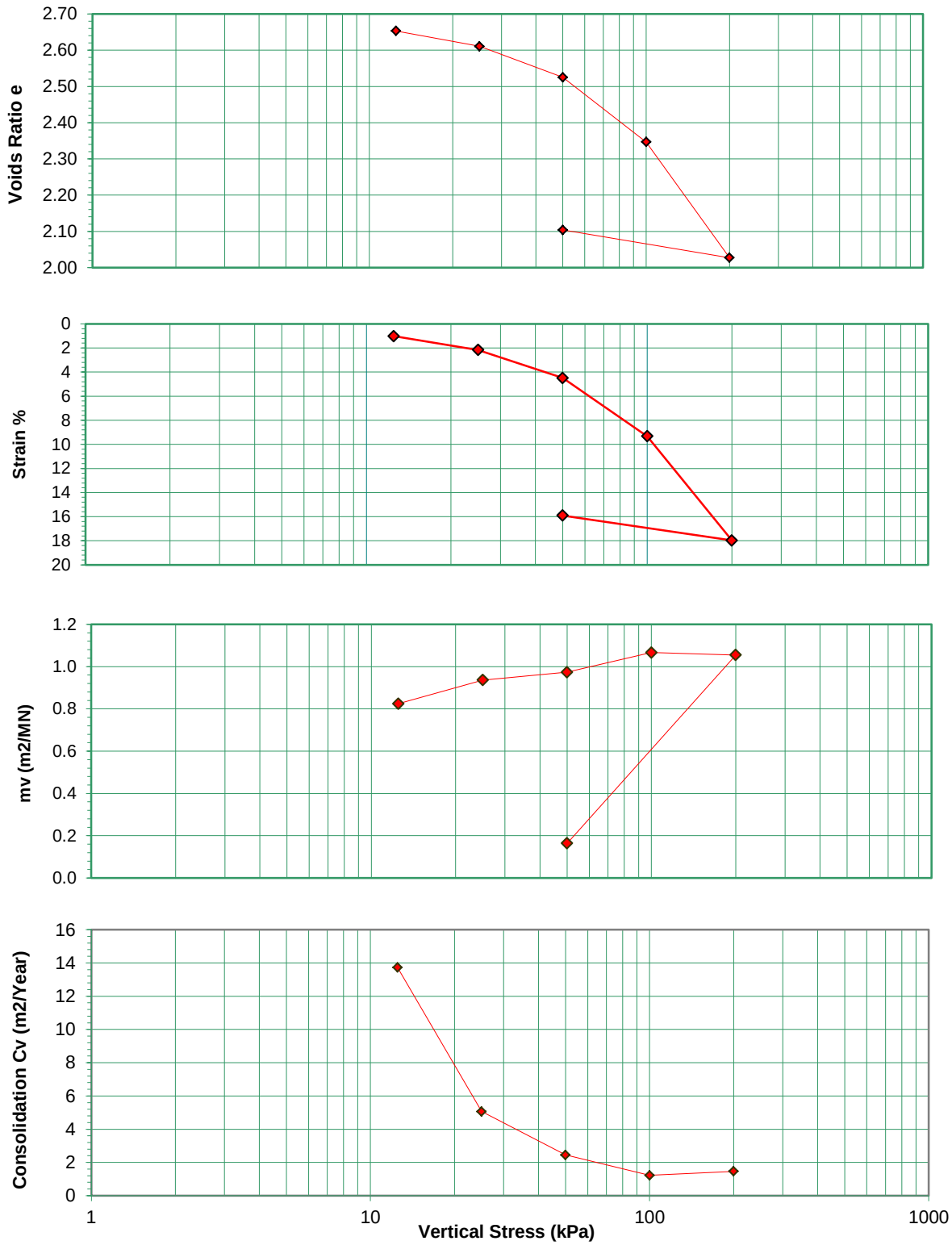
Notes: **1) Log time method used for t50 time**
2) Tested at 20°c



NM TL Ltd Standard	Project	Job No.	NMTL-3333
	Arklow Bank	Borehole No.	BH302
		Sample No.	U9
	IDL Project ID-2020WW20	Depth m.	3.0-3.45

Oedometer settlement Tests

Test Method: BS 1377 : Part 5: 1990 Clause 3



NM TL Ltd Standard	Project: Arklow Bank	Job No. NMTL-3333 Borehole No. BH302 Sample No. U9 Depth m. 3.0-3.45

Oedometer Test

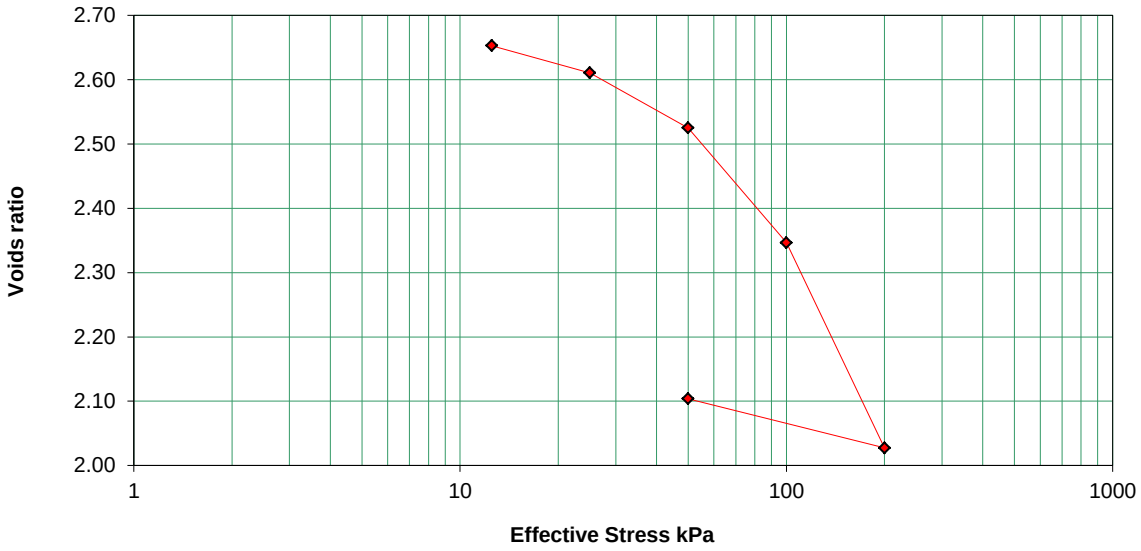
Test Method: BS 1377 : Part 5 1990 Clause 3

Sample Details

Description: Firm dark grey/brown /black peaty CLAY

Initial height (mm)		20.00
Diameter (mm)		50.00
Initial weight of specimen (gms)		57.09
Bulk Density (mg/m3)		1.454
Particle Density	Assumed	2.65

Initial Conditions		Final Conditions	
Moisture content	102.4	78.0	%
Dry Density	0.72	0.85	Mg/m3
Initial Voids Ratio	2.6907	2.1037	
Degree of Saturation	100.90	98.27	%



Stage No.	Effective Stress kPa	Strain %	Voids Ratio	Mv m2/MN	CV m2/Year	Settlement mm
1	12.5	1.020	2.6531	0.824	13.73	0.204
2	25	2.165	2.6108	0.936	5.06	0.433
3	50	4.490	2.5250	0.974	2.45	0.898
4	100	9.325	2.3466	1.066	1.22	1.865
5	200	17.975	2.0273	1.055	1.46	3.595
6	50	15.905	2.1037	0.164		3.181

NM TL Ltd Standard	Project	Job No.	NMTL-3333
	Arklow Bank	Borehole No.	BH302
		Sample No.	U9
		Depth m.	3.0-3.45

Oedometer Settlement Tests

Test Method: BS1377 : Part 5 : 1990 Clause 3

Sample Details

Soil description:		Soft to firm dark grey silty PEAT.
Initial height (mm)		20.0
Diameter (mm)		50
Initial wet weight of specimen (gms)		45.95
Bulk density (Mg/m3)		1.17
Particle density	(Assumed)	2.00

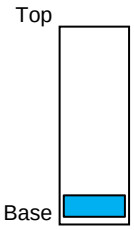
Initial conditions

Settlement Channel	1107
Moisture content (%)	229.39
Dry density (Mg/m3)	0.36
Initial Voids Ratio	4.6308
Deg of Saturation (%)	99.1
Swelling pressure (kPa)	n/a

Final conditions

Moisture Content (%)	150.0
Dry Density (Mg/m3)	0.50
Final voids ratio	3.0291
Final degree of saturation (%)	99.1
Final settlement	5.689

Notes: **1) Log time method used for t50 time**
2) Tested at 20°c

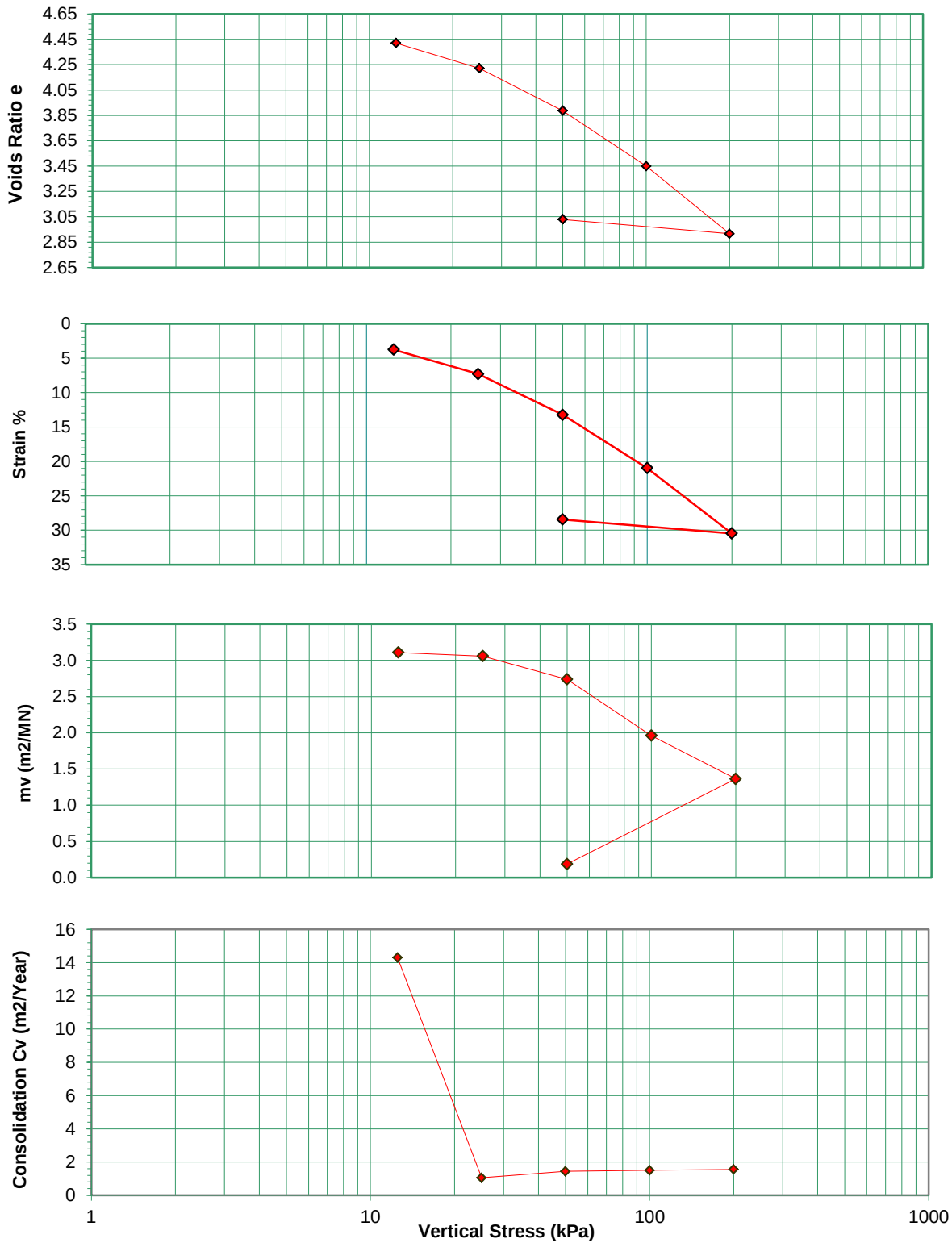


NM TL Ltd Standard	Project: Arklow Bank	IDL Project ID-2020WW20

Job No.	NMTL-3333
Borehole No.	BH303
Sample No.	U17
Depth m.	6.50-6.95m

Oedometer settlement Tests

Test Method: BS 1377 : Part 5: 1990 Clause 3



NM TL Ltd Standard	Project: Arklow Bank	Job No.	NMTL-3333
		Borehole No.	BH303
		Sample No.	U17
		Depth m.	6.50-6.95m

Oedometer Test

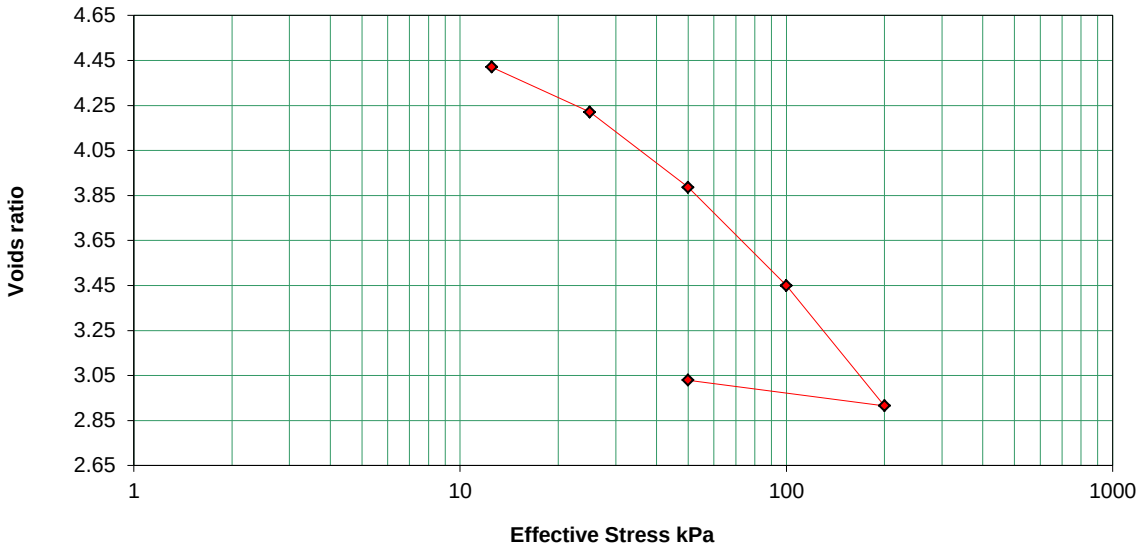
Test Method: BS 1377 : Part 5 1990 Clause 3

Sample Details

Description: Soft to firm dark grey silty PEAT.

Initial height (mm)		20.00
Diameter (mm)		50.00
Initial weight of specimen (gms)		45.95
Bulk Density (mg/m3)		1.170
Particle Density	Assumed	2.00

Initial Conditions		Final Conditions	
Moisture content	229.4	150.0	%
Dry Density	0.36	0.50	Mg/m3
Initial Voids Ratio	4.6308	3.0291	
Degree of Saturation	99.07	99.06	%



Stage No.	Effective Stress kPa	Strain %	Voids Ratio	Mv m2/MN	CV m2/Year	Settlement mm
1	12.5	3.740	4.4202	3.108	14.31	0.748
2	25	7.285	4.2206	3.059	1.05	1.457
3	50	13.225	3.8861	2.738	1.44	2.645
4	100	20.975	3.4498	1.961	1.50	4.195
5	200	30.460	2.9157	1.364	1.55	6.092
6	50	28.445	3.0291	0.188		5.689

NM TL Ltd Standard	Project	Job No.	NMTL-3333
		Borehole No.	BH303
	Arklow Bank	Sample No.	U17
		Depth m.	6.50-6.95m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5 kg rammer at natural moisture content.**
Material screened on 2mm sieve

Description **Dark grey gravelly silty SAND**

Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	336.3	336.5	336.6
Dry soil	gms	155.1	155.3	155.2
Wet soil	gms	181.2	181.3	181.5
Dry soil	gms	155.1	155.3	155.2
Water	gms	26.1	26.1	26.3
Moisture Content (%)		16.8	16.8	16.9
Bulk Density (Mg/m3)		2.01	2.01	2.02
Dry density (Mg/m3)		1.72	1.73	1.72
Voids ratio e		0.5382	0.5362	0.5368
Degree of saturation (%)		82.9	82.9	83.6

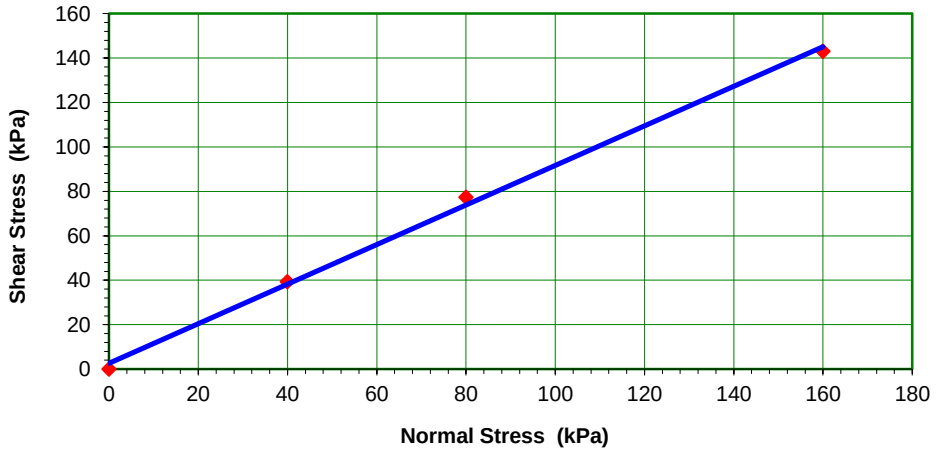
Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	25
Volume	V cm3	90
Particle density	Mg/m3	2.65

Final Details

	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	40	80	160
Shear stress (kPa)	39.3	77.3	143.1
Horizontal Displacement (mm)	2.829	1.681	1.961
Vertical displacement (mm)	-0.150	-0.280	-0.272
Rate of displacement (mm/min)		0.0150	
Date sampled	12/10/2020		
Date received	15/12/2020		
Date tested	16/12/2020		

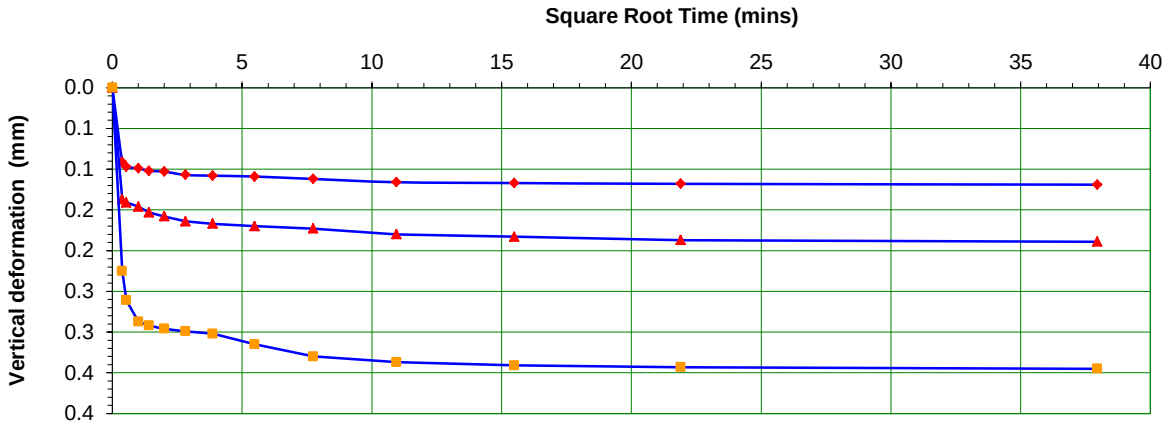
	Peak
Cohesion c' (kPa)	2.58
Friction angle phi'	41.5°

Mohr Envelope

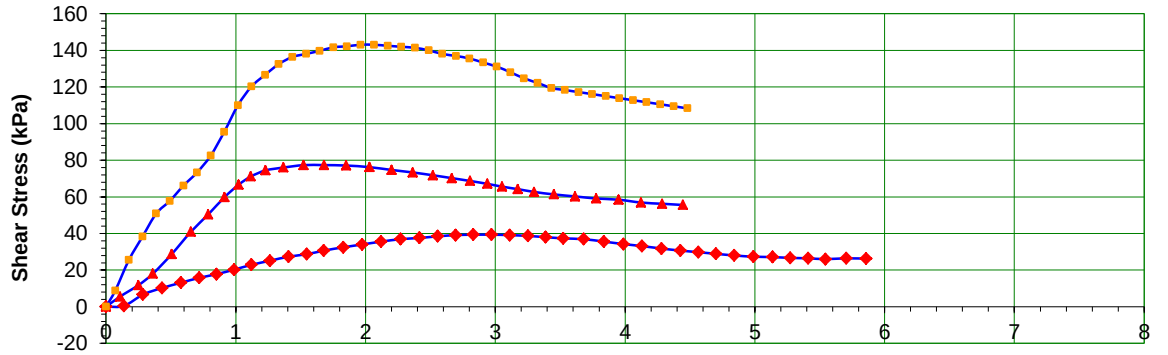


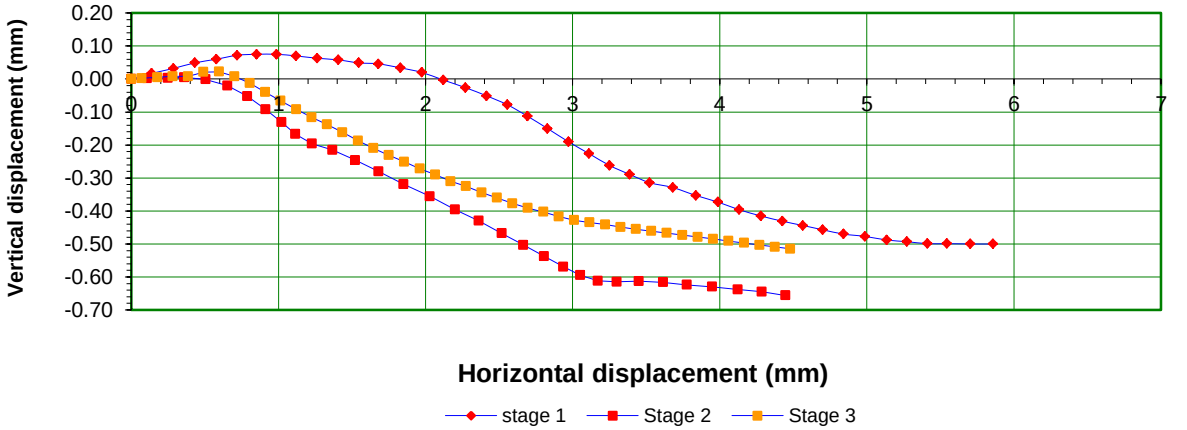
NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3333
				Borehole No.	BH303
	Project	Arklow Bank		Sample No.	B20
Operator Tzr	Checked	Nc	Approved Bc	Depth.	7.50-8.50m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3333
				Borehole No.	BH303
	Project	Arklow Bank		Sample No.	B20
Operator Tzr	Checked	Nc	Approved Bc	Depth.	7.50-8.50m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5 kg rammer at natural moisture content.**
Material screened on 2mm sieve

Description **Light brown slightly gravelly slightly sandy silty CLAY**

Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	342.9	342.8	342.4
Dry soil	gms	155.7	155.6	155.2
Wet soil	gms	187.8	187.6	187.3
Dry soil	gms	155.7	155.6	155.2
Water	gms	32.0	32.0	32.1
Moisture Content (%)		20.6	20.6	20.7
Bulk Density (Mg/m3)		2.09	2.08	2.08
Dry density (Mg/m3)		1.73	1.73	1.72
Voids ratio e		0.5314	0.5332	0.5368
Degree of saturation (%)		102.5	102.4	102.0

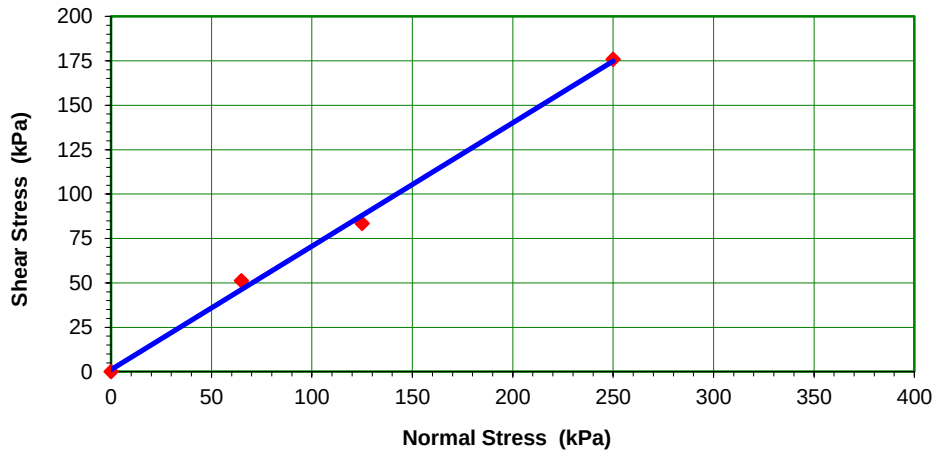
Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	25
Volume	V cm3	90
Particle density	Mg/m3	2.65

Final Details

	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	65	125	250
Shear stress (kPa)	51.1	83.3	175.9
Horizontal Displacement (mm)	5.502	5.736	4.281
Vertical displacement (mm)	0.206	0.304	0.225
Rate of displacement (mm/min)		0.0060	

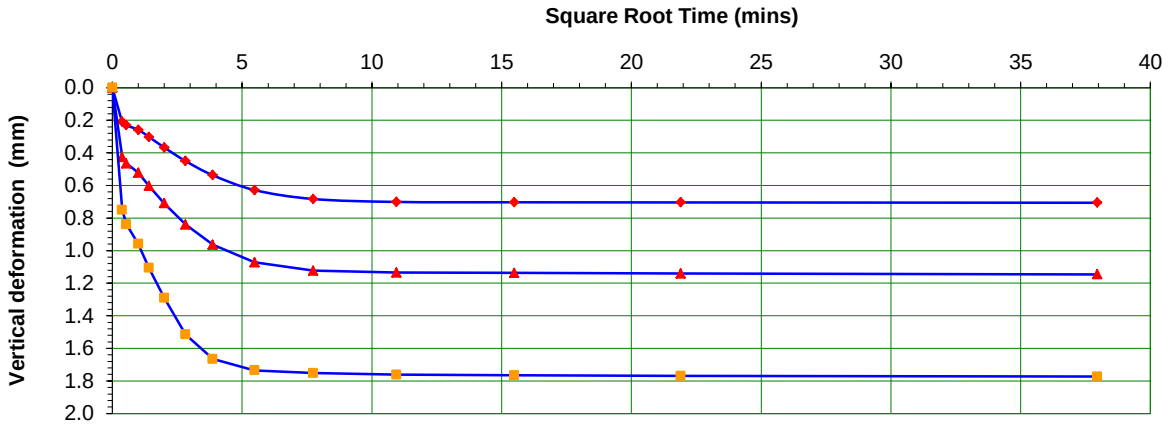
Date sampled	n/a		Peak
Date received	15/12/2020	Cohesion c' (kPa)	1.2
Date tested	18/12/2020	Friction angle phi'	34.8°

Mohr Envelope

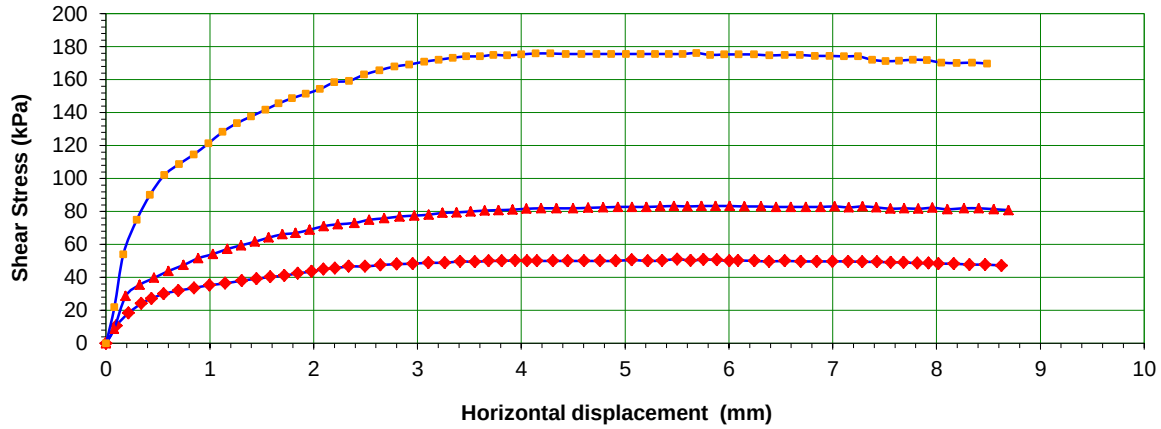


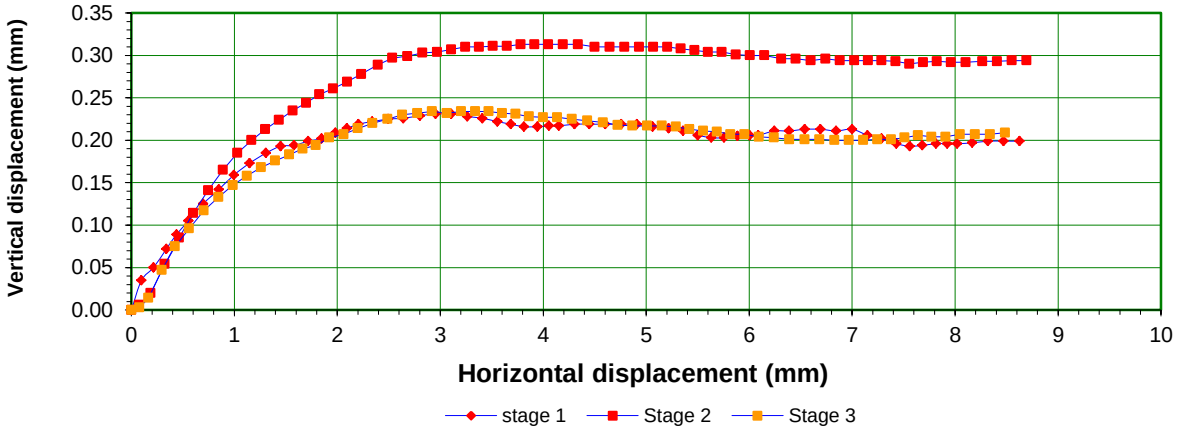
NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3333
				Borehole No.	BH303
	Project	Arklow Bank		Sample No.	B31
Operator Tzr	Checked	Nc	Approved Bc	Depth.	12.5-13.50m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3333
				Borehole No.	BH303
	Project	Arklow Bank		Sample No.	B31
Operator Tzr	Checked	Nc	Approved Bc	Depth.	12.5-13.50m

SHEAR BOX TEST

Test Method **BS 1377 : Part 7 : 1990 : Method 4**

Preparation procedure **Remoulded with 2.5 kg rammer at natural moisture content.**
Material screened on 2mm sieve

Description **Dark grey silty very sandy GRAVEL**

Weighings		**Stage 1**	**Stage 2**	**Stage 3**
Wet soil	gms	336.1	337.0	336.1
Dry soil	gms	156.6	157.6	157.1
Wet soil	gms	181.0	181.8	180.9
Dry soil	gms	156.6	157.6	157.1
Water	gms	24.4	24.3	23.8
Moisture Content (%)		15.6	15.4	15.1
Bulk Density (Mg/m3)		2.01	2.02	2.01
Dry density (Mg/m3)		1.74	1.75	1.75
Voids ratio e		0.5232	0.5134	0.5179
Degree of saturation (%)		78.8	79.4	77.5

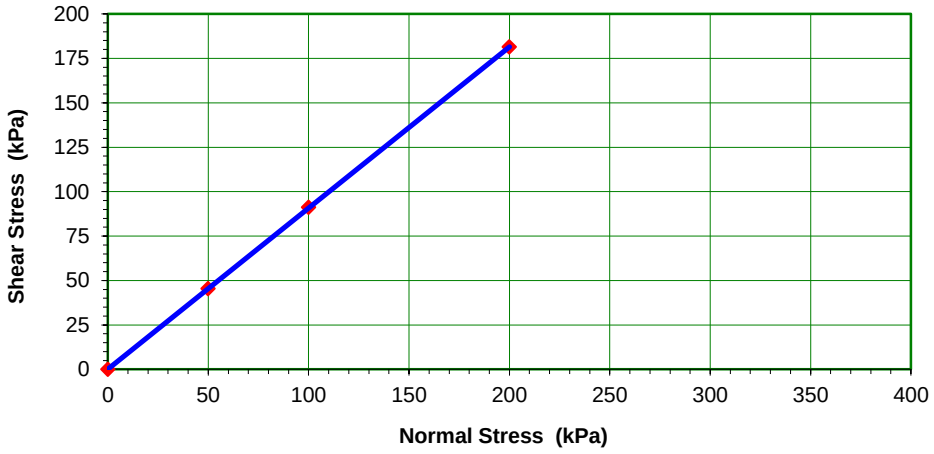
Nominal Dimensions		
Length	L1 mm	60
	L2 mm	60
Area	A mm2	3600
Height	H mm	25
Volume	V cm3	90
Particle density	Mg/m3	2.65

Final Details

	Stage 1	**Stage 2**	**Stage 3**
Normal Loads(kPa)	50	100	200
Shear stress (kPa)	45.3	91.1	181.4
Horizontal Displacement (mm)	2.707	2.434	3.357
Vertical displacement (mm)	-0.397	-0.191	-0.070
Rate of displacement (mm/min)		0.0150	

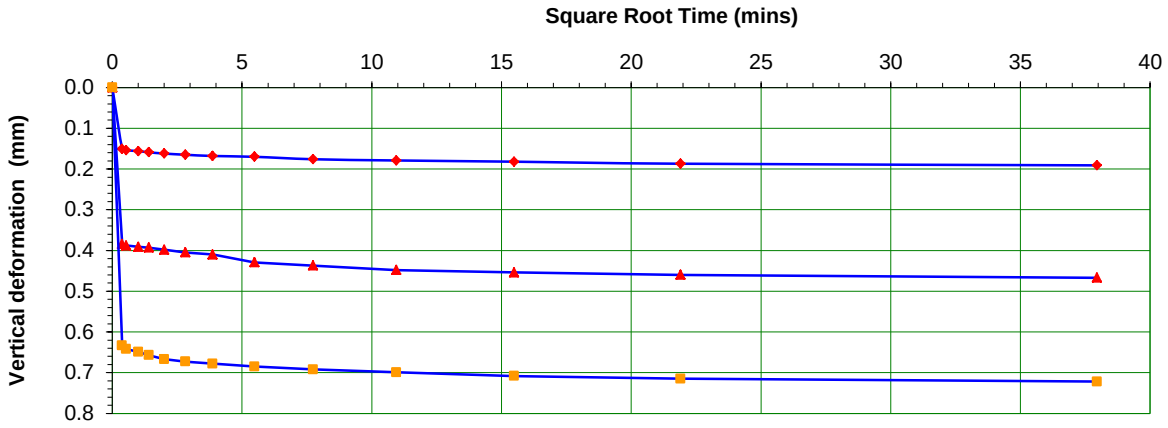
Date sampled	n/a		Peak
Date received	15/12/2020	Cohesion c' (kPa)	0.1
Date tested	21/12/2020	Friction angle phi'	42.2°

Mohr Envelope

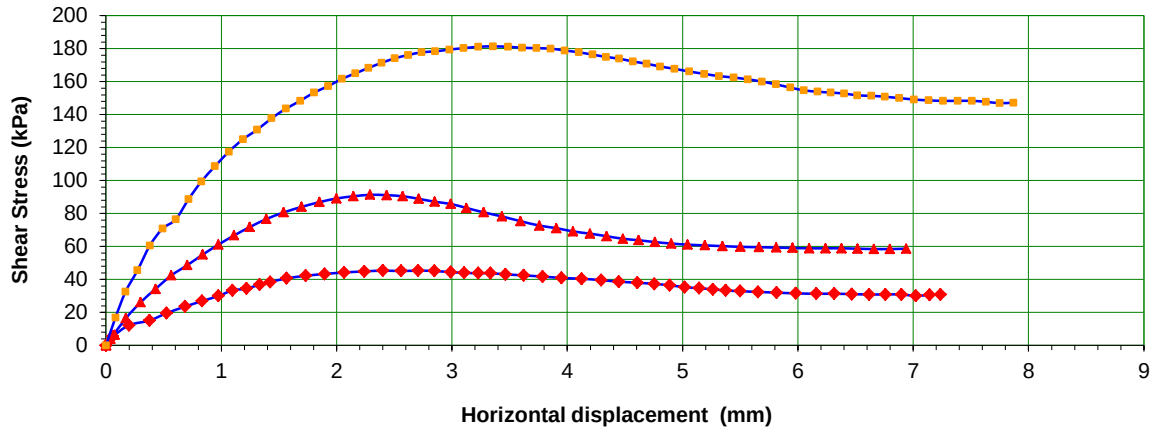


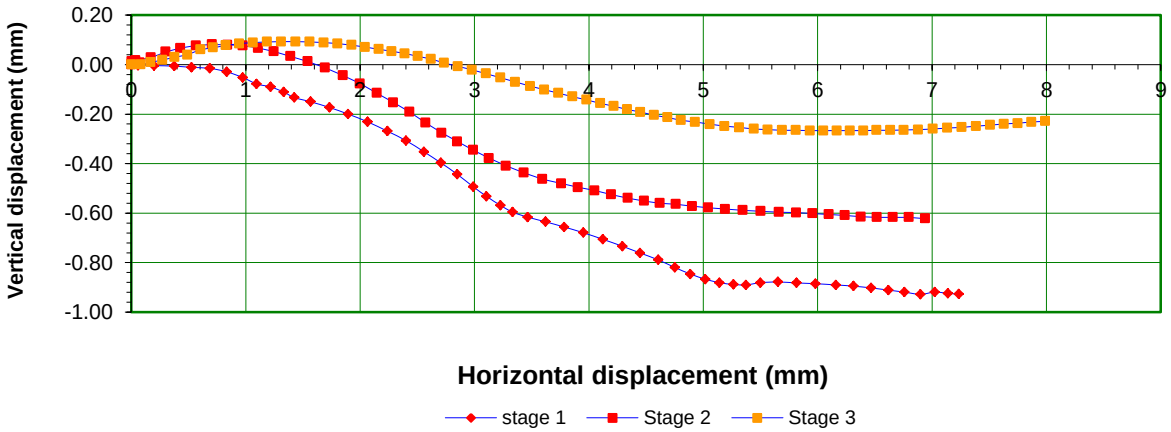
NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3333
				Borehole No.	BH304
	Project	Arklow Bank		Sample No.	B23
Operator Tzr	Checked	Nc	Approved Bc	Depth.	8.80-10.00m

CONSOLIDATION STAGE



SHEAR STAGE





NM T L Ltd		Consolidated drained Shear Box Test in 60 mm square Box		Job No.	NMTL_3333
				Borehole No.	BH304
	Project	Arklow Bank		Sample No.	B23
Operator Tzr	Checked	Nc	Approved Bc	Depth.	8.80-10.00m

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Certificate of Test

Determination of Undrained Shear Strength in Triaxial Compression

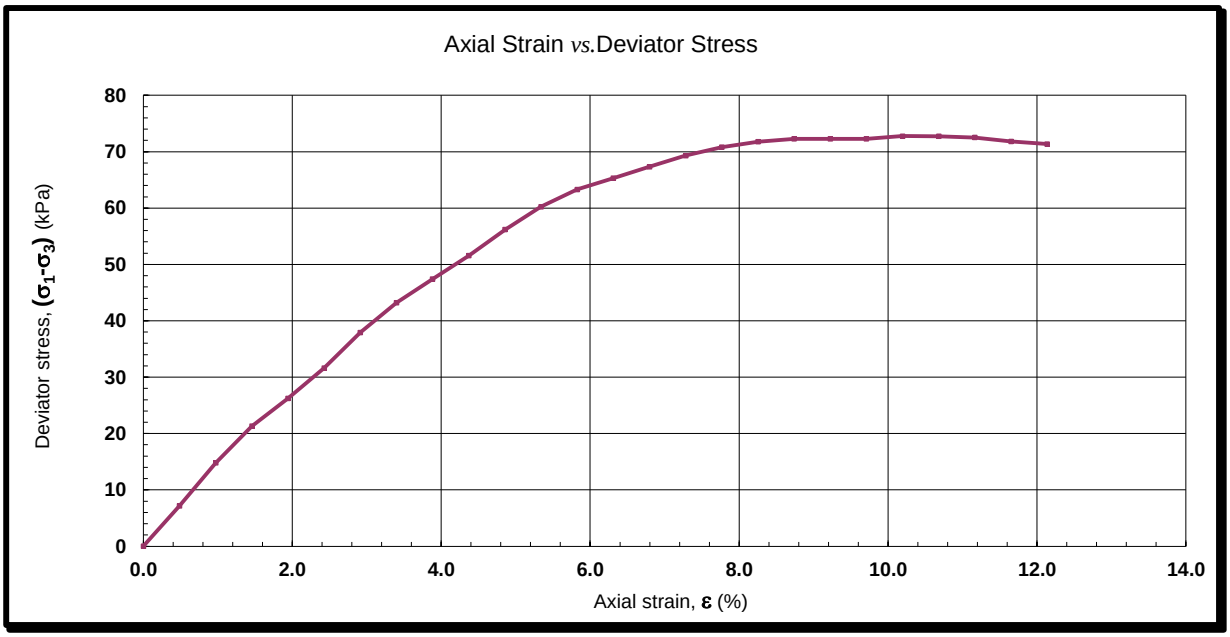
BS 1377 : Part 7 : 1990 Clause 8

Client Name:	**Irish Drilling Ltd**	Contract:	**Arklow Bank**
Address:	**Loughrea**	Site Address:	**N/A**
	Galway	**IDL Project ID:**	**2020WW102**
	Co. Galway		

Sample No.: **BH302** **U9** Depth: **3.0-3.45m** File Reference: **NMTL 3333**

Sample Description:	**Firm dark grey brown peaty CLAY with traces of completely decomposed wood fragments.**		
Location:	**Arklow Bank**	Date Sampled:	**15 October 2020**
Sample Type:	**U100**	Sampled by:	**Irish Drilling Ltd**
Client Sample Ref.:	**BH302**	Sampling Cert. Recd.:	**No**
Source / Supplier:	**IDL**	Date Received:	**15 December 2020**
Specification:	**BS 1377: Part 7: 1990 Clause 8**	Date Tested:	**16 December 2020**

Specimen					**Test**		
Length:	**206.0**	mm	Diameter:	**103.0** mm	Membrane type:	**Latex**	
Area:	**8333.9**	mm^2	Volume:	**1716.8** cm^3	Membrane thickness:	**0.3**	mm
Mass:	**3167.3**	g			Membrane correction:	**1.29**	
Moisture content:	**259.0**	%			Sample state:	**Undisturbed**	
Bulk density:	**1.84**	$Mg\ m^{-3}$			Number of stages:	**1**	
Dry density:	**0.51**	$Mg\ m^{-3}$			Rate of strain:	**1.0**	$\%\ min^{-1}$
Preparation Method:	**BS 1377: Part 1: 1990 Clause 8 .3.1**				Cell pressure: σ_3	**60**	kPa



Maximum Corrected Deviator Stress at Failure:	$(\sigma_1-\sigma_3)_f$	**72.3**	**kPa**
Strain at Failure:	ε	**9.22**	**%**
Maximum Cohesion / Shear Strength:	C_u	**36.1**	**kPa**
Type of Failure:		**Plastic**	

Signed

Remarks: Undisturbed

Authorised Signatories
☐ N Chana
☐ B Chana

20 December 2020

For NMTL Ltd

Original to: **Client Rep.**
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Unit 18C Tullow Industrial Estate
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Certificate of Test

Determination of Undrained Shear Strength in Triaxial Compression

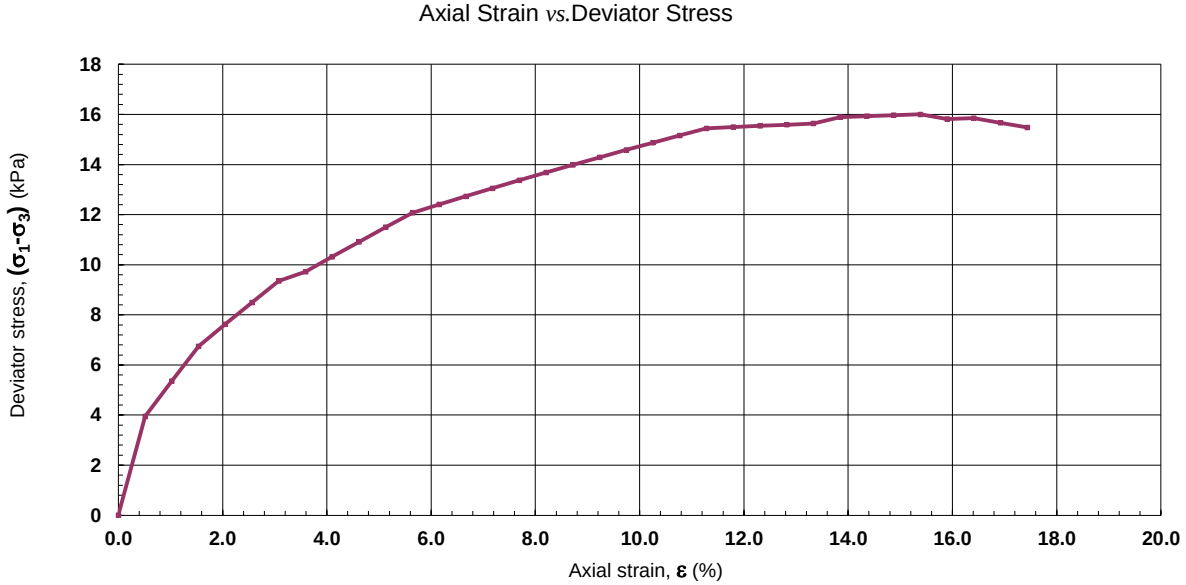
BS 1377 : Part 7 : 1990 Clause 8

Client Name:	**Irish Drilling Ltd**	Contract:	**Arklow Bank**
Address:	**Loughrea**	Site Address:	**N/A**
	Galway	**IDL Project ID:**	**2020WW102**
	Co. Galway		

Sample No.: **BH302** **U14** Depth: **5.0-5.45m** File Reference: **NMTL 3333**

Sample Description:	**Soft dark grey brown organic silty CLAY with traces of completely decomposed wood fragments.**		
Location:	**Arklow Bank**	Date Sampled:	**15 October 2020**
Sample Type:	**U100**	Sampled by:	**Irish Drilling Ltd**
Client Sample Ref.:	**BH302**	Sampling Cert. Recd.:	**No**
Source / Supplier:	**IDL**	Date Received:	**15 December 2020**
Specification:	**BS 1377: Part 7: 1990 Clause 8**	Date Tested:	**16 December 2020**

Specimen					**Test**		
Length:	**195.0**	mm	Diameter:	**104.5** mm	Membrane type:	**Latex**	
Area:	**8576.7**	mm^2	Volume:	**1672.5** cm^3	Membrane thickness:	**0.3**	mm
Mass:	**2124.3**	g			Membrane correction:	**2.15**	
Moisture content:	**160.8**	%			Sample state:	**Undisturbed**	
Bulk density:	**1.27**	$Mg\ m^{-3}$			Number of stages:	**1**	
Dry density:	**0.49**	$Mg\ m^{-3}$			Rate of strain:	**1.0**	$\%\ min^{-1}$
Preparation Method:	**BS 1377: Part 1: 1990 Clause 8 .3.1**				Cell pressure: σ_3	**100**	kPa



Maximum Corrected Deviator Stress at Failure:	$(\sigma_1-\sigma_3)_f$	**16.0**	**kPa**
Strain at Failure:	ε	**15.38**	**%**
Maximum Cohesion / Shear Strength:	C_u	**8.0**	**kPa**
Type of Failure:		**Plastic**	

Signed

Remarks: Undisturbed

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For NMTL Ltd

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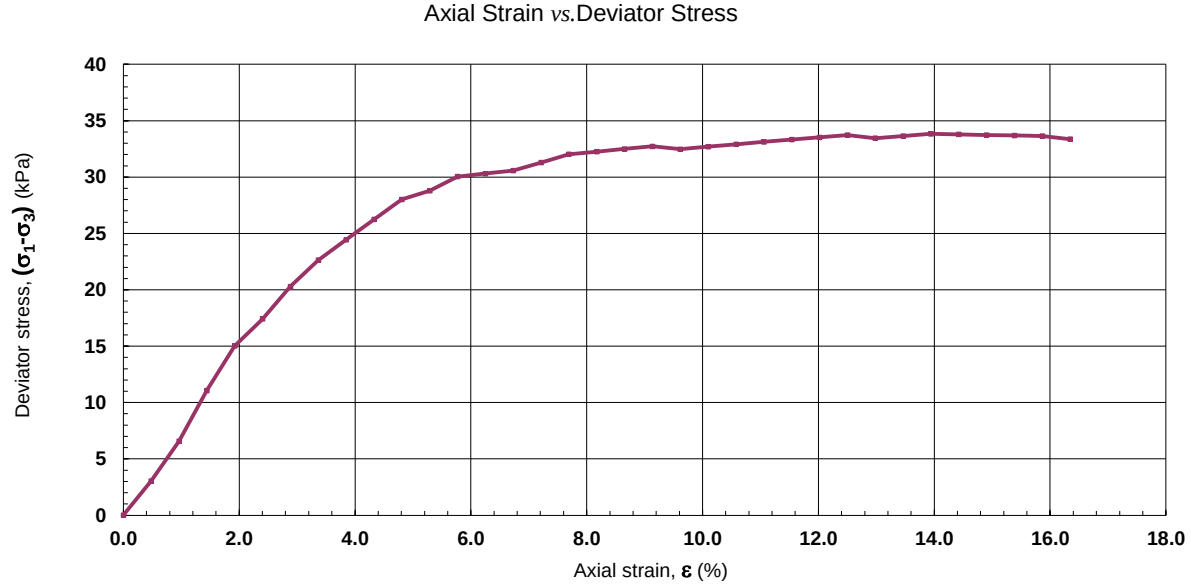
BS 1377 : Part 7 : 1990 Clause 8

Client Name:	**Irish Drilling Ltd**	Contract:	**Arklow Bank**
Address:	**Loughrea**	Site Address:	**N/A**
	Galway	**IDL Project ID:**	**2020WW102**
	Co. Galway		

Sample No.: **BH303** **U17** Depth: **6.50-6.95** File Reference: **NMTL 3333**

Sample Description:	**Soft to firm dark grey brown silty PEAT with traces of completely decomposed wood fragments.**		
Location:	**Arklow Bank**	Date Sampled:	**15 October 2020**
Sample Type:	**U100**	Sampled by:	**Irish Drilling Ltd**
Client Sample Ref.:	**BH303**	Sampling Cert. Recd.:	**No**
Source / Supplier:	**IDL**	Date Received:	**15 December 2020**
Specification:	**BS 1377: Part 7: 1990 Clause 8**	Date Tested:	**16 December 2020**

Specimen					**Test**		
Length:	**208.0**	mm	Diameter:	**103.0** mm	Membrane type:	**Latex**	
Area:	**8332.3**	mm^2	Volume:	**1733.1** cm^3	Membrane thickness:	**0.3**	mm
Mass:	**2102.0**	g			Membrane correction:	**1.95**	
Moisture content:	**207.7**	%			Sample state:	**Undisturbed**	
Bulk density:	**1.21**	$Mg\ m^{-3}$			Number of stages:	**1**	
Dry density:	**0.39**	$Mg\ m^{-3}$			Rate of strain:	**1.0**	$\%\ min^{-1}$
Preparation Method:	**BS 1377: Part 1: 1990 Clause 8 .3.1**				Cell pressure: σ_3	**120**	kPa



Maximum Corrected Deviator Stress at Failure:	$(\sigma_1-\sigma_3)_f$	**33.8**	**kPa**
Strain at Failure:	ε	**13.94**	**%**
Maximum Cohesion / Shear Strength:	C_u	**16.9**	**kPa**
Type of Failure:		**Plastic**	

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Remarks: Undisturbed

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For NMTL Ltd

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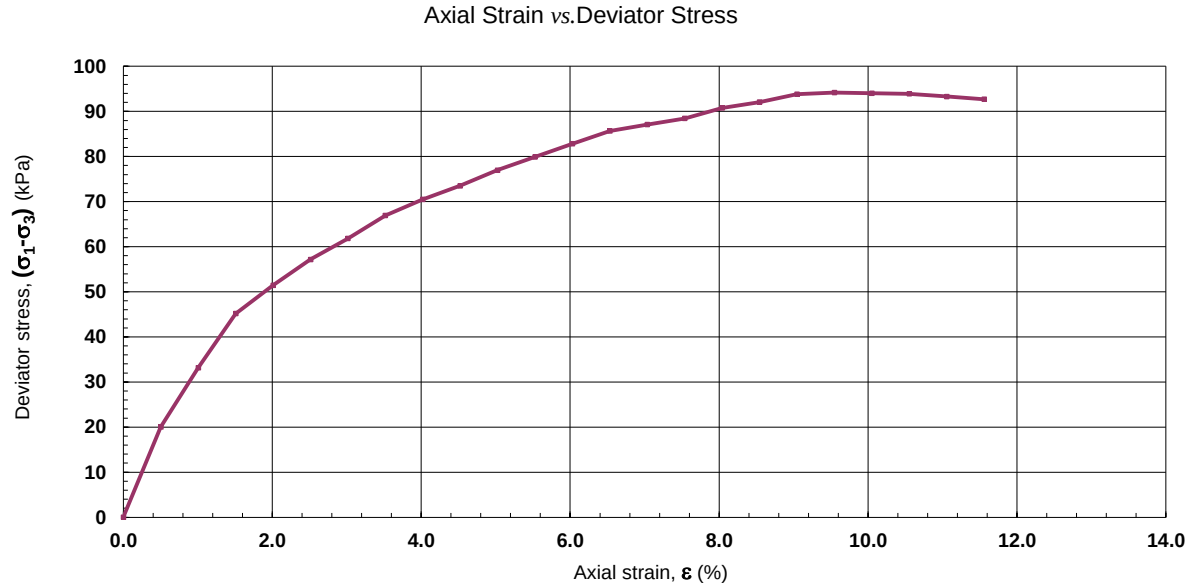
BS 1377 : Part 7 : 1990 Clause 8

Client Name:	**Irish Drilling Ltd**	Contract:	**Arklow Bank**
Address:	**Loughrea**	Site Address:	**N/A**
	Galway	**IDL Project ID:**	**2020WW102**
	Co. Galway		

Sample No.:	**BH303**	**U25**	Depth: **9.5-9.95m**	File Reference:	**NMTL 3333**

Sample Description:	**Firm brown silty CLAY**		
Location:	**Arklow Bank**	Date Sampled:	**15 October 2020**
Sample Type:	**U100**	Sampled by:	**Irish Drilling Ltd**
Client Sample Ref.:	**BH303**	Sampling Cert. Recd.:	**No**
Source / Supplier:	**IDL**	Date Received:	**15 December 2020**
Specification:	**BS 1377: Part 7: 1990 Clause 8**	Date Tested:	**16 December 2020**

Specimen					**Test**		
Length:	**199.0**	mm	Diameter: **103.2**	mm	Membrane type:	**Latex**	
Area:	**8364.7**	mm^2	Volume: **1664.6**	cm^3	Membrane thickness:	**0.3**	mm
Mass:	**3338.8**	g			Membrane correction:	**1.34**	
Moisture content:	**30.2**	%			Sample state:	**Undisturbed**	
Bulk density:	**2.01**	$Mg\ m^{-3}$			Number of stages:	**1**	
Dry density:	**1.54**	$Mg\ m^{-3}$			Rate of strain:	**1.0**	$\%\ min^{-1}$
Preparation Method:	**BS 1377: Part 1: 1990 Clause 8 .3.1**				Cell pressure: σ_3	**180**	kPa



Maximum Corrected Deviator Stress at Failure:	$(\sigma_1-\sigma_3)_f$	**94.2**	**kPa**
Strain at Failure:	ε	**9.55**	**%**
Maximum Cohesion / Shear Strength:	C_u	**47.1**	**kPa**
Type of Failure:		**Plastic**	

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For NMTL Ltd

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20 December 2020

Remarks: Undisturbed

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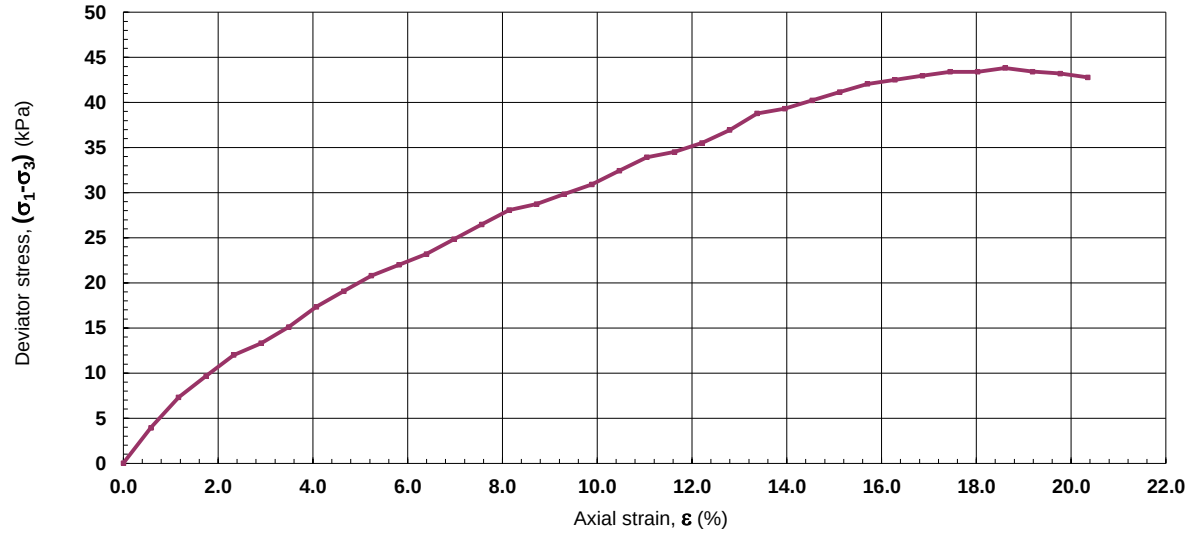
BS 1377 : Part 7 : 1990 Clause 8

Client Name:	**Irish Drilling Ltd**	Contract:	**Arklow Bank**
Address:	**Loughrea**	Site Address:	**N/A**
	Galway	**IDL Project ID:**	**2020WW102**
	Co. Galway		

Sample No.: **BH304** **U16** Depth: **5.0-5.45m** File Reference: **NMTL 3333**

Sample Description:	**Firm dark brown/black clayey PEAT**		
Location:	**Arklow Bank**	Date Sampled:	**15 October 2020**
Sample Type:	**U100**	Sampled by:	**Irish Drilling Ltd**
Client Sample Ref.:	**BH304**	Sampling Cert. Recd.:	**No**
Source / Supplier:	**IDL**	Date Received:	**15 December 2020**
Specification:	**BS 1377: Part 7: 1990 Clause 8**	Date Tested:	**16 December 2020**

Specimen					**Test**		
Length:	**172.0**	mm	Diameter:	**104.5** mm	Membrane type:	**Latex**	
Area:	**8576.7**	mm^2	Volume:	**1475.2** cm^3	Membrane thickness:	**0.3**	mm
Mass:	**1971.0**	g			Membrane correction:	**2.60**	
Moisture content:	**119.3**	%			Sample state:	**Undisturbed**	
Bulk density:	**1.34**	$Mg\ m^{-3}$			Number of stages:	**1**	
Dry density:	**0.61**	$Mg\ m^{-3}$			Rate of strain:	**1.0**	$\%\ min^{-1}$
Preparation Method:	**BS 1377: Part 1: 1990 Clause 8 .3.1**				Cell pressure: σ_3	**100**	kPa



Maximum Corrected Deviator Stress at Failure:	$(\sigma_1-\sigma_3)_f$	**43.8**	**kPa**
Strain at Failure:	ε	**18.60**	**%**
Maximum Cohesion / Shear Strength:	C_u	**21.9**	**kPa**
Type of Failure:		**Plastic**	

Signed

Remarks: Undisturbed

Authorised Signatories
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20 December 2020

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Certificate of Test

Determination of Undrained Shear Strength in Triaxial Compression

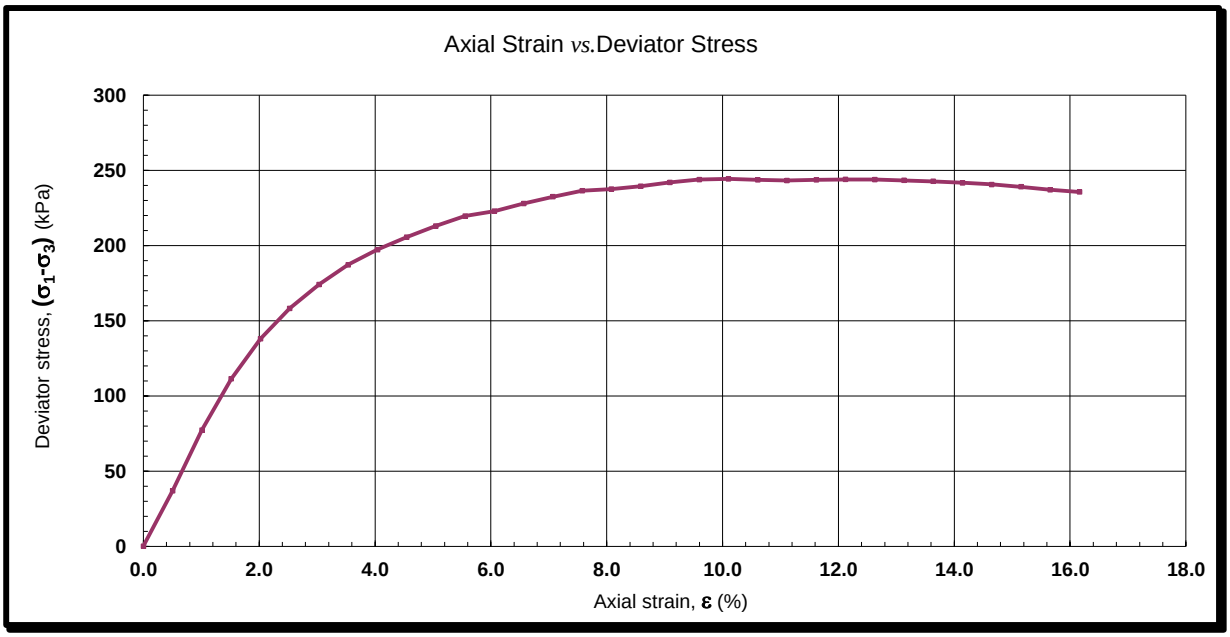
BS 1377 : Part 7 : 1990 Clause 8

Client Name:	**Irish Drilling Ltd**	Contract:	**Arklow Bank**
Address:	**Loughrea**	Site Address:	**N/A**
	Galway	**IDL Project ID:**	**2020WW102**
	Co. Galway		

Sample No.: **BH304** **U21** Depth: **8.0-8.45m** File Reference: **NMTL 3333**

Sample Description:	**Grey gravelly silty SAND with some wood fragments**		
Location:	**Arklow Bank**	Date Sampled:	**15 October 2020**
Sample Type:	**U100**	Sampled by:	**Irish Drilling Ltd**
Client Sample Ref.:	**BH304**	Sampling Cert. Recd.:	**No**
Source / Supplier:	**IDL**	Date Received:	**15 December 2020**
Specification:	**BS 1377: Part 7: 1990 Clause 8**	Date Tested:	**16 December 2020**

Specimen					**Test**		
Length:	**198.0**	mm	Diameter:	**102.5** mm	Membrane type:	**Latex**	
Area:	**8251.6**	mm^2	Volume:	**1633.8** cm^3	Membrane thickness:	**0.3**	mm
Mass:	**3234.0**	g			Membrane correction:	**1.70**	
Moisture content:	**15.6**	%			Sample state:	**Undisturbed**	
Bulk density:	**1.98**	$Mg\ m^{-3}$			Number of stages:	**1**	
Dry density:	**1.71**	$Mg\ m^{-3}$			Rate of strain:	**1.0**	$\%\ min^{-1}$
Preparation Method:	**BS 1377: Part 1: 1990 Clause 8 .3.1**				Cell pressure: σ_3	**160**	kPa



Maximum Corrected Deviator Stress at Failure:	$(\sigma_1-\sigma_3)_f$	**244.1**	**kPa**
Strain at Failure:	ε	**12.12**	**%**
Maximum Cohesion / Shear Strength:	C_u	**122.0**	**kPa**
Type of Failure:		**Plastic**	

Signed

Remarks: Undisturbed

Authorised Signatories
☐ N Chana
☐ B Chana

20 December 2020

For NMTL Ltd

Original to: **Client Rep.**
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Certificate of Test

Determination of Undrained Shear Strength in Triaxial Compression

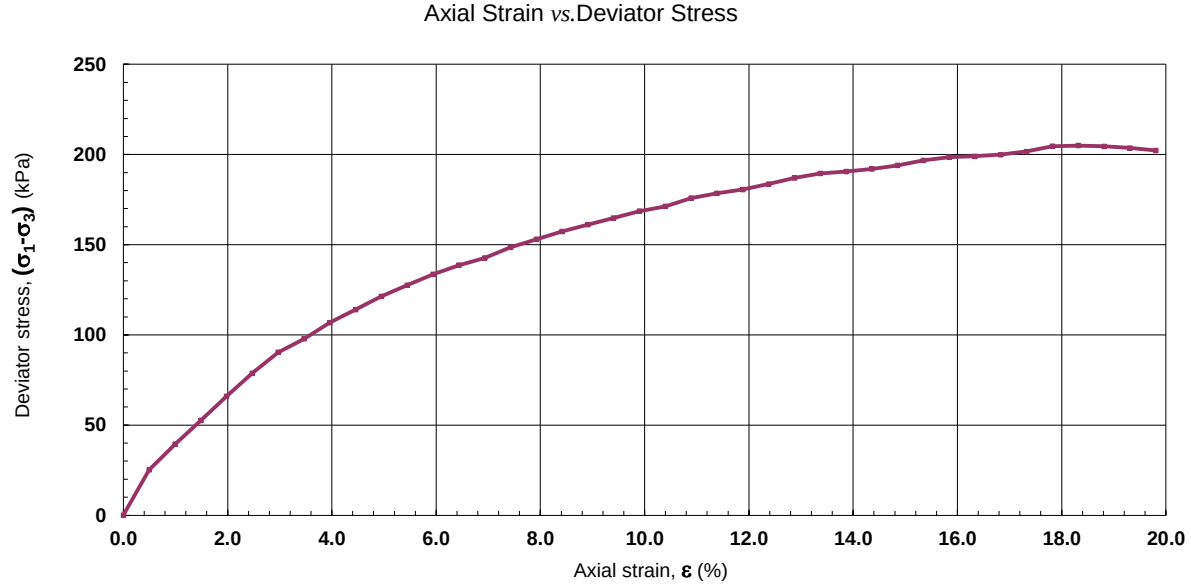
BS 1377 : Part 7 : 1990 Clause 8

Client Name:	**Irish Drilling Ltd**	Contract:	**Arklow Bank**
Address:	**Loughrea**	Site Address:	**N/A**
	Galway	**IDL Project ID:**	**2020WW102**
	Co. Galway		

Sample No.: **BH305** **U12** Depth: **4.0-4.50m** File Reference: **NMTL 3333**

Sample Description:	**Firm to stiff light brown-orange brown slightly gravelly silty CLAY.**		
Location:	**Arklow Bank**	Date Sampled:	**15 October 2020**
Sample Type:	**U100**	Sampled by:	**Irish Drilling Ltd**
Client Sample Ref.:	**BH305**	Sampling Cert. Recd.:	**No**
Source / Supplier:	**IDL**	Date Received:	**15 December 2020**
Specification:	**BS 1377: Part 7: 1990 Clause 8**	Date Tested:	**16 December 2020**

Specimen					**Test**		
Length:	**202.0**	mm	Diameter:	**103.0** mm	Membrane type:	**Latex**	
Area:	**8332.3**	mm^2	Volume:	**1683.1** cm^3	Membrane thickness:	**0.3**	mm
Mass:	**3638.8**	g			Membrane correction:	**2.56**	
Moisture content:	**13.2**	%			Sample state:	**Undisturbed**	
Bulk density:	**2.16**	$Mg\ m^{-3}$			Number of stages:	**1**	
Dry density:	**1.91**	$Mg\ m^{-3}$			Rate of strain:	**1.0**	$\%\ min^{-1}$
Preparation Method:	**BS 1377: Part 1: 1990 Clause 8 .3.1**				Cell pressure: σ_3	**80**	kPa



Maximum Corrected Deviator Stress at Failure:	$(\sigma_1-\sigma_3)_f$	**205.0**	**kPa**
Strain at Failure:	ε	**18.32**	**%**
Maximum Cohesion / Shear Strength:	C_u	**102.5**	**kPa**
Type of Failure:		**Plastic**	

Signed

Remarks: Undisturbed

Authorised Signatories
☐ N Chana
☐ B Chana

For NMTL Ltd

20 December 2020

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SUMMARY OF TEST RESULTS

		Initial			Initial	Final
Hall Effect Gauge length	mm	n/a	Bulk Density	Mg/m3	1.62	1.67
Specimen Length	mm	206.00	Dry Density	Mg/m3	0.91	1.03
Specimen Diameter	mm	104.50	Moisture	%	77.25	61.47
Area	mm2	8576.74	Saturation	%	106.27	102.78
Volume	cc	1766.81	Sg(Assumed)	2.70		

Saturation Stage

Test Stage	Cell Pressure (kPa)	Pore Pressure Parameter 'B' Base
0	0	0
1	50	0.92
2	100	0.99
3	200	0.99
4	300	0.99
5	390	0.99
6		

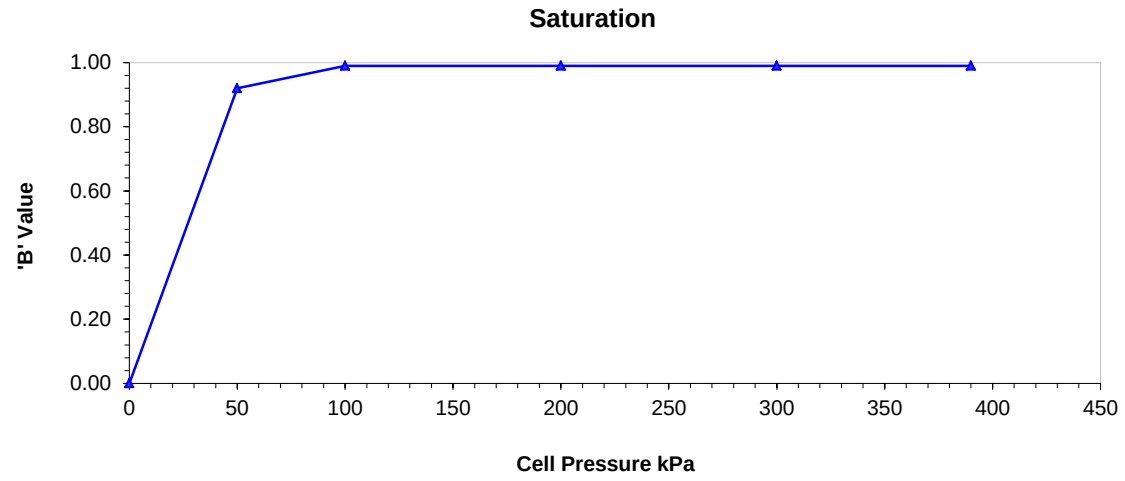
Isotropic Consolidation Stage

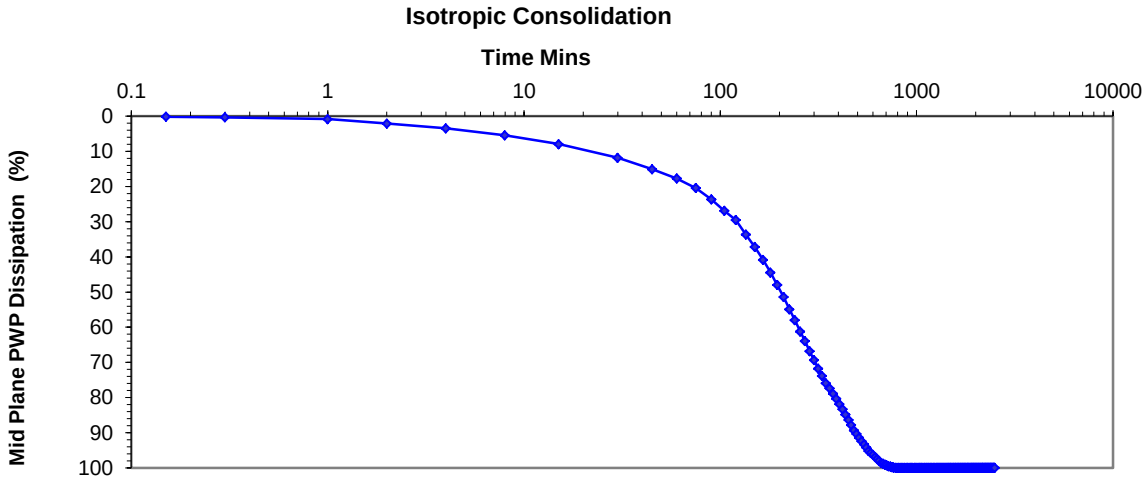
		Stage 1
Cell Pressure	kPa	390
Pore Pressure	kPa	387.0
Back Pressure	kPa	300
Drainage Method		One End and Radial Boundary
t100 (min)		306.3
Coef. Of Consolidation Cv	m2/year	0.686
Coef. Of Compressibility Mv	m2/MN	1.394
Permeability K	m/Sec	2.96E-10

At Peak Stress Ratio

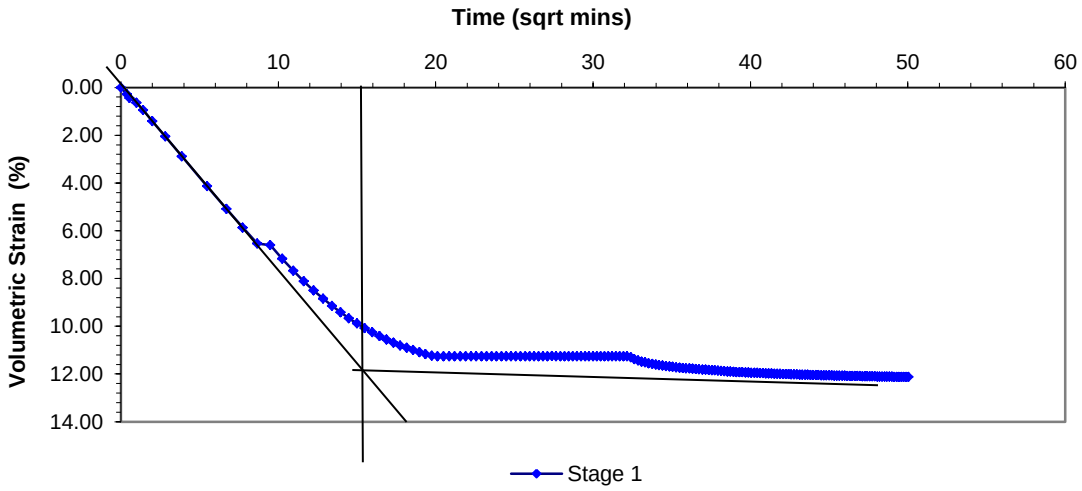
	Stage 1
Deviator Stress (kPa)	107.1
External Axial Strain (%)	15.53
Shear Stress (kPa)	53.6
Peak Stress Ratio	4.20
Pore Water Pressure (kPa)	55
Radial Effective Stress (kPa)	35
Axial Effective Stress (kPa)	142.1
Effective angle of friction (Degrees)	36.8°
Cohesion c' (kPa)	0
Rate of strain mm/min	0.0067
Sample Description	**Soft grey slightly sandy silty CLAY**
	Plastic Failure.

NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No.	NMTL-3333
		Borehole No.	BH301
	Project: Arklow Bank	Sample No.	U12
		Depth.	4.0-4.45m

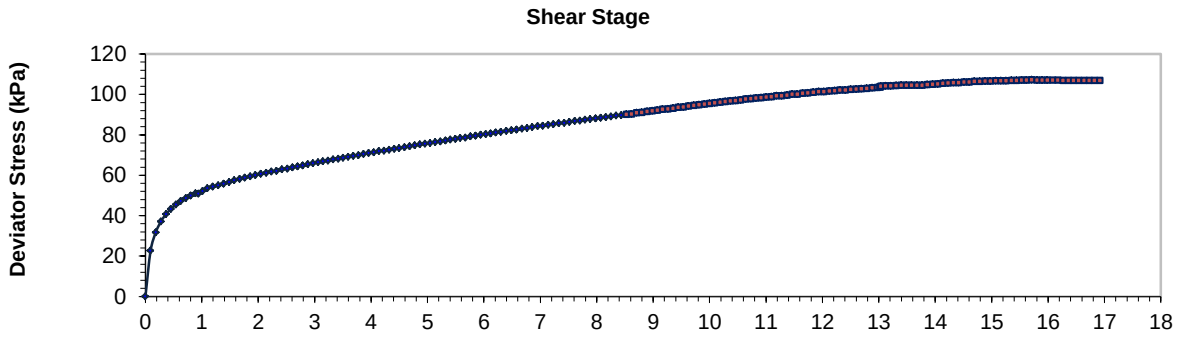


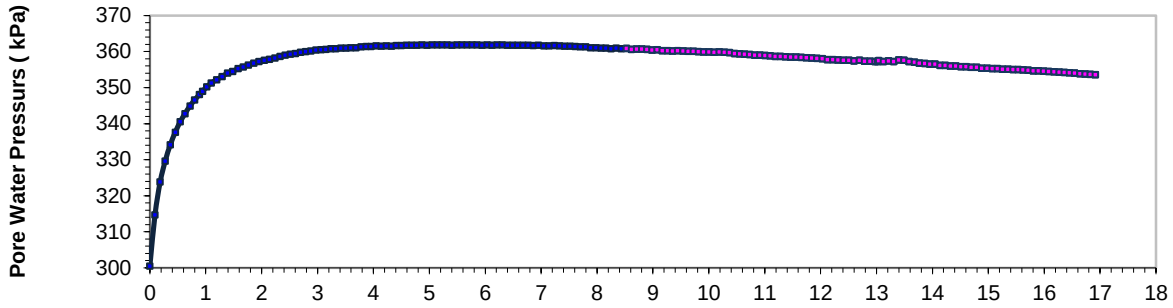


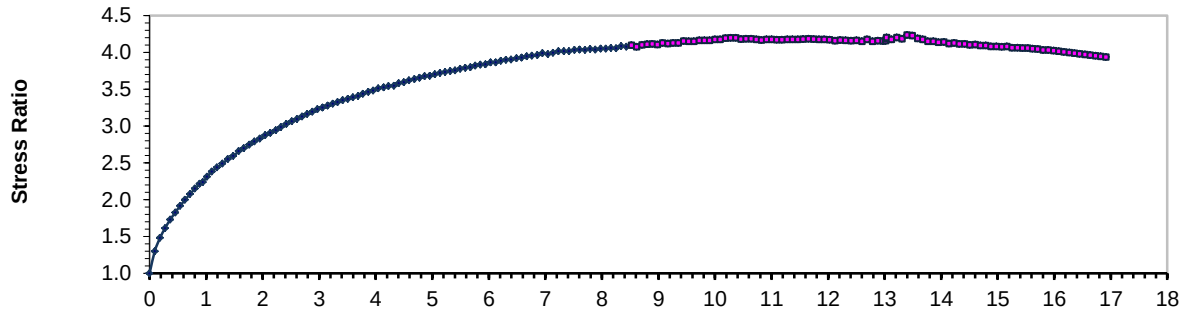
Stage 1

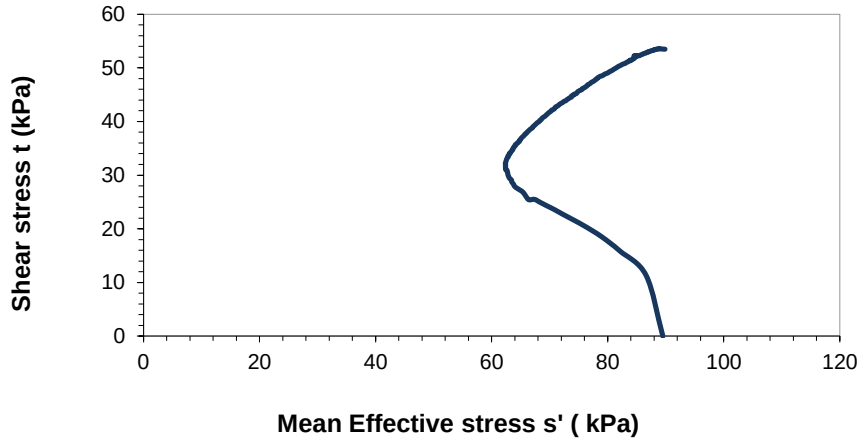


NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No BH301
	Project: Arklow Bank	Sample No. U12
		Depth. 4.0-4.45m









NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No. BH301
	Project: Arklow Bank	Sample No. U12
		Depth. 4.0-4.45m

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SPECIMEN AFTER TEST



Soil Description

Soft grey slightly sandy silty CLAY

NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No. BH301
	Project: Arklow Bank	Sample No. U12
		Depth. 4.0-4.45m

SUMMARY OF TEST RESULTS

		Initial			Initial	Final
Hall Effect Gauge length	mm	n/a	Bulk Density	Mg/m3	1.25	1.25
Specimen Length	mm	201.00	Dry Density	Mg/m3	0.33	0.40
Specimen Diameter	mm	104.50	Moisture	%	277.47	215.73
Area	mm2	8576.74	Saturation	%	104.82	100.63
Volume	cc	1723.93	Sg(Assumed)	2.65		

Saturation Stage

Test Stage	Cell Pressure (kPa)	Pore Pressure Parameter 'B' Base
0	0	0
1	50	0.98
2	100	0.99
3	200	0.99
4	300	0.99
5	400	1.00
6		

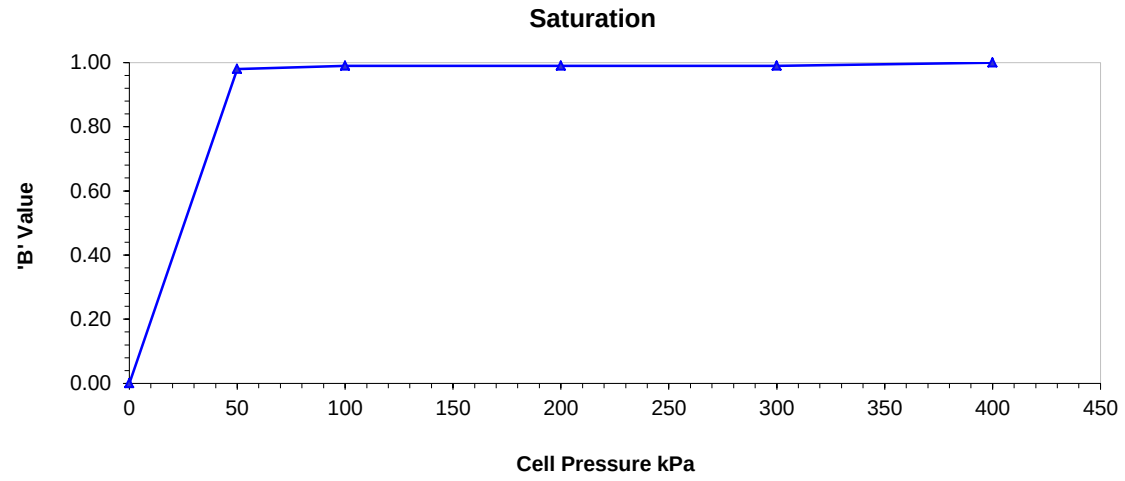
Isotropic Consolidation Stage

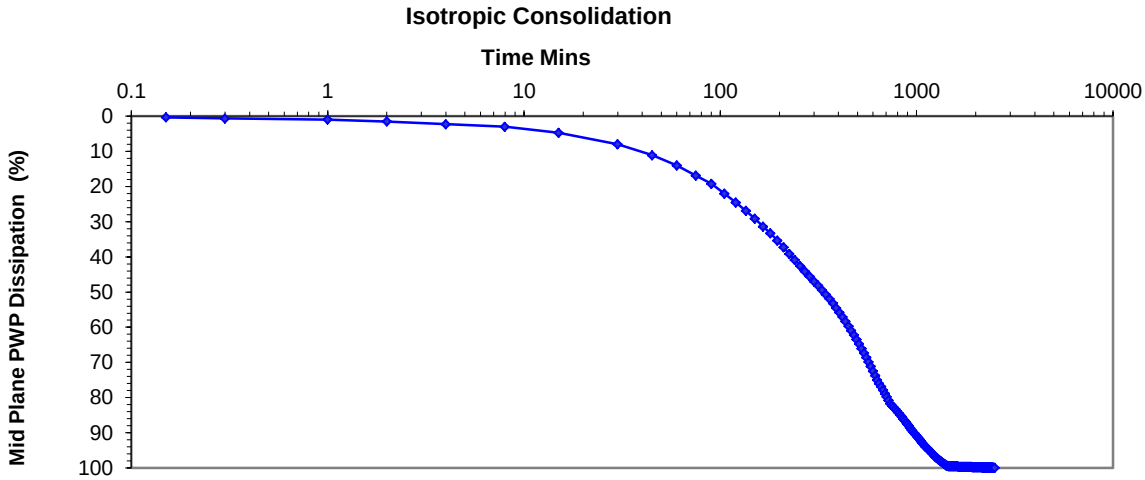
		Stage 1
Cell Pressure	kPa	400
Pore Pressure	kPa	393.5
Back Pressure	kPa	300
Drainage Method		One End and Radial Boundary
t100 (min)		316.8
Coef. Of Consolidation Cv	m2/year	0.663
Coef. Of Compressibility Mv	m2/MN	1.817
Permeability K	m/Sec	3.73E-10

At Peak Stress Ratio

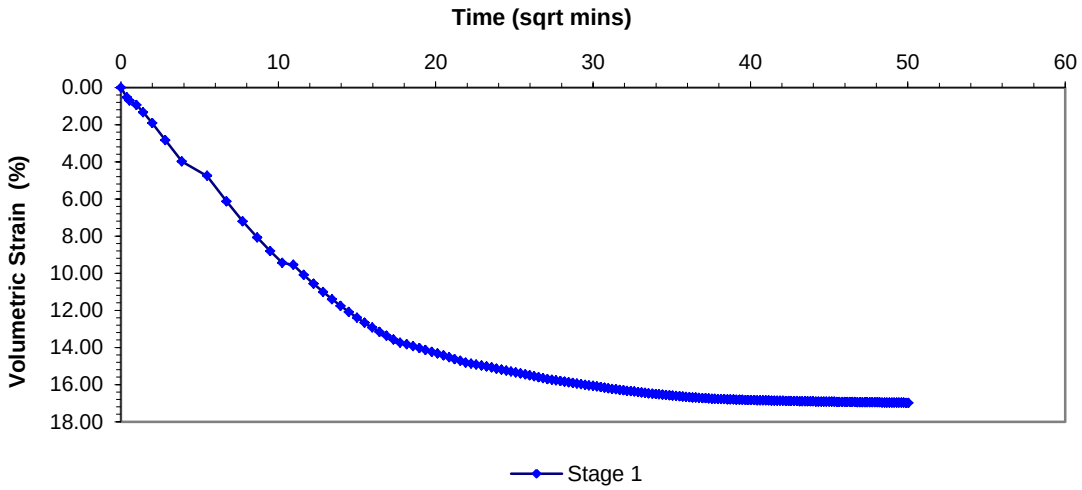
	Stage 1
Deviator Stress (kPa)	93.0
External Axial Strain (%)	13.65
Shear Stress (kPa)	46.5
Peak Stress Ratio	4.81
Pore Water Pressure (kPa)	75.7
Radial Effective Stress (kPa)	24.3
Axial Effective Stress (kPa)	117.3
Effective angle of friction (Degrees)	40.5°
Cohesion c' (kPa)	0
Rate of strain mm/min	0.0067
Sample Description	**Soft dark brown/black slightly clayey PEAT**
	Plastic Failure.

NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No.	NMTL-3333
		Borehole No.	BH302
	Project: Arklow Bank	Sample No.	U14
		Depth.	5.0-5.45m

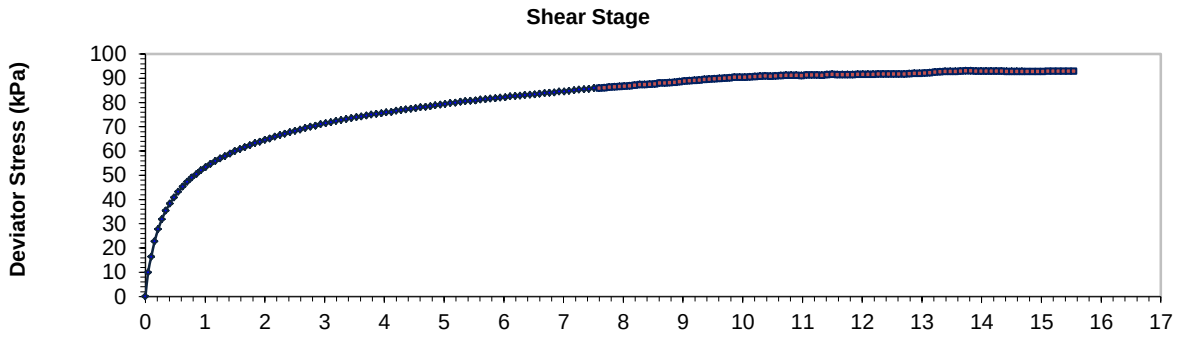


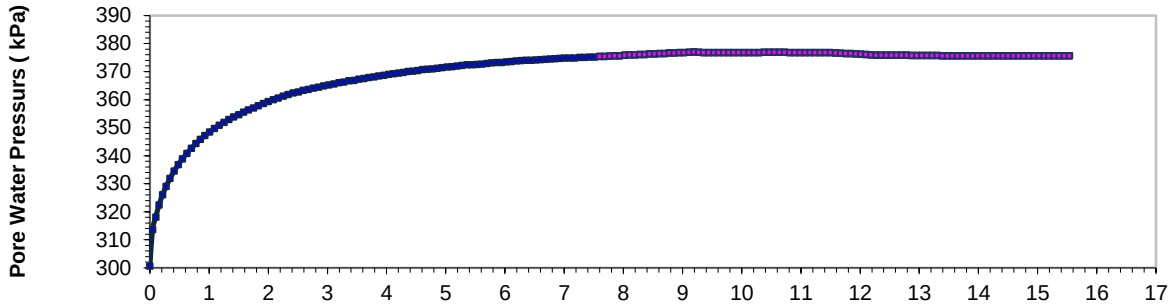


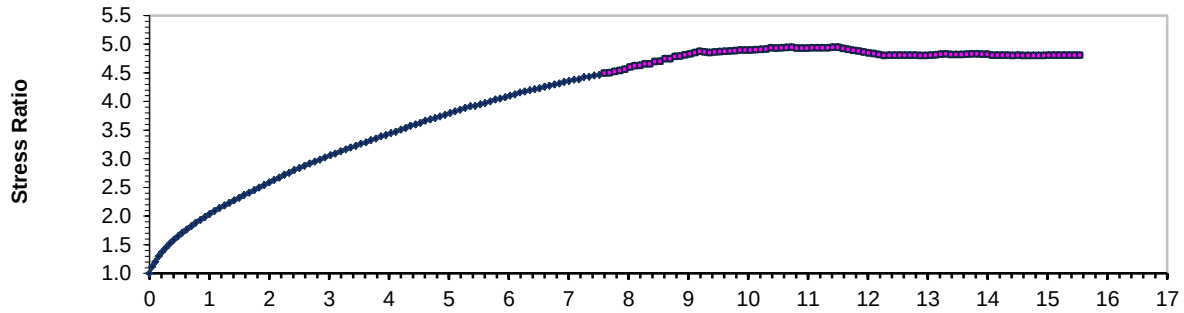
Stage 1

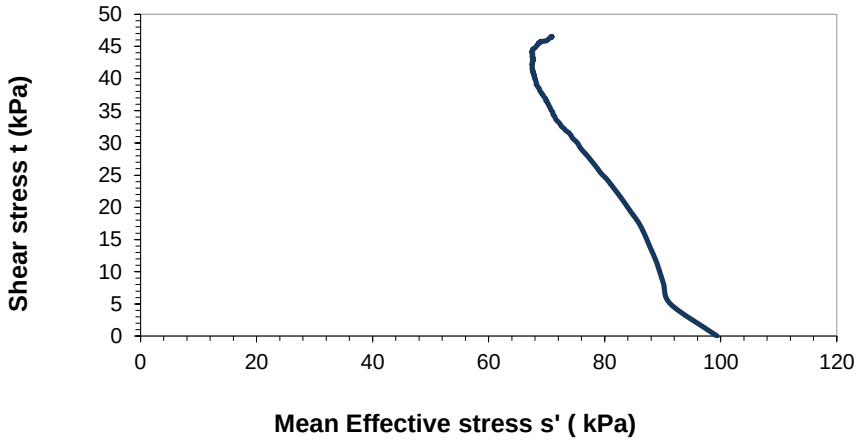


NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No BH302
	Project: Arklow Bank	Sample No. U14
		Depth. 5.0-5.45m









NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No. BH302
	Project: Arklow Bank	Sample No. U14
		Depth. 5.0-5.45m

SPECIMEN AFTER TEST



Soil Description

Soft dark brown/black slightly clayey PEAT

NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No.	NMTL-3333
		Borehole No.	BH302
	Project: Arklow Bank	Sample No.	U14
		Depth.	5.0-5.45m

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SUMMARY OF TEST RESULTS

		Initial			Initial	Final
Hall Effect Gauge length	mm	n/a	Bulk Density	Mg/m3	1.62	1.69
Specimen Length	mm	201.00	Dry Density	Mg/m3	0.93	1.09
Specimen Diameter	mm	104.50	Moisture	%	73.74	55.11
Area	mm2	8576.74	Saturation	%	106.16	101.99
Volume	cc	1723.93	Sg(Assumed)	2.65		

Saturation Stage

Test Stage	Cell Pressure (kPa)	Pore Pressure Parameter 'B' Base
0	0	0
1	50	0.90
2	100	0.98
3	200	0.99
4	300	0.99
5	390	1.00
6		

Isotropic Consolidation Stage

		Stage 1
Cell Pressure	kPa	390
Pore Pressure	kPa	386.7
Back Pressure	kPa	300
Drainage Method		One End and Radial Boundary
t100 (min)		324.0
Coef. Of Consolidation Cv	m2/year	0.648
Coef. Of Compressibility Mv	m2/MN	1.717
Permeability K	m/Sec	3.45E-10

At Peak Stress Ratio

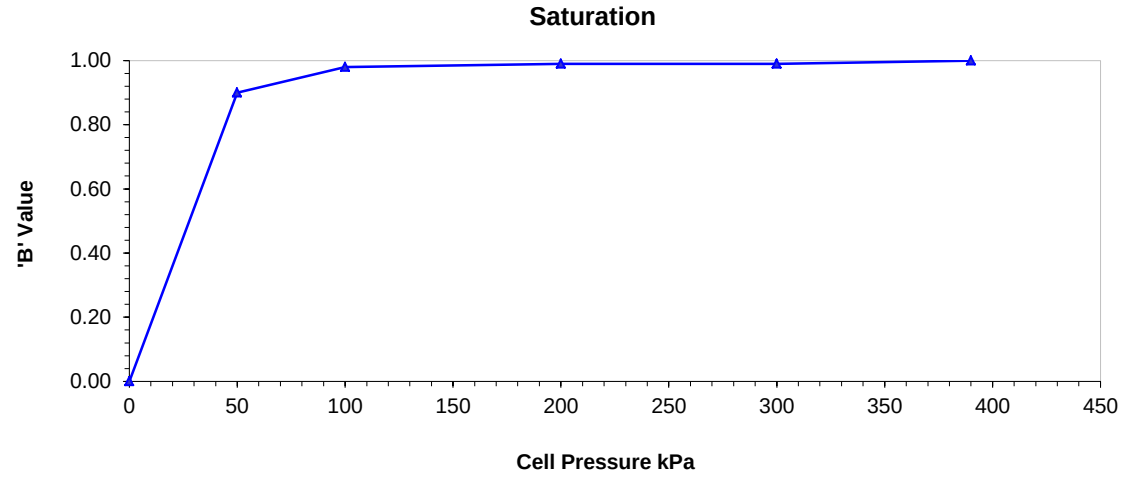
	Stage 1
Deviator Stress (kPa)	102.9
External Axial Strain (%)	16.12
Shear Stress (kPa)	51.4
Peak Stress Ratio	4.61
Pore Water Pressure (kPa)	59.1
Radial Effective Stress (kPa)	30.9
Axial Effective Stress (kPa)	133.8
Effective angle of friction (Degrees)	38.2°
Cohesion c' (kPa)	0
Rate of strain mm/min	0.0067
Sample Description	**Soft grey slightly sandyorganic silty CLAY. Plastic Failure.**

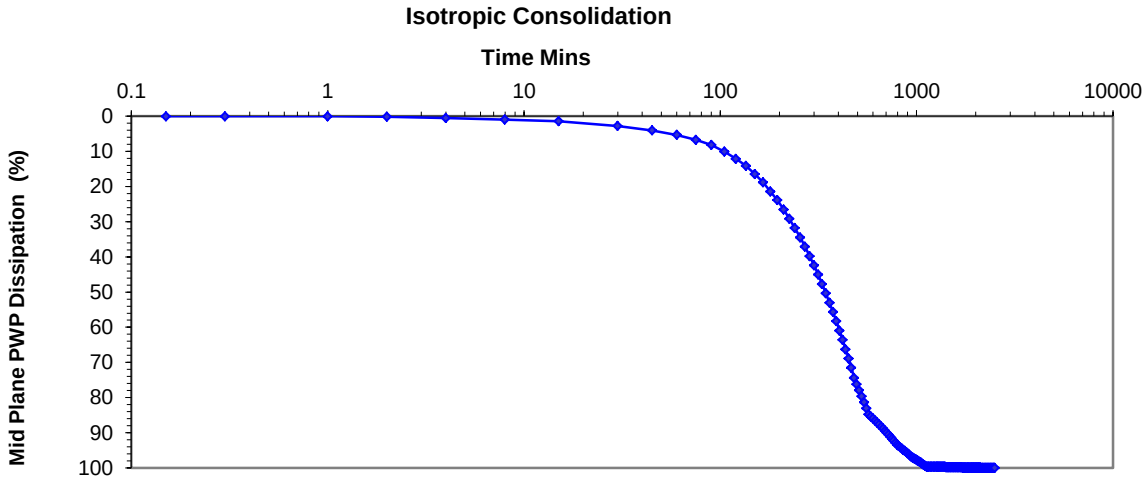
NM TL Ltd

Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8

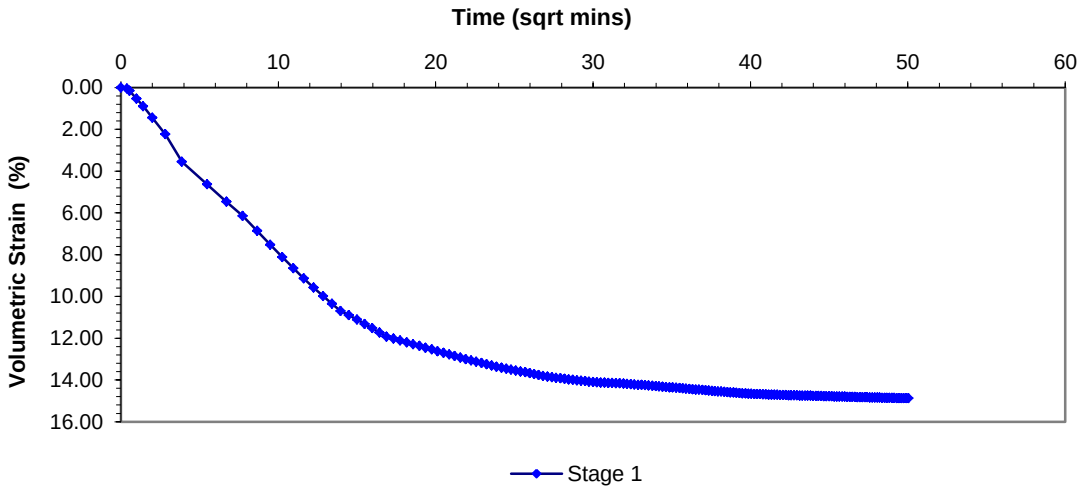
Project: Arklow Bank

Project No.	NMTL-3333
Borehole No.	BH303
Sample No.	U12
Depth.	4.0-4.45m

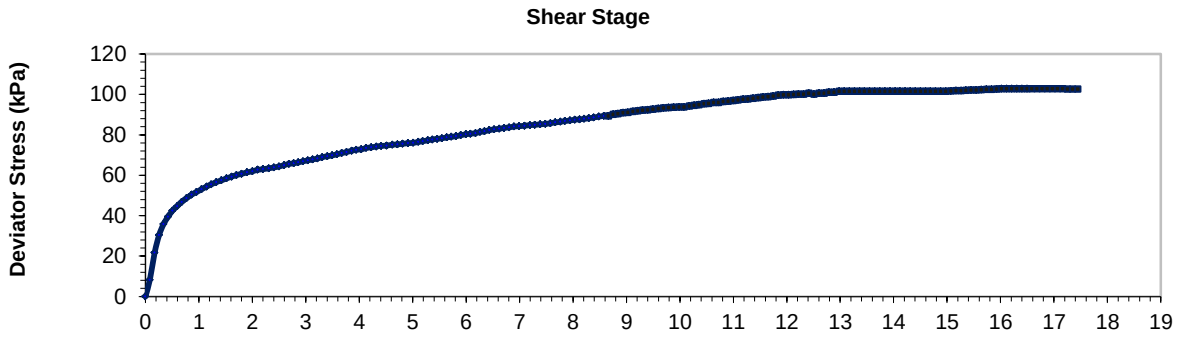


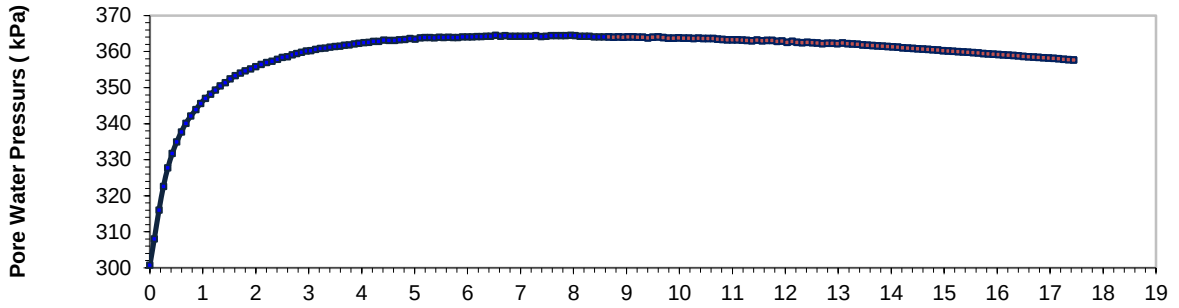


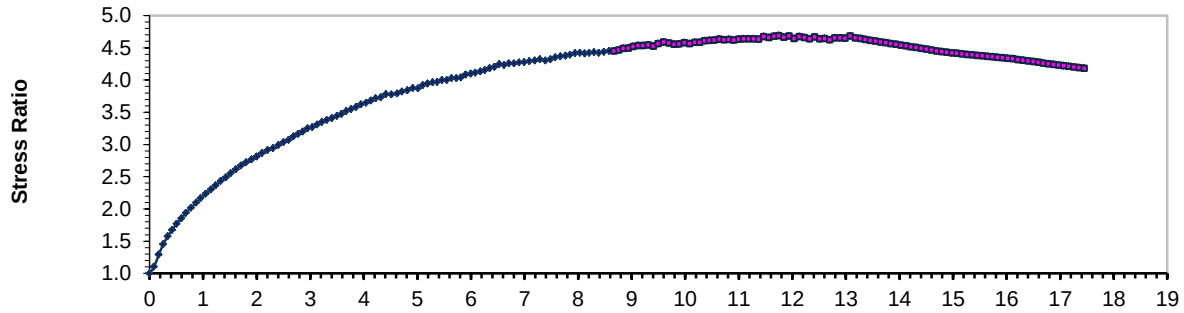
Stage 1

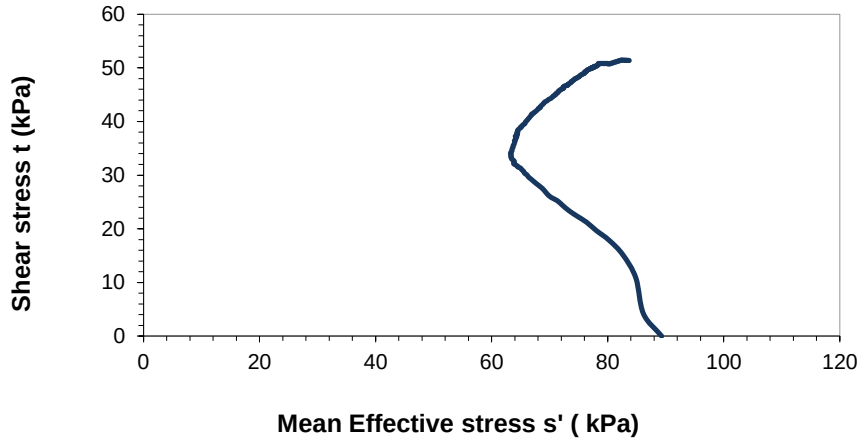


NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No BH303
	Project: Arklow Bank	Sample No. U12
		Depth. 4.0-4.45m









NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
	Project: Arklow Bank	Borehole No. BH303
		Sample No. U12
		Depth. 4.0-4.45m

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SPECIMEN AFTER TEST





Soil Description

Soft grey slightly sandyorganic silty CLAY.

NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No. BH303
	Project: Arklow Bank	Sample No. U12
		Depth. 4.0-4.45m

SUMMARY OF TEST RESULTS

		Initial			Initial	Final
Hall Effect Gauge length	mm	n/a	Bulk Density	Mg/m3	1.42	1.47
Specimen Length	mm	204.00	Dry Density	Mg/m3	0.66	0.75
Specimen Diameter	mm	104.50	Moisture	%	116.38	95.73
Area	mm2	8576.74	Saturation	%	101.72	100.66
Volume	cc	1749.66	Sg(Assumed)	2.65		

Saturation Stage

Test Stage	Cell Pressure (kPa)	Pore Pressure Parameter 'B' Base
0	0	0
1	50	0.87
2	100	1.00
3	200	1.00
4	300	1.00
5	400	1.00

Isotropic Consolidation Stage

		Stage 1
Cell Pressure	kPa	400
Pore Pressure	kPa	390.2
Back Pressure	kPa	300
Drainage Method		One End and Radial Boundary
t100 (min)		449.4
Coef. Of Consolidation Cv	m2/year	0.467
Coef. Of Compressibility Mv	m2/MN	1.504
Permeability K	m/Sec	2.18E-10

At Peak Stress Ratio

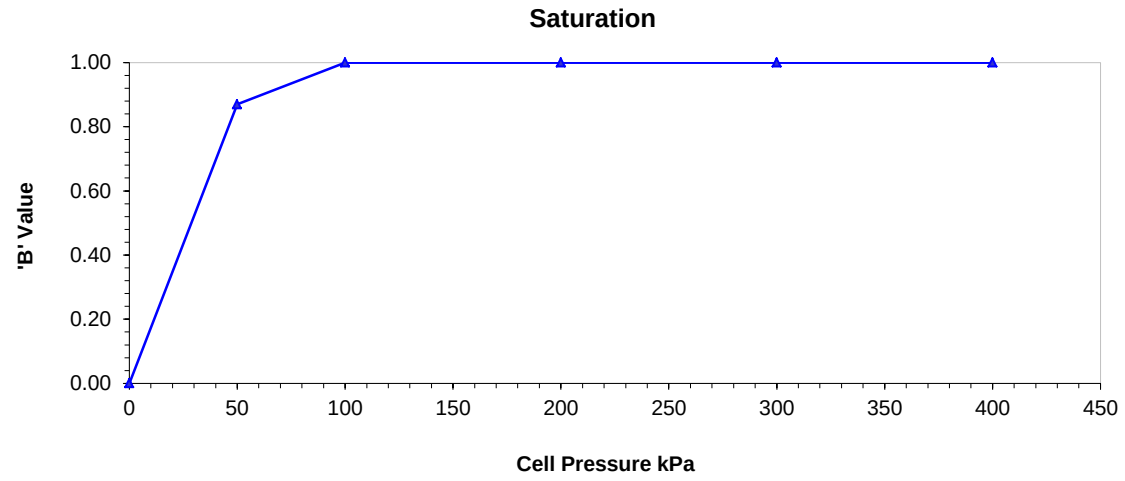
	Stage 1
Deviator Stress (kPa)	122.8
External Axial Strain (%)	12.46
Shear Stress (kPa)	61.4
Peak Stress Ratio	6.79
Pore Water Pressure (kPa)	77.6
Radial Effective Stress (kPa)	22.4
Axial Effective Stress (kPa)	145.2
Effective angle of friction (Degrees)	46.6°
Cohesion c' (kPa)	0
Rate of strain mm/min	0.0067
Sample Description	**Firm dark brown/black clayey PEAT**
	Plastic Failure.

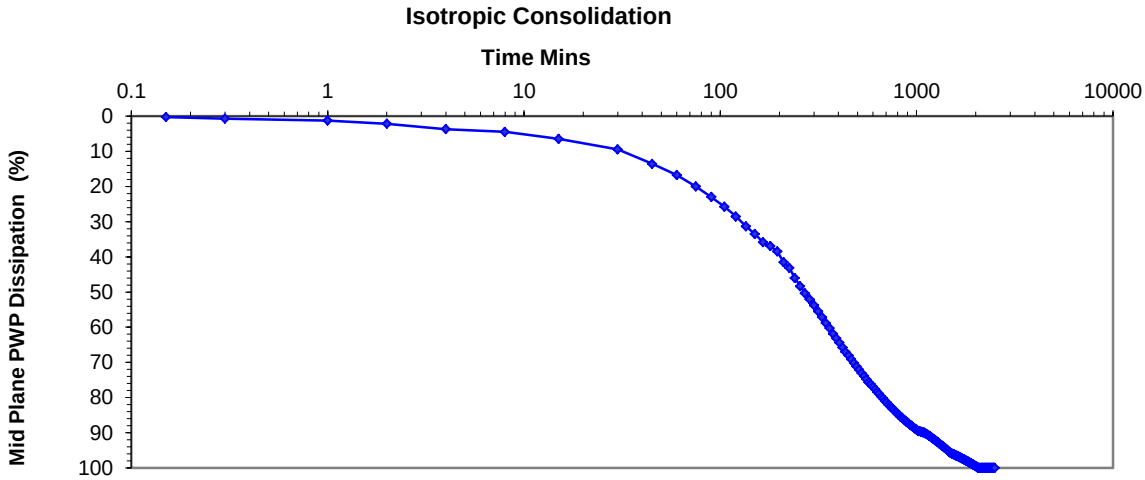
NM TL Ltd

Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8

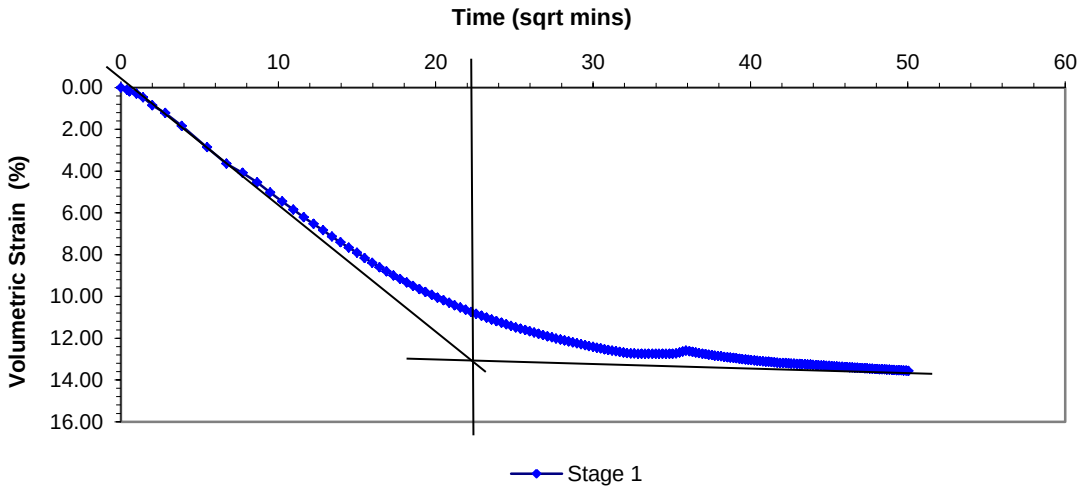
Project: Arklow Bank

Project No.	NMTL-3333
Borehole No.	BH304
Sample No.	U16
Depth.	5.0-5.45m

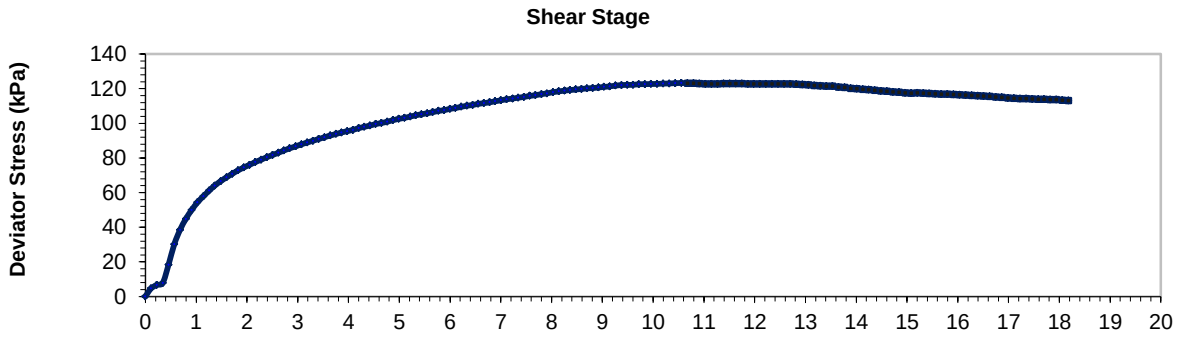


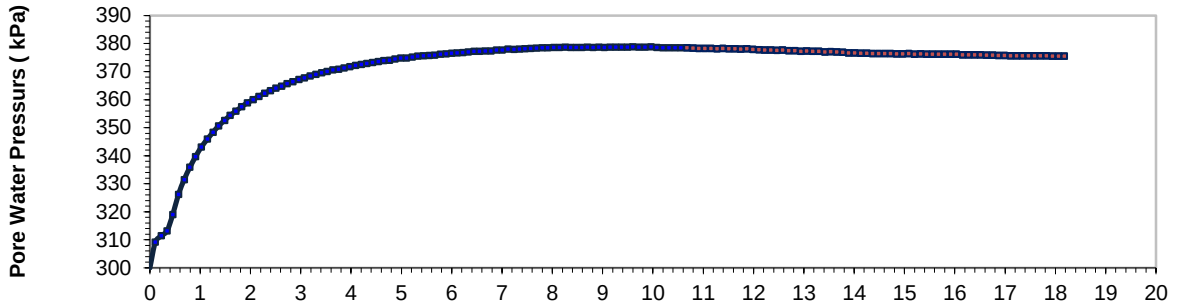


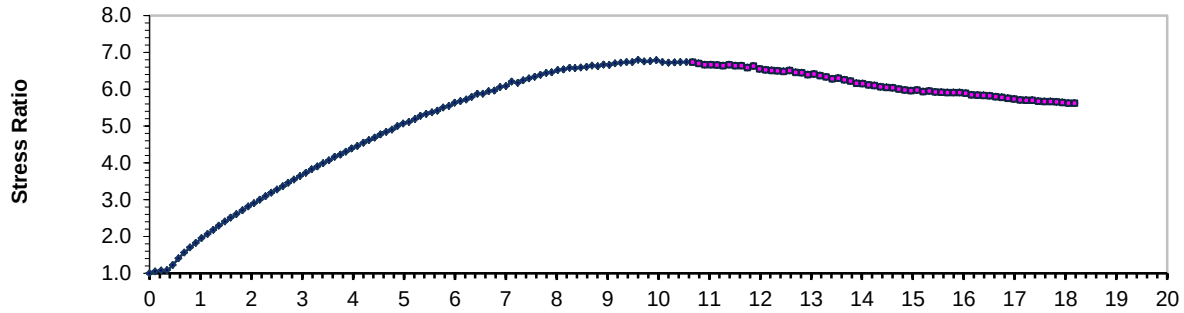
Stage 1

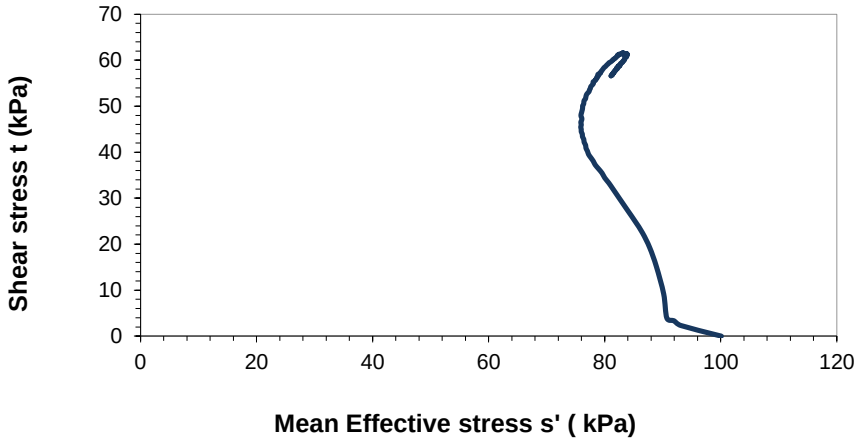


NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No BH304
	Project: Arklow Bank	Sample No. U16
		Depth. 5.0-5.45m









NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No. BH304
	Project: Arklow Bank	Sample No. U16
		Depth. 5.0-5.45m

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SPECIMEN AFTER TEST



Soil Description

Firm dark brown/black clayey PEAT

NM TL Ltd	**Consolidated Undrained Triaxial test with PWP measurement.Tested in accordance with BS:1377 Part 8**	Project No. NMTL-3333
		Borehole No. BH304
	Project: Arklow Bank	Sample No. U16
		Depth. 5.0-5.45m

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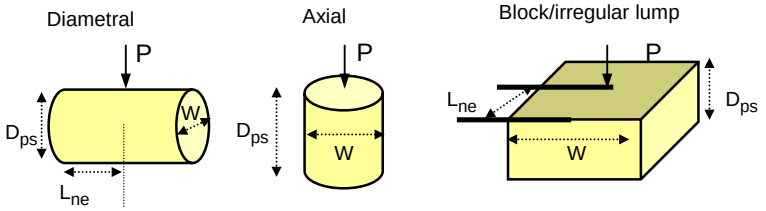
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Project No.: 2020WW102

Project Name: Arklow Bank

Borehole No.	Sample			Specimen		Rock Type and Test condition	Test Type see ISRM		Failure Valid (Y/N)	Dimensions				Force P	Equivalent diameter, De	Point Load Strength Index		Remarks (including water content if measured)
	Top Depth	Base Depth	Type	Top	Base		Type (D, A, I, B)	Direction (L, P or U)		Lne	W	Dps	Dps'			Is	Is(50)	
	m	m		m	m					mm	mm	mm	mm	kN	mm	MPa	MPa	
BH301	10.00	12	C	10	10.12		D	U	YES		63.4		63.4	9.5	63.4	2.4	2.6	Strong
BH301	19.50	20.6	C	20.2	20.34		D	U	YES		63.4		63.4	18.3	63.4	4.5	5.1	Very Strong
BH303	22.10	23.5	C	23.24	23.43		D	U	YES		63.4		63.4	10.4	63.4	2.6	2.9	Strong
BH303	23.50	25	C	23.6	23.70		D	U	YES		63.4		63.4	24.9	63.4	6.2	6.9	Very Strong
BH303	23.50	25	C	24.35	24.46		D	U	YES		63.4		63.4	23.1	63.4	5.8	6.4	Very Strong
BH303	25.00	26.2	C	25.43	25.56		D	U	YES		63.4		63.4	26.2	63.4	6.5	7.2	Very Strong
BH303	25.00	26.2	C	26.1	26.20		D	U	YES		63.4		63.4	23.7	63.4	5.9	6.6	Very Strong
BH303	26.20	26.6	C	26.5	26.60		D	U	YES		63.4		63.4	37.0	63.4	9.2	10.2	Extremely Strong
BH304	20.80	22.3	C	21.3	21.40		D	U	YES		84.5		84.5	11.3	84.5	1.6	2.0	Medium Strong
BH304	22.30	23.8	C	22.3	22.50		D	U	YES		84.5		84.5	32.0	84.5	4.5	5.7	Very Strong
BH304	23.80	25.3	C	24	24.17		D	U	YES		84.5		84.5	9.7	84.5	1.4	1.7	Medium Strong
BH304	23.80	25.3	C	24.4	24.50		A	U	YES		84.5		52.0	2.3	74.8	0.4	0.5	Weak
BH305	9.70	11.2	C	9.9	10.14		D	U	YES		84.3		84.3	4.6	84.3	0.6	0.8	Weak
BH305	15.70	17.2	C	15.8	16.00		D	U	YES		84.3		84.3	4.0	84.3	0.6	0.7	Weak
BH305	17.20	18.7	C	18.3	18.50		D	U	YES		84.3		84.0	2.5	84.1	0.4	0.4	Weak

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction
L - parallel to planes of weakness
P - perpendicular to planes of weakness
U - unknown or random
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure (see ISRM note 6)
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Test performed in accordance with ISRM Suggested Methods : 2007, unless noted otherwise
Detailed legend for test and dimensions, based on ISRM, is shown above.
Size factor, F = (De/50)0.45 for all tests.

Date Printed	Approved By	Table
16/12/2020	DCD	1
		sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39
Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

IDL

□□A□A□ □□M□R□□□□□ □□□□ □□ R□□□ □□□MMARY □□ R□□□□□□

Project No.: 2020WW102

Project Name: Arklow Bank

Hole No.	Sample				Specimen Depth (m)	Specimen Dimensions2			Bulk Density2	Water Content 1	Uniaxial Compression3				Remarks
	Ref	Top	Base	Type		Dia. mm	Length mm	H/D	Mg/m3	%	Condition	Stress Rate MPa/s	Mode of failure	UCS MPa	
BH303		22.10	23.50	C	22.1-22.5	60.8	165.8	2.7	2.75		as received	0.2854	S	24.8	Medium Strong
BH303		26.20	26.60	C	26.2-26.5	60.8	165.4	2.7	2.76		as received	0.4538	AC	80.8	Strong

Notes

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as tested for UCS

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

Test Specification	Date Printed	Approved By	Table
International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007	16/12/2020	DCD	1 sheet 1

Tested in: Irish Drilling Ltd.(IDL), Old Galway Road, Loughrea, Co. Galway, Ireland. H62VX39

Approved Signatures: Dympna Darcy (DCD) Lab Manager, Declan Joyce (DJ) Chartered Geotechnical Engineer, Ronan Killeen (RK) Quality Manager.

SOIL ENGINEERING

TEST REPORT

UKAS TESTING 1265

Serial number: LT1834 Date of issue: 15/12/2020

Issued by Soil Engineering Geoservices Limited,
Parkside Lane,
Dewsbury Road,
Leeds
LS11 5SX.
Tel: 0113 2711111
Fax: 0113 2760472
Email: enquiries@soil-engineering.co.uk

Authorised signatory

P. Rogers		(Technical Manager)
S. Harper		(Laboratory Production Manager)
K. Walker	√	(Laboratory Manager)

Customer name	Irish Drilling Ltd
Address	Loughrea Co. Galway H62 VX39 Republic of Ireland

Contract name	Arklow Bank, 2020WW102
Your reference	2020WW102
Dates of receipt of samples	07/12/2020
Dates of testing	09/12/2020 to 14/12/2020

Sampling was not performed by the Laboratory of Soil Engineering.

Testing was performed on 3 number of samples received in good condition.

Opinions and interpretations expressed herein are outside the scope of our UKAS accreditation.

Results reported relate only to the samples tested.

Tests marked 'Not UKAS' in this report are not included in the UKAS accreditation schedule for our laboratory. These results will appear in italics on any summary of tests.

Samples will be retained for 28 days from date of issue of this report and then be disposed of, unless we receive written instruction to the contrary

This test report shall not be reproduced except in full without the written permission of Soil Engineering Geoservices Limited.

Key to Laboratory Summary Sheets

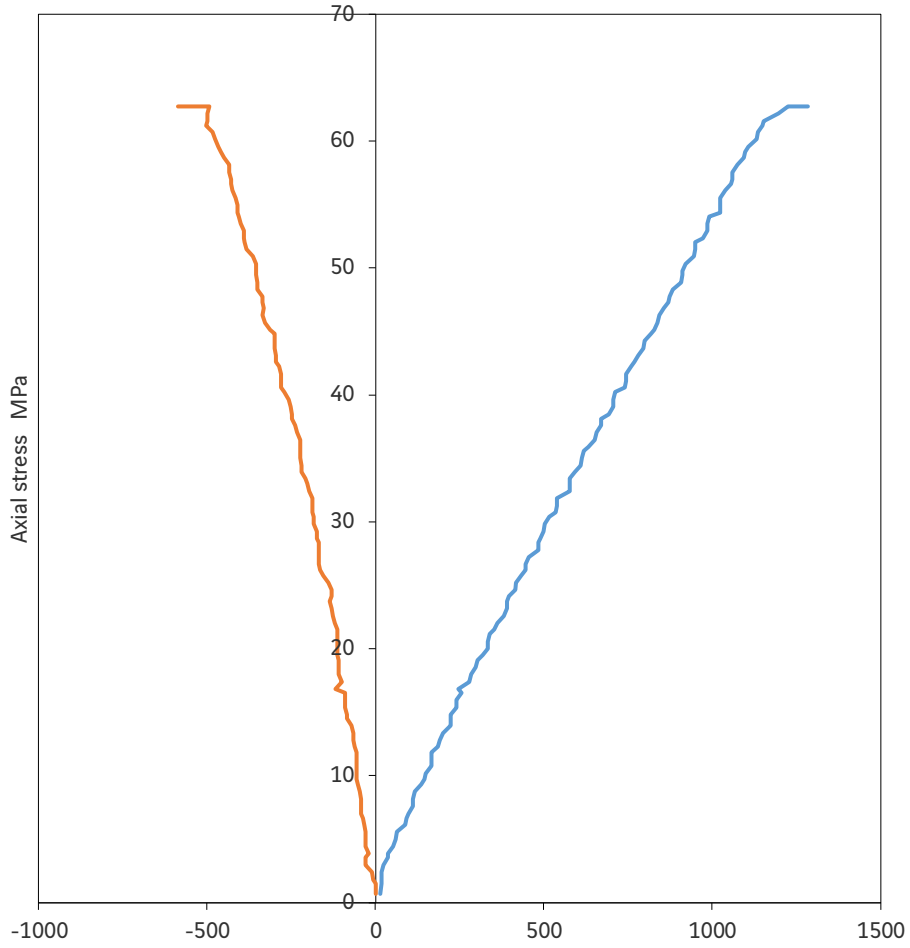
Common to all summaries				
Sample Type	U	Undisturbed sample	D	Small disturbed sample
	P	Piston sample	B	Bulk disturbed sample
	TW	Thin walled sample	BLK	Block sample
	L	Liner sample	C	Rock core
	AMAL	Amalgamated sample		
Test status	Any result in *italics* indicates a test that is not within the scope of the UKAS accreditation for this laboratory.			
Summary of Laboratory Soil Tests: Index / Classification Tests				
Particle density	p	Small pyknometer method	g	Gas jar method
Plastic index	N/P	Non plastic, although liquid limit will have been determined if requested		
Particle size (PSD)	[1]	Following value in silt column denotes combined clay and silt fraction		
	p	Following value in clay column denotes sedimentation by pipette, else sedimentation is by hydrometer.		
Summary of Laboratory Soil Tests: Strength and Permeability Tests				
Triaxial	UU	Single stage unconsolidated quick undrained	UUM	Multi stage unconsolidated quick undrained
	UU3	Set of 3 unconsolidated quick undrained	CU	Single stage consolidated undrained
	CUM	Multi stage consolidated undrained	CU3	Set of 3 consolidated undrained
	CD	Single stage consolidated drained	CDM	Multi stage consolidated drained
	CD3	Set of 3 consolidated drained		
	Note that single stage tests are reported assuming f = 0 for total stress and c' = 0 for effective stress			
Consol	Oed	One-dimensional oedometer	Hyd	Hydraulic cell consolidation
	m_v	coefficient of compressibility quoted for p0 to p0 + 100kPa, where determined		
Permeability	C	Constant head permeability	T	Triaxial permeability
Shearbox	SSB	Small shear box	LSB	Large shear box
	p	Peak value	r	Residual value
	RS	Ring shear		
Summary of Laboratory Soil Re-Use Test				
MCV	s	MCV value at natural or specified moisture content	int	Intercept of calibration line in MCV calibration
Summary of Laboratory Rock Strength Tests				
Point Load Type	D	Diametral	A	Axial
(Combination of)	I	Irregular lump	B	Block
	L	Test performed parallel to planes of weakness		
	P	Test performed perpendicular to planes of weakness		
	X	Invalid failure of point load (not broken between points of load application)		
Summary of Laboratory Rock Materials Tests				
Ten% fines	w	Soaked test	d	Dry test
Point Load Index Result				
Point Load Type	D	Diametral	A	Axial
(Combination of)	I	Irregular lump	B	Block
	L	Parallel to planes of weakness	P	Perpendicular to planes of weakness
	X	Invalid failure of point load (not broken between points of load application)		
Dimensions	W	Diameter of core or average smallest width perpendicular to axis of loading in a block or irregular lump		
	D	Distance between platens when just in contact with specimen		
	D'	Distance between platens at point of failure		
	De	Equivalent core diameter	Is	P/De^2
	Is(50)	F x Is	F	$(De/50)^{0.45}$
	Is(50) point load strength index corrected for a diametral test of core diameter 50mm			
	For Axial/Lump tests $De^2 = (4/Pi) \times (W \times D')$		For Diametral tests $De^2 = D \times D'$	

Important note: summary sheets are provided for convenience and in no way replace individual test result sheets which shall, without exception, be regarded as the definitive result.

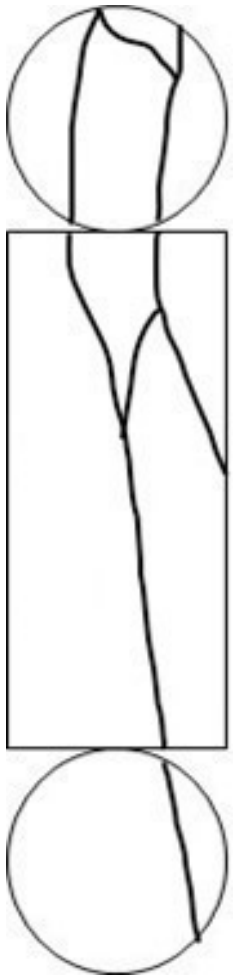
Project Name	Arklow Bank, 2020WW102	**Unconfined Compressive Strength With Youngs Modulus And Poissons Ratio**	Hole ID BH303
Project No.	LT1834		Sample Depth 22.10m
Engineer	Irish Drilling Ltd		Sample Number
Employer	Irish Drilling Ltd	I.S.R.M. Suggested methods 1981	Sample Type C
Description	Thinly laminated grey PELITE.		Specimen Depth 22.70m
			Specimen Number 1

Date and method of sampling	Details not supplied
Storage history and environment	Details not supplied

Graph of stress strain curves



Failure sketch



Moisture content	%	0.3	Stress rate	MPa/s	0.10
Length	mm	168.03	Test duration	min	10:07
Diameter	mm	60.43	U.C.S.	MPa	63.20
Mass	g	1341.61	Type of machine		Controls 1300 / Automax 5
Bulk density	kg/m3	2780			
Dry density	kg/m3	2780			
Date		09/12/2020			

Tangent modulus	Et	51.7	GPa	45-55	% stress
Average modulus	Eave	50.9	GPa	15-95	% stress
Secant modulus	Esec	58.2	GPa	0-50	% stress
Poissons ratio	v	0.365			
(Determined using Average modulus)					

Test remarks: Loading axis relative to anisotropy: 48 DEG TO LAMINATIONS

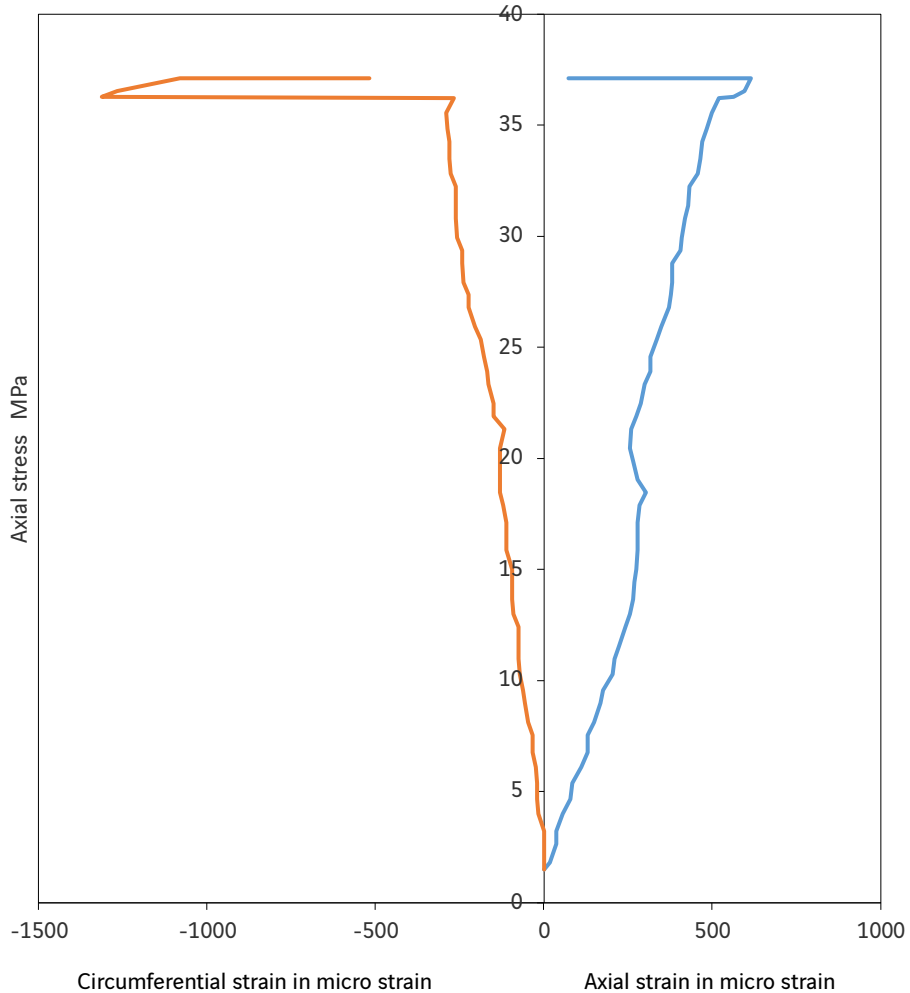
Specimen remarks:

Approved by:	Leeds Laboratory		
Kevin Walker		Print date 15/12/2020	SOIL ENGINEERING
	Revision No. 2.06	Issue Date 20/11/2012	Part of the Bachy Soletanche Group

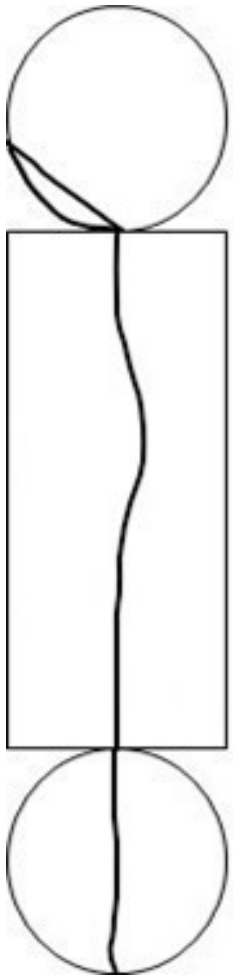
Project Name	Arklow Bank, 2020WW102	**Unconfined Compressive Strength With Youngs Modulus And Poissons Ratio**	Hole ID BH303
Project No.	LT1834		Sample Depth 23.50m
Engineer	Irish Drilling Ltd		Sample Number
Employer	Irish Drilling Ltd	I.S.R.M. Suggested methods 1981	Sample Type C
Description	Thinly laminated grey PELITE with white mineral veins.		Specimen Depth 23.80m
			Specimen Number 1

Date and method of sampling	Details not supplied
Storage history and environment	Details not supplied

Graph of stress strain curves



Failure sketch



Moisture content	%	0.2	Stress rate	MPa/s	0.14
Length	mm	164.68	Test duration	min	04:33
Diameter	mm	60.59	U.C.S.	MPa	37.40
Mass	g	1320.69	Type of machine	Controls 1300 / Automax 5	
Bulk density	kg/m3	2780			
Dry density	kg/m3	2770			
Date		09/12/2020			

Tangent modulus	Et	43.2	GPa	40-60	% stress
Average modulus	Eave	47.7	GPa	7-35	% stress
Secant modulus	Esec	55.9	GPa	0-50	% stress
Poissons ratio	v	0.391			
(Determined using Average modulus)					

Test remarks: Loading axis relative to anisotropy: 88 deg to laminations

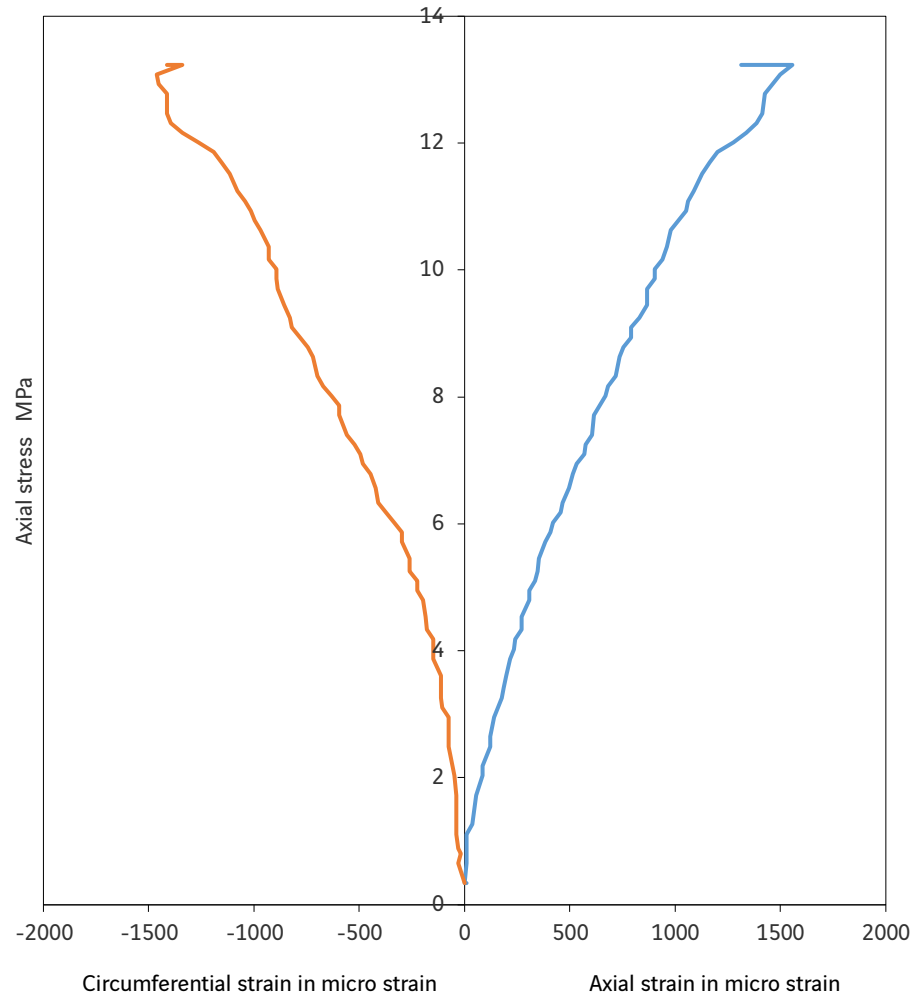
Specimen remarks:

Approved by:	Leeds Laboratory		
Kevin Walker		Print date 15/12/2020	SOIL ENGINEERING
	Revision No. 2.06	Issue Date 20/11/2012	Part of the Bachy Soletanche Group

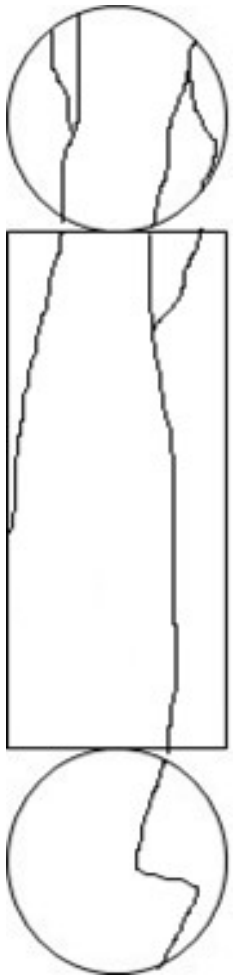
Project Name	Arklow Bank, 2020WW102	**Unconfined Compressive Strength With Youngs Modulus And Poissons Ratio**	Hole ID BH305
Project No.	LT1834		Sample Depth 18.70m
Engineer	Irish Drilling Ltd		Sample Number
Employer	Irish Drilling Ltd	I.S.R.M. Suggested methods 1981	Sample Type C
Description	Fractured brown and grey PELITE.		Specimen Depth 18.70m
			Specimen Number 1

Date and method of sampling	Details not supplied
Storage history and environment	Details not supplied

Graph of stress strain curves



Failure sketch



Moisture content	%	4.2	Stress rate	MPa/s	0.04
Length	mm	181.19	Test duration	min	06:00
Diameter	mm	82.89	U.C.S.	MPa	13.20
Mass	g	2517.80	Type of machine		Controls 1300 / Automax 5
Bulk density	kg/m3	2580			
Dry density	kg/m3	2470			
Date		09/12/2020			

Tangent modulus	Et	7.56	GPa	45-55	% stress
Average modulus	Eave	9.17	GPa	20-80	% stress
Secant modulus	Esec	12.9	GPa	0-50	% stress
Poissons ratio	v	0.351			
(Determined using Average modulus)					

Test remarks: Tested on specimen with length to diameter ratio outside 2.5-3.0 recommendation.

Specimen remarks:

Approved by:	Leeds Laboratory		
Kevin Walker		Print date 15/12/2020	SOIL ENGINEERING
	Revision No. 2.06	Issue Date 20/11/2012	Part of the Bachy Soletanche Group

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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

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	14 December 2020
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	201009-71
Your Reference:	2020WW102
Location:	Arklow Bank
Report No:	579785

We received 46 samples on Friday October 09, 2020 and 37 of these samples were scheduled for analysis which was completed on Monday December 14, 2020. 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).

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

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
22998601	BH304	ES01	0.50 - 0.50	06/10/2020
22998726	BH304	ES02	1.00 - 1.00	06/10/2020
22998844	BH304	ES03	1.50 - 1.50	06/10/2020
22998955	BH304	ES04	2.00 - 2.00	06/10/2020
22999035	BH304	ES05	2.50 - 2.50	06/10/2020
22999052	BH304	ES06	3.00 - 3.00	06/10/2020
22999067	BH304	ES07	3.50 - 3.50	06/10/2020
22999079	BH304	ES08	4.00 - 4.00	06/10/2020
22999096	BH304	ES09	4.50 - 4.50	06/10/2020
22998613	BH304	ES10	5.00 - 5.00	06/10/2020
22998627	TP307	ES1	0.40 - 0.50	05/10/2020
22998642	TP307	ES2	0.90 - 1.00	05/10/2020
22998653	TP307	ES3	1.50 - 1.60	05/10/2020
22998663	TP307	ES5	2.50 - 2.60	05/10/2020
22998679	TP307	ES6	3.40 - 3.50	05/10/2020
22998993	TP308	ES1	0.50 - 0.60	07/10/2020
22999005	TP308	ES2	1.00 - 1.10	07/10/2020
22999014	TP308	ES4	1.90 - 2.00	07/10/2020
22999020	TP308	ES6	2.80 - 2.90	07/10/2020
22998964	TP309	ES1	0.50 - 0.60	07/10/2020
22998975	TP309	ES2	0.90 - 1.00	07/10/2020
22998987	TP309	ES3	1.90 - 2.00	07/10/2020
22998691	TP316	ES1	0.40 - 0.50	05/10/2020
22998699	TP316	ES2	0.80 - 1.00	05/10/2020
22998711	TP316	ES3	1.50 - 1.60	05/10/2020
22998720	TP317	ES1	0.40 - 0.50	06/10/2020
22998734	TP317	ES2	1.40 - 1.50	06/10/2020
22998746	TP317	ES3	1.90 - 2.00	06/10/2020
22998758	TP317	ES4	3.10 - 3.20	06/10/2020
22998904	TP321	ES1	0.40 - 0.50	06/10/2020
22998912	TP321	ES2	0.90 - 1.00	06/10/2020
22998921	TP321	ES3	1.60 - 1.70	06/10/2020
22998932	TP321	ES5	2.00 - 2.10	06/10/2020
22998940	TP321	ES7	3.00 - 3.10	06/10/2020
22998764	TP322	ES1	0.40 - 0.50	05/10/2020
22998772	TP322	ES2	0.60 - 0.70	05/10/2020
22998778	TP322	ES3	1.00 - 1.10	05/10/2020
22998793	TP322	ES4	1.60 - 1.70	05/10/2020
22998807	TP322	ES7	2.70 - 2.80	05/10/2020
22998818	TP323	ES1	0.40 - 0.50	06/10/2020
22998830	TP323	ES2	1.40 - 1.50	06/10/2020
22998852	TP323	ES4	2.00 - 2.10	06/10/2020
22998870	TP323	ES6	2.50 - 2.60	06/10/2020
22998877	TP324	ES1	0.50 - 0.60	06/10/2020
22998887	TP324	ES2	1.10 - 1.20	06/10/2020
22998898	TP324	ES3	2.00 - 2.10	06/10/2020

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

CERTIFICATE OF ANALYSIS

Validated

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			22998601			22998644			22998627			22998642			22998653			22998663			22998679		
Customer Sample Reference			BH304			BH304			TP307			TP307			TP307			TP307			TP307		
AGS Reference			ES01			ES03			ES1			ES2			ES3			ES5			ES6		
Depth (m)			0.50 - 0.50			1.50 - 1.50			0.40 - 0.50			0.90 - 1.00			1.50 - 1.60			2.50 - 2.60			3.40 - 3.50		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Chromium III	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X
Coronene	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X
EPH by GCxGC-FID	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X
EPH CWG GC (S)	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X
Fluoride	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X
Loss on Ignition in soils	All	NDPs: 0 Tests: 37		X			X			X			X			X			X				X

22998987	TP309	ES3	1.90 - 2.00	1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998975	TP309	ES2	0.90 - 1.00	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998964	TP309	ES1	0.50 - 0.60	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22999020	TP308	ES6	2.80 - 2.90	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22999014	TP308	ES4	1.90 - 2.00	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22999005	TP308	ES2	1.00 - 1.10	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998993	TP308	ES1	0.50 - 0.60	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998679	TP307	ES6	3.40 - 3.50	60g VOC (ALE215)	S													X		

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			22998601			22998844			22998627			22998642			22998653			22998663			22998679	
Customer Sample Reference			BH304			BH304			TP307			TP307			TP307			TP307			TP307	
AGS Reference			ES01			ES03			ES1			ES2			ES3			ES5			ES6	
Depth (m)			0.50 - 0.50			1.50 - 1.50			0.40 - 0.50			0.90 - 1.00			1.50 - 1.60			2.50 - 2.60			3.40 - 3.50	
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X	
Metals in solid samples by OES	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
PAH by GCMS	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
PCBs by GCMS	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
pH	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X	
Sample description	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Total Dissolved Solids	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X	
Total Organic Carbon	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
TPH CWG GC (S)	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
VOC MS (S)	All	NDPs: 0 Tests: 34			X			X			X			X			X			X		

22998987	TP309	ES3	1.90 - 2.00	1kg TUB with Handle (ALE260)	S		X												X						X						
22998975	TP309	ES2	0.90 - 1.00	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle (ALE260)	S		X												X						X						
22998964	TP309	ES1	0.50 - 0.60	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle (ALE260)	S		X												X						X						
22999020	TP308	ES6	2.80 - 2.90	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle (ALE260)	S		X												X						X						
22999014	TP308	ES4	1.90 - 2.00	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle (ALE260)	S		X												X						X						
22999005	TP308	ES2	1.00 - 1.10	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle (ALE260)	S		X												X						X						
22998993	TP308	ES1	0.50 - 0.60	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle (ALE260)	S		X												X						X						
22998679	TP307	ES6	3.40 - 3.50	60g VOC (ALE215)	S																										

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			22998987		22998691		22998699		22998711		22998720		22998734		22998746						
Customer Sample Reference			TP309		TP316		TP316		TP316		TP317		TP317		TP317						
AGS Reference			ES3		ES1		ES2		ES3		ES1		ES2		ES3						
Depth (m)			1.90 - 2.00		0.40 - 0.50		0.80 - 1.00		1.50 - 1.60		0.40 - 0.50		1.40 - 1.50		1.90 - 2.00						
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		
Chromium III	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Coronene	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
EPH by GCxGC-FID	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Fluoride	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Loss on Ignition in soils	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		

22998772	TP322	ES2	0.60 - 0.70	250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998940	TP321	ES7	3.00 - 3.10	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998932	TP321	ES5	2.00 - 2.10	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998921	TP321	ES3	1.60 - 1.70	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998912	TP321	ES2	0.90 - 1.00	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998904	TP321	ES1	0.40 - 0.50	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998758	TP317	ES4	3.10 - 3.20	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			22998987		22998691		22998699		22998711		22998720		22998734		22998746								
Customer Sample Reference			TP309		TP316		TP316		TP316		TP317		TP317		TP317								
AGS Reference			ES3		ES1		ES2		ES3		ES1		ES2		ES3								
Depth (m)			1.90 - 2.00		0.40 - 0.50		0.80 - 1.00		1.50 - 1.60		0.40 - 0.50		1.40 - 1.50		1.90 - 2.00								
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			
Metals in solid samples by OES	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
PCBs by GCMS	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
pH	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			
Sample description	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Total Dissolved Solids	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			
Total Organic Carbon	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 34		X			X			X			X			X			X				X	

22998772	TP322	ES2	0.60 - 0.70	250g Amber Jar (ALE210)	S		x	x	x	x	x		x	x		x	x	
				1kg TUB with Handle (ALE260)	S	x						x			x			
22998940	TP321	ES7	3.00 - 3.10	60g VOC (ALE215)	S													x
				250g Amber Jar (ALE210)	S		x	x	x	x	x		x	x		x	x	
				1kg TUB with Handle (ALE260)	S	x						x			x			
22998932	TP321	ES5	2.00 - 2.10	60g VOC (ALE215)	S													x
				250g Amber Jar (ALE210)	S		x	x	x	x	x		x	x		x	x	
				1kg TUB with Handle (ALE260)	S	x						x			x			
22998921	TP321	ES3	1.60 - 1.70	60g VOC (ALE215)	S													x
				250g Amber Jar (ALE210)	S		x	x	x	x	x		x	x		x	x	
				1kg TUB with Handle (ALE260)	S	x						x			x			
22998912	TP321	ES2	0.90 - 1.00	60g VOC (ALE215)	S													x
				250g Amber Jar (ALE210)	S		x	x	x	x	x		x	x		x	x	
				1kg TUB with Handle (ALE260)	S	x						x			x			
22998904	TP321	ES1	0.40 - 0.50	60g VOC (ALE215)	S													x
				250g Amber Jar (ALE210)	S		x	x	x	x	x		x	x		x	x	
				1kg TUB with Handle (ALE260)	S	x						x			x			
22998758	TP317	ES4	3.10 - 3.20	60g VOC (ALE215)	S													x
				250g Amber Jar (ALE210)	S		x	x	x	x	x		x	x		x	x	
				1kg TUB with Handle (ALE260)	S	x						x			x			

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			22998772	22998778		22998793			22998807			22998818			22998830			22998852			22998870
Customer Sample Reference			TP322	TP322		TP322			TP322			TP323			TP323			TP323			TP323
AGS Reference			ES2	ES3		ES4			ES7			ES1			ES2			ES4			ES6
Depth (m)			0.60 - 0.70	1.00 - 1.10		1.60 - 1.70			2.70 - 2.80			0.40 - 0.50			1.40 - 1.50			2.00 - 2.10			2.50 - 2.60
Container			60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
CEN Readings	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Chromium III	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			X
Coronene	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			X
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Easily Liberated Sulphide	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			X
EPH by GCxGC-FID	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			
EPH CWG GC (S)	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			X
Fluoride	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 37	X			X			X			X			X			X			X		
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			X
Loss on Ignition in soils	All	NDPs: 0 Tests: 37			X			X			X			X			X			X			X

22998898	TP324	ES3	2.00 - 2.10	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998887	TP324	ES2	1.10 - 1.20	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998877	TP324	ES1	0.50 - 0.60	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
22998870	TP323	ES6	2.50 - 2.60	60g VOC (ALE215)	S										X			X		

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			22998772	22998778			22998793			22998807			22998818			22998830			22998852		22998870
Customer Sample Reference			TP322	TP322			TP322			TP322			TP323			TP323			TP323		TP323
AGS Reference			ES2	ES3			ES4			ES7			ES1			ES2			ES4		ES6
Depth (m)			0.60 - 0.70	1.00 - 1.10			1.60 - 1.70			2.70 - 2.80			0.40 - 0.50			1.40 - 1.50			2.00 - 2.10		2.50 - 2.60
Container			60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Metals in solid samples by OES	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
PAH by GCMS	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
PCBs by GCMS	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
pH	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
Phenols by HPLC (W)	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Sample description	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
Total Dissolved Solids	All	NDPs: 0 Tests: 37		X			X			X			X			X			X			X
Total Organic Carbon	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
TPH CWG GC (S)	All	NDPs: 0 Tests: 37			X			X			X			X			X			X		X
VOC MS (S)	All	NDPs: 0 Tests: 34	X			X						X			X			X			X	

22998898	TP324	ES3	2.00 - 2.10	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S		X		X		X		X			X		X			X		X	
				1kg TUB with Handle (ALE260)	S	X								X				X						
22998887	TP324	ES2	1.10 - 1.20	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S		X		X		X		X			X		X			X		X	
				1kg TUB with Handle (ALE260)	S	X								X				X						
22998877	TP324	ES1	0.50 - 0.60	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S		X		X		X		X			X		X			X		X	
				1kg TUB with Handle (ALE260)	S	X								X				X						
22998870	TP323	ES6	2.50 - 2.60	60g VOC (ALE215)	S																		X

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

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
22998601	BH304	0.50 - 0.50	Dark Brown	Sandy Loam	Stones	Vegetation
22998844	BH304	1.50 - 1.50	Dark Brown	Sand	Stones	Vegetation
22998627	TP307	0.40 - 0.50	Grey	Loamy Sand	Stones	None
22998642	TP307	0.90 - 1.00	Dark Brown	Sandy Loam	Stones	Vegetation
22998653	TP307	1.50 - 1.60	Dark Brown	Sandy Clay Loam	Stones	Vegetation
22998663	TP307	2.50 - 2.60	Dark Brown	Silty Clay Loam	None	None
22998679	TP307	3.40 - 3.50	Dark Brown	Clay Loam	Vegetation	None
22998993	TP308	0.50 - 0.60	Dark Brown	Silt Loam	Stones	None
22999005	TP308	1.00 - 1.10	Dark Brown	Stone/Soil	Stones	None
22999014	TP308	1.90 - 2.00	Dark Brown	Clay Loam	Vegetation	None
22999020	TP308	2.80 - 2.90	Dark Brown	Silty Sand	Stones	None
22998964	TP309	0.50 - 0.60	Red	Loamy Sand	None	None
22998975	TP309	0.90 - 1.00	Dark Brown	Silt Loam	Stones	Stones
22998987	TP309	1.90 - 2.00	Dark Brown	Clay Loam	None	Vegetation
22998691	TP316	0.40 - 0.50	Light Brown	Silty Clay Loam	Crushed Brick	Stones
22998699	TP316	0.80 - 1.00	Light Brown	Sandy Silt Loam	Stones	Stones
22998711	TP316	1.50 - 1.60	Dark Brown	Silt Loam	Vegetation	None
22998720	TP317	0.40 - 0.50	Grey	Loamy Sand	Stones	None
22998734	TP317	1.40 - 1.50	Dark Brown	Silt Loam	Stones	None
22998746	TP317	1.90 - 2.00	Grey	Silty Clay Loam	Stones	Vegetation
22998758	TP317	3.10 - 3.20	Grey	Silty Clay Loam	Stones	Vegetation
22998904	TP321	0.40 - 0.50	Dark Brown	Loamy Sand	Stones	None
22998912	TP321	0.90 - 1.00	Dark Brown	Sandy Loam	Stones	Vegetation
22998921	TP321	1.60 - 1.70	Dark Brown	Sandy Loam	Vegetation	None
22998932	TP321	2.00 - 2.10	Dark Brown	Silty Clay Loam	Stones	Vegetation
22998940	TP321	3.00 - 3.10	Dark Brown	Sandy Silt Loam	None	None
22998772	TP322	0.60 - 0.70	Dark Brown	Sandy Loam	Vegetation	None
22998778	TP322	1.00 - 1.10	Dark Brown	Clay Loam	Vegetation	Stones
22998793	TP322	1.60 - 1.70	Dark Brown	Loamy Sand	Vegetation	None
22998807	TP322	2.70 - 2.80	Dark Brown	Loamy Sand	Stones	Vegetation
22998818	TP323	0.40 - 0.50	Dark Brown	Loamy Sand	Stones	Vegetation
22998830	TP323	1.40 - 1.50	Dark Brown	Silt Loam	Stones	None
22998852	TP323	2.00 - 2.10	Dark Brown	Clay Loam	Stones	None
22998870	TP323	2.50 - 2.60	Dark Brown	Sand	Stones	None
22998877	TP324	0.50 - 0.60	Red	Loamy Sand	Stones	None
22998887	TP324	1.10 - 1.20	Red	Loamy Sand	Stones	None
22998898	TP324	2.00 - 2.10	Dark Brown	Sandy Loam	Vegetation	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 ocurring 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

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	BH304	BH304	TP307	TP307	TP307	TP307
Customer Sample Ref.			BH304	BH304	TP307	TP307	TP307	TP307
Depth (m)			0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
Sample Type			Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled			06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
Sampled Time			.	.	.	.	.	.
Date Received			09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
SDG Ref			201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
Lab Sample No.(s)			22998601	22998844	22998627	22998642	22998653	22998663
AGS Reference			ES01	ES03	ES1	ES2	ES3	ES5
Moisture Content Ratio (% of as received sample)	%	PM024	9.1	9.7	5.1	12	17	26
Loss on ignition	<0.7 %	TM018	<0.7 M	<0.7 M	<0.7 M	<0.7 M	2.48 M	5.68 M
Organic Carbon, Total	<0.2 %	TM132	<0.2 M	<0.2 M	0.36 M	0.435 M	0.435 M	0.526 M
pH	1 pH Units	TM133	6.63 M	6.36 M	8.22 M	8.11 M	8.37 M	7.45 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Free	<1 mg/kg	TM153	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Complex	<1 mg/kg	TM153	<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168	<3 M	<3 M	<15 M	<15 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168	<3 M	<3 M	<15 M	<15 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168	<3 M	<3 M	<15 M	<15 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168	<3 M	<3 M	<15 M	<15 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168	<3 M	<3 M	<15 M	<15 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168	<3 M	<3 M	<15 M	<15 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168	<3 M	<3 M	<15 M	<15 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21	<21	<105	<105	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180	55.6 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	66.2 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181	<0.9	23.1	7.84	17.4	22.1	24.2
Antimony	<0.6 mg/kg	TM181	<6 #	<6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181	216 M	33.9 M	10.2 M	32.4 M	34.8 M	28.8 M
Barium	<0.6 mg/kg	TM181	35.5 #	37.3 #	14.6 #	30.8 #	34.3 #	44.7 #
Cadmium	<0.02 mg/kg	TM181	0.753 M	<0.2 M	0.0661 M	0.295 M	<0.02 M	<0.02 M
Chromium	<0.9 mg/kg	TM181	<9 M	23.1 M	7.84 M	17.4 M	22.1 M	24.2 M
Copper	<1.4 mg/kg	TM181	398 M	81.5 M	22.3 M	37.5 M	37 M	17.3 M
Lead	<0.7 mg/kg	TM181	243 M	39.1 M	23.8 M	26.7 M	28 M	32.8 M
Mercury	<0.14 mg/kg	TM181	<1.4 M	<1.4 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181	7.26 #	<1 #	1.27 #	1.21 #	1.25 #	0.532 #
Nickel	<0.2 mg/kg	TM181	34.2 M	47.2 M	9.58 M	14.5 M	17.3 M	17.8 M
Selenium	<1 mg/kg	TM181	<10 #	<10 #	<1 #	<1 #	<1 #	4.41 #
Zinc	<1.9 mg/kg	TM181	444 M	161 M	91 M	83.4 M	91.7 M	80.6 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318	<318	<318	<318	1190	<318
Coronene	<200 µg/kg	TM410	<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	288	162	43.1	<35

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP307	TP308	TP308	TP308	TP308	TP309
			Depth (m)	3.40 - 3.50	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998679	22998993	22999005	22999014	22999020	22998964
			AGS Reference	ES6	ES1	ES2	ES4	ES6	ES1
Moisture Content Ratio (% of as received sample)	%	PM024		34	6.5	5.3	36	25	27
Loss on ignition	<0.7 %	TM018		10.7 M	1.81 M	1.58 #	8.42 M	3.19 M	<0.7 M
Organic Carbon, Total	<0.2 %	TM132		4.54 M	<0.2 M	<0.2 M	1.96 M	1.01 M	<0.2 M
pH	1 pH Units	TM133		6.15 M	7.29 M	6.29 #	6.93 M	6.25 M	5.97 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 @ M	<1 M	<1 #	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 @ M	<1 M	<1 #	<1 M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 #	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 #	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 #	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 #	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 #	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 #	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 #	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		84.7 @ M	<15 ♦ M	<15 ♦ M	46.4 ♦ M	37.6 ♦ M	<15 ♦ M
Chromium, Trivalent	<0.9 mg/kg	TM181		26.1	28.4	10.9	25.3	16.4	<0.9
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	<6 #	<0.6 #	<0.6 #	28.5 #
Arsenic	<0.6 mg/kg	TM181		24.5 M	44.4 M	45 #	45.6 M	19.1 M	2510 M
Barium	<0.6 mg/kg	TM181		60.6 #	25.6 #	25.1 #	57 #	14.9 #	12 #
Cadmium	<0.02 mg/kg	TM181		0.234 M	0.109 M	<0.2 #	0.729 M	0.404 M	20.8 M
Chromium	<0.9 mg/kg	TM181		26.1 M	28.4 M	10.9 #	25.3 M	16.4 M	<9 M
Copper	<1.4 mg/kg	TM181		25.7 M	38.6 M	50 #	115 M	19.4 M	8320 M
Lead	<0.7 mg/kg	TM181		31.4 M	9.3 M	31.9 #	127 M	13.2 M	6150 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<1.4 #	<0.14 M	<0.14 M	3.01 M
Molybdenum	<0.1 mg/kg	TM181		0.735 #	<0.1 #	<1 #	0.703 #	0.339 #	114 #
Nickel	<0.2 mg/kg	TM181		19.4 M	44.7 M	35.6 #	23.7 M	22.1 M	8.66 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<10 #	<1 #	<1 #	<10 #
Zinc	<1.9 mg/kg	TM181		84.3 M	108 M	103 #	192 M	242 M	7310 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP307	TP308	TP308	TP308	TP308	TP309
			Depth (m)	3.40 - 3.50	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998679	22998993	22999005	22999014	22999020	22998964
			AGS Reference	ES6	ES1	ES2	ES4	ES6	ES1
EPH >C8-C40	<35 mg/kg	TM415		39.7	<35	<35	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP309	TP316	TP316	TP316	TP317
			Depth (m)	0.90 - 1.00	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998975	22998987	22998691	22998699	22998711	22998720
			AGS Reference	ES2	ES3	ES1	ES2	ES3	ES1
Moisture Content Ratio (% of as received sample)	%	PM024		7.4	40	14	12	41	6
Loss on ignition	<0.7 % M	TM018		1.94	8.75	<0.7	2.13	10.1	2.07
Organic Carbon, Total	<0.2 % M	TM132		<0.2	2.51	<0.2	0.238	3.05	4.08
pH	1 pH Units M	TM133		6.88	6.19	7.52	4.17	6.39	9.01
Chromium, Hexavalent	<0.6 mg/kg #	TM151		<0.6	1.17	<0.6	<0.6	<0.6	<0.6
Cyanide, Total	<1 mg/kg M	TM153		<1	<1	<1 @ M	<1 @ M	<1 @ M	<1 M
Cyanide, Free	<1 mg/kg M	TM153		<1	<1	<1 @ M	<1 @ M	<1 @ M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 52	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 101	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 118	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 138	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 153	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 180	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg ♦ M	TM180		<15	1060	<15 @ M	180 @ M	208 @ M	<15 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		25.7	27.6	18.7	12.8	29	2.35
Antimony	<0.6 mg/kg #	TM181		<0.6	0.642	<6	<0.6	<0.6	<0.6
Arsenic	<0.6 mg/kg M	TM181		42.9	37.1	62	140	45.8	7.7
Barium	<0.6 mg/kg #	TM181		59.4	69.6	36.7	48.2	63.8	3.76
Cadmium	<0.02 mg/kg M	TM181		0.915	5.28	<0.2	<0.02	<0.02	0.143
Chromium	<0.9 mg/kg M	TM181		25.7	28.8	18.7	12.8	29	2.35
Copper	<1.4 mg/kg M	TM181		177	213	55.1	253	100	17.3
Lead	<0.7 mg/kg M	TM181		18.8	39.9	36	203	119	7.79
Mercury	<0.14 mg/kg M	TM181		<0.14	<0.14	<1.4	0.585	<0.14	<0.14
Molybdenum	<0.1 mg/kg #	TM181		0.16	<0.1	<1	1.73	0.783	0.364
Nickel	<0.2 mg/kg M	TM181		42.5	28.1	57.8	42.1	22.7	3.01
Selenium	<1 mg/kg #	TM181		<1	<1	<10	<1	<1	<1
Zinc	<1.9 mg/kg M	TM181		464	6700	124	220	229	296
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP309	TP316	TP316	TP316	TP317
			Depth (m)	0.90 - 1.00	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998975	22998987	22998691	22998699	22998711	22998720
			AGS Reference	ES2	ES3	ES1	ES2	ES3	ES1
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP317	TP317	TP321	TP321	TP321
			Depth (m)	1.40 - 1.50	1.90 - 2.00	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998734	22998746	22998758	22998904	22998912	22998921
			AGS Reference	ES2	ES3	ES4	ES1	ES2	ES3
Moisture Content Ratio (% of as received sample)	%	PM024		11	38	31	7.1	9.7	41
Loss on ignition	<0.7 %	TM018		2.71 M	7.99 M	3.71 M	<0.7 M	2.27 M	9.57 M
Organic Carbon, Total	<0.2 %	TM132		0.223 M	2.39 M	0.831 M	<0.2 M	<0.2 M	3.48 M
pH	1 pH Units	TM133		7.34 M	6.93 M	6.28 M	8.36 M	7.55 M	7.19 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 @ M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 @ M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	76.7 @ M	<15 @ M	<15 @ M	<15 @ M	148 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		20.7	18.5	23.5	16.1	21.2	26.9
Antimony	<0.6 mg/kg	TM181		<6 #	<0.6 #	0.76 #	<6 #	<6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		23.8 M	45.7 M	54.7 M	26.6 M	20.6 M	38.1 M
Barium	<0.6 mg/kg	TM181		50.7 #	62.9 #	42 #	35.6 #	70.9 #	62.7 #
Cadmium	<0.02 mg/kg	TM181		1.33 M	0.0545 M	0.745 M	<0.2 M	<0.2 M	<0.02 M
Chromium	<0.9 mg/kg	TM181		20.7 M	18.5 M	23.5 M	16.1 M	21.2 M	26.9 M
Copper	<1.4 mg/kg	TM181		87.5 M	57.3 M	89.8 M	45.5 M	55.3 M	52.7 M
Lead	<0.7 mg/kg	TM181		33.1 M	73.3 M	89.3 M	23.5 M	42.5 M	100 M
Mercury	<0.14 mg/kg	TM181		<1.4 M	0.197 M	<0.14 M	<1.4 M	<1.4 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181		<1 #	0.624 #	1.89 #	<1 #	<1 #	0.896 #
Nickel	<0.2 mg/kg	TM181		56.8 M	27.7 M	18.7 M	47.5 M	54 M	20.3 M
Selenium	<1 mg/kg	TM181		<10 #	<1 #	<1 #	<10 #	<10 #	<1 #
Zinc	<1.9 mg/kg	TM181		414 M	195 M	150 M	125 M	178 M	155 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP317	TP317	TP321	TP321	TP321
			Depth (m)	1.40 - 1.50	1.90 - 2.00	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998734	22998746	22998758	22998904	22998912	22998921
			AGS Reference	ES2	ES3	ES4	ES1	ES2	ES3
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	37.3	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP321	TP321	TP322	TP322	TP322	TP322
			Depth (m)	2.00 - 2.10	3.00 - 3.10	0.60 - 0.70	1.00 - 1.10	1.60 - 1.70	2.70 - 2.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998932	22998940	22998772	22998778	22998793	22998807
			AGS Reference	ES5	ES7	ES2	ES3	ES4	ES7
Moisture Content Ratio (% of as received sample)	%	PM024		24	21	33	26	43	12
Loss on ignition	<0.7 %	TM018		2.86 M	<0.7 M	12.2 M	12.7 M	16.4 M	1.45 M
Organic Carbon, Total	<0.2 %	TM132		0.313 M	0.447 M	5.4 M	3.29 M	4.36 M	0.541 M
pH	1 pH Units	TM133		6.83 M	6.76 M	7.36 M	8.14 M	7.24 M	6.58 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<15 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<15 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<15 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<15 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<15 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<15 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<15 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<105	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	<15 @ M	1480 @ M	983 @ M	<15 @ M	<15 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		20.7	24.2	39.4	33.7	28.1	17.2
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #	0.727 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		55.6 M	20.4 M	39.2 M	30.6 M	36.2 M	16.2 M
Barium	<0.6 mg/kg	TM181		36.2 #	37.8 #	85.7 #	59 #	67.6 #	11.6 #
Cadmium	<0.02 mg/kg	TM181		<0.02 M	0.3 M	<0.02 M	0.489 M	0.317 M	0.545 M
Chromium	<0.9 mg/kg	TM181		20.7 M	24.2 M	39.4 M	33.7 M	28.1 M	17.2 M
Copper	<1.4 mg/kg	TM181		19.6 M	17.1 M	89.3 M	67.8 M	86.7 M	20.6 M
Lead	<0.7 mg/kg	TM181		23.6 M	31.8 M	128 M	74.9 M	60.4 M	12.2 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	1.24 M	<0.14 M	<0.14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181		0.566 #	1.16 #	3.19 #	2.11 #	0.631 #	0.499 #
Nickel	<0.2 mg/kg	TM181		15.6 M	19 M	21.9 M	22.5 M	26.2 M	17.7 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Zinc	<1.9 mg/kg	TM181		80.7 M	82.5 M	179 M	115 M	189 M	91.8 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	635	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP321	TP321	TP322	TP322	TP322	TP322
			Depth (m)	2.00 - 2.10	3.00 - 3.10	0.60 - 0.70	1.00 - 1.10	1.60 - 1.70	2.70 - 2.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998932	22998940	22998772	22998778	22998793	22998807
			AGS Reference	ES5	ES7	ES2	ES3	ES4	ES7
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	955	3430	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP323	TP323	TP323	TP324	TP324
			Depth (m)	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998818	22998830	22998852	22998870	22998877	22998887
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
Moisture Content Ratio (% of as received sample)	%	PM024		4	17	45	7.4	10	31
Loss on ignition	<0.7 % M	TM018		3.63 M	3.13 M	13.6 M	<0.7 M	1.61 M	<0.7 M
Organic Carbon, Total	<0.2 % M	TM132		0.24 M	0.342 M	4.38 M	<0.2 M	<0.2 M	<0.2 M
pH	1 pH Units M	TM133		5.74 M	6.87 M	5.28 M	7.23 M	6.56 M	5.69 M
Chromium, Hexavalent	<0.6 mg/kg #	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg M	TM153		<1 M	<1 M	<1 @ M	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg M	TM153		<1 M	<1 M	<1 @ M	<1 M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg M	TM180		<15 M	<15 @ M	38.8 @ M	<15 @ M	<15 @ M	<15 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		21.5	28.8	25.7	11.5	<0.9	<0.9
Antimony	<0.6 mg/kg #	TM181		<6 #	<0.6 #		<0.6 #	<6 #	11.1 #
Arsenic	<0.6 mg/kg M	TM181		28.1 M	18.4 M	36.8 M	6.48 M	605 M	2590 M
Barium	<0.6 mg/kg #	TM181		44.9 #	37 #		8.42 #	55 #	20.4 #
Cadmium	<0.02 mg/kg M	TM181		<0.2 M	<0.02 M	0.731 M	<0.02 M	7.15 M	24.9 M
Chromium	<0.9 mg/kg M	TM181		21.5 M	28.8 M	25.7 M	11.5 M	<9 M	<9 M
Copper	<1.4 mg/kg M	TM181		42.5 M	34 M	53.1 M	14.4 M	1750 M	10500 M
Lead	<0.7 mg/kg M	TM181		26.6 M	27.1 M	42.7 M	7.07 M	747 M	3420 M
Mercury	<0.14 mg/kg M	TM181		<1.4 M	<0.14 M	0.174 M	<0.14 M	<1.4 M	2.72 M
Molybdenum	<0.1 mg/kg #	TM181		<1 #	<0.1 #		<0.1 #	23.9 #	96.6 #
Nickel	<0.2 mg/kg M	TM181		47.7 M	38.9 M	29.7 M	12.4 M	37.2 M	10.5 M
Selenium	<1 mg/kg #	TM181		<10 #	<1 #	<1 #	<1 #	<10 #	<10 #
Zinc	<1.9 mg/kg M	TM181		122 M	120 M	156 M	65.1 M	2390 M	7600 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP323	TP323	TP323	TP324	TP324
			Depth (m)	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998818	22998830	22998852	22998870	22998877	22998887
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	48.9	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP324
Depth (m)	2.00 - 2.10
Sample Type	Soil/Solid (S)
Date Sampled	06/10/2020
Sampled Time	.
Date Received	09/10/2020
SDG Ref	201009-71
Lab Sample No.(s)	22998898
AGS Reference	ES3

Component	LOD/Units	Method	
Moisture Content Ratio (% of as received sample)	%	PM024	32
Loss on ignition	<0.7 %	TM018	3.83 M
Organic Carbon, Total	<0.2 %	TM132	0.713 M
pH	1 pH Units	TM133	6.2 M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #
Cyanide, Total	<1 mg/kg	TM153	<1 M
Cyanide, Free	<1 mg/kg	TM153	<1 M
Cyanide, Complex	<1 mg/kg	TM153	<1
PCB congener 28	<3 µg/kg	TM168	<3 M
PCB congener 52	<3 µg/kg	TM168	<3 M
PCB congener 101	<3 µg/kg	TM168	<3 M
PCB congener 118	<3 µg/kg	TM168	<3 M
PCB congener 138	<3 µg/kg	TM168	<3 M
PCB congener 153	<3 µg/kg	TM168	<3 M
PCB congener 180	<3 µg/kg	TM168	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21
Sulphide, Easily liberated	<15 mg/kg	TM180	37.2 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181	26.8
Antimony	<0.6 mg/kg	TM181	<0.6 #
Arsenic	<0.6 mg/kg	TM181	32.5 M
Barium	<0.6 mg/kg	TM181	68.6 #
Cadmium	<0.02 mg/kg	TM181	1.15 M
Chromium	<0.9 mg/kg	TM181	26.8 M
Copper	<1.4 mg/kg	TM181	249 M
Lead	<0.7 mg/kg	TM181	38.5 M
Mercury	<0.14 mg/kg	TM181	<0.14 M
Molybdenum	<0.1 mg/kg	TM181	0.179 #
Nickel	<0.2 mg/kg	TM181	22.5 M
Selenium	<1 mg/kg	TM181	<1 #
Zinc	<1.9 mg/kg	TM181	2040 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318
Coronene	<200 µg/kg	TM410	<200

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP324
Depth (m)	2.00 - 2.10
Sample Type	Soil/Solid (S)
Date Sampled	06/10/2020
Sampled Time	.
Date Received	09/10/2020
SDG Ref	201009-71
Lab Sample No.(s)	22998898
AGS Reference	ES3

Component	LOD/Units	Method	
EPH >C8-C40	<35 mg/kg	TM415	<35

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
Naphthalene-d8 % recovery**	%	TM218		91.5	88.8	90.8	91.4	92.2	94.3
Acenaphthene-d10 % recovery**	%	TM218		83.4	82.5	85.6	86.2	84.8	86
Phenanthrene-d10 % recovery**	%	TM218		88.3	88.4	90.7	93.7	92.4	92.7
Chrysene-d12 % recovery**	%	TM218		95.1	96.1	101	101	103	104
Perylene-d12 % recovery**	%	TM218		87.9	90.9	87.4	102	92.7	94.3
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 @ M	<90 @ M	12.1 @ M	17.8 @ M	<9 @ M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 @ M	<120 @ M	<12 @ M	<12 @ M	<12 @ M
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 @ M	<80 @ M	13.3 @ M	85.5 @ M	<8 @ M
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<100 @ M	<10 @ M	90.7 @ M	<10 @ M
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<150 @ M	23.7 @ M	471 @ M	<15 @ M
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 @ M	<160 @ M	<16 @ M	82.5 @ M	<16 @ M
Fluoranthene	<17 µg/kg	TM218		<17 @ M	<17 @ M	<170 @ M	<17 @ M	196 @ M	<17 @ M
Pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<150 @ M	<15 @ M	153 @ M	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<140 @ M	<14 @ M	41.7 @ M	<14 @ M
Chrysene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<100 @ M	11.7 @ M	31.4 @ M	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<150 @ M	<15 @ M	24.4 @ M	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<140 @ M	<14 @ M	<14 @ M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<150 @ M	<15 @ M	<15 @ M	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 @ M	<180 @ M	<18 @ M	<18 @ M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 @ M	<230 @ M	<23 @ M	<23 @ M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 @ M	<240 @ M	<24 @ M	<24 @ M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<1180	<118	1190	<118

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP307	TP308	TP308	TP308	TP308	TP309
			Depth (m)	3.40 - 3.50	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998679	22998993	22999005	22999014	22999020	22998964
			AGS Reference	ES6	ES1	ES2	ES4	ES6	ES1
Naphthalene-d8 % recovery**	%	TM218		90.7	94.7	93	84.4	93	89.2
Acenaphthene-d10 % recovery**	%	TM218		84.2	86.3	84.6	94.2	84.4	98
Phenanthrene-d10 % recovery**	%	TM218		91.3	92.1	90.2	101	89.9	105
Chrysene-d12 % recovery**	%	TM218		101	100	98.3	88.9	99.7	96.4
Perylene-d12 % recovery**	%	TM218		97.2	85.9	86.8	85	89.7	93.1
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 M	<9 #	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 M	<12 #	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 M	<8 #	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 M	<10 #	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 #	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 M	<16 #	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 @ M	<17 M	<17 #	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 #	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	<14 M	<14 #	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 @ M	<10 M	<10 #	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 #	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 M	<14 #	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	<15 M	<15 #	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 M	<18 #	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 M	<23 #	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 M	<24 #	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP309	TP316	TP316	TP316	TP317
			Depth (m)	0.90 - 1.00	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998975	22998987	22998691	22998699	22998711	22998720
			AGS Reference	ES2	ES3	ES1	ES2	ES3	ES1
Naphthalene-d8 % recovery**	%	TM218		88.2	86.4	88.2	87.9	87.4	92.9
Acenaphthene-d10 % recovery**	%	TM218		93.6	93.1	82	93.1	96.5	84.5
Phenanthrene-d10 % recovery**	%	TM218		98.4	98.3	86.6	96.6	104	89.6
Chrysene-d12 % recovery**	%	TM218		87.6	85.8	92.2	87.6	92.5	94.7
Perylene-d12 % recovery**	%	TM218		83.8	81.3	79.2	82.8	87.4	78.9
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 @ M	<9 @ M	<9 @ M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 @ M	<12 @ M	<12 @ M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 @ M	<8 @ M	<8 @ M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 @ M	<16 @ M	<16 @ M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 @ M	<17 @ M	<17 @ M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 @ M	<14 @ M	<14 @ M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 @ M	<14 @ M	<14 @ M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 @ M	<18 @ M	<18 @ M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 @ M	<23 @ M	<23 @ M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 @ M	<24 @ M	<24 @ M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP317	TP317	TP321	TP321	TP321
			Depth (m)	1.40 - 1.50	1.90 - 2.00	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998734	22998746	22998758	22998904	22998912	22998921
			AGS Reference	ES2	ES3	ES4	ES1	ES2	ES3
Naphthalene-d8 % recovery**	%	TM218		89.5	98.1	94.1	90.9	92.5	91.7
Acenaphthene-d10 % recovery**	%	TM218		96.5	89.6	85.4	83.7	84.5	83.7
Phenanthrene-d10 % recovery**	%	TM218		101	96.8	91	87.5	90.8	90.6
Chrysene-d12 % recovery**	%	TM218		88.2	107	100	89	97.9	100
Perylene-d12 % recovery**	%	TM218		84	95.6	91	77.7	86.2	90.1
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 @ M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 @ M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 @ M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 @ M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 @ M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 @ M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	<17 @ M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 @ M	<15 M	30.3 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 @ M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 @ M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 @ M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 @ M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 @ M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 @ M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 @ M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 @ M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP321	TP321	TP322	TP322	TP322	TP322
			Depth (m)	2.00 - 2.10	3.00 - 3.10	0.60 - 0.70	1.00 - 1.10	1.60 - 1.70	2.70 - 2.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998932	22998940	22998772	22998778	22998793	22998807
			AGS Reference	ES5	ES7	ES2	ES3	ES4	ES7
Naphthalene-d8 % recovery**	%	TM218		94	90.4	93.6	91.4	89.8	94.2
Acenaphthene-d10 % recovery**	%	TM218		84.9	82	89.6	88.4	97.9	85.8
Phenanthrene-d10 % recovery**	%	TM218		91.8	88.3	89.3	85.9	103	91.7
Chrysene-d12 % recovery**	%	TM218		101	97.4	60.7	54	88.6	99
Perylene-d12 % recovery**	%	TM218		92.3	93.8	26.5	21.6	84.9	88.9
Naphthalene	<9 µg/kg	TM218		<9 M	<9 @ M	<9 @ M	65.5 @ M	<9 @ M	<9 @ M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 @ M	<12 @ M	<12 @ M	<12 @ M	<12 @ M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 @ M	<8 @ M	12.9 @ M	<8 @ M	<8 @ M
Fluorene	<10 µg/kg	TM218		<10 M	<10 @ M	<10 @ M	37.2 @ M	<10 @ M	<10 @ M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 @ M	60.2 @ M	144 @ M	<15 @ M	<15 @ M
Anthracene	<16 µg/kg	TM218		<16 M	<16 @ M	<16 @ M	<16 @ M	<16 @ M	<16 @ M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 @ M	36.4 @ M	65.9 @ M	<17 @ M	<17 @ M
Pyrene	<15 µg/kg	TM218		<15 M	<15 @ M	72 @ M	149 @ M	<15 @ M	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 @ M	<14 @ M	<14 @ M	<14 @ M	<14 @ M
Chrysene	<10 µg/kg	TM218		<10 M	<10 @ M	99.7 @ M	138 @ M	<10 @ M	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 @ M	<15 @ M	21.5 @ M	<15 @ M	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 @ M	23.8 @ M	<14 @ M	<14 @ M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 @ M	<18 @ M	<18 @ M	<18 @ M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 @ M	<23 @ M	<23 @ M	<23 @ M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 @ M	<24 @ M	<24 @ M	<24 @ M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	292	635	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP323	TP323	TP323	TP324	TP324
			Depth (m)	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998818	22998830	22998852	22998870	22998877	22998887
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
Naphthalene-d8 % recovery**	%	TM218		90.9	86.9	73.4	90.8	92.2	86.2
Acenaphthene-d10 % recovery**	%	TM218		85.1	96.9	71.2	87.7	86	94.1
Phenanthrene-d10 % recovery**	%	TM218		89.3	105	74.9	86.9	91.9	101
Chrysene-d12 % recovery**	%	TM218		94.1	94.7	92.9	81.9	103	91.5
Perylene-d12 % recovery**	%	TM218		86.9	91.9	93.7	79.9	90.1	89.1
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 @ M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 @ M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 @ M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 @ M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 @ M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 @ M	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 @ M	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 @ M	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 @ M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 @ M	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 @ M	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 @ M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 @ M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP324
Depth (m)	2.00 - 2.10
Sample Type	Soil/Solid (S)
Date Sampled	06/10/2020
Sampled Time	.
Date Received	09/10/2020
SDG Ref	201009-71
Lab Sample No.(s)	22998898
AGS Reference	ES3

Component	LOD/Units	Method					
Naphthalene-d8 % recovery**	%	TM218	95.5				
Acenaphthene-d10 % recovery**	%	TM218	86.4				
Phenanthrene-d10 % recovery**	%	TM218	94.5				
Chrysene-d12 % recovery**	%	TM218	107				
Perylene-d12 % recovery**	%	TM218	99.3				
Naphthalene	<9 µg/kg	TM218	<9 M				
Acenaphthylene	<12 µg/kg	TM218	<12 M				
Acenaphthene	<8 µg/kg	TM218	<8 M				
Fluorene	<10 µg/kg	TM218	<10 M				
Phenanthrene	<15 µg/kg	TM218	<15 M				
Anthracene	<16 µg/kg	TM218	<16 M				
Fluoranthene	<17 µg/kg	TM218	<17 M				
Pyrene	<15 µg/kg	TM218	<15 M				
Benz(a)anthracene	<14 µg/kg	TM218	<14 M				
Chrysene	<10 µg/kg	TM218	<10 M				
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M				
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M				
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M				
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M				
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M				
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M				
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118				

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
Phenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<200	<200	<500	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<200	<200	242	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<200	<200	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<2000	<2000	<1000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP307	TP308	TP308	TP308	TP308	TP309
			Depth (m)	3.40 - 3.50	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998679	22998993	22999005	22999014	22999020	22998964
			AGS Reference	ES6	ES1	ES2	ES4	ES6	ES1
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<500	<500	<500	<500	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP307	TP308	TP308	TP308	TP308	TP309
			Depth (m)	3.40 - 3.50	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998679	22998993	22999005	22999014	22999020	22998964
			AGS Reference	ES6	ES1	ES2	ES4	ES6	ES1
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	160	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	266	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	226	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		1580	<1000	<1000	<1000	<1000	<1000
Unknown	µg/kg	TM157		1580					

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP309	TP316	TP316	TP316	TP317
			Depth (m)	0.90 - 1.00	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998975	22998987	22998691	22998699	22998711	22998720
			AGS Reference	ES2	ES3	ES1	ES2	ES3	ES1
Phenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<1000	<500	<100	<500	<500	<500
4-Nitroaniline	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP309	TP316	TP316	TP316	TP317
			Depth (m)	0.90 - 1.00	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998975	22998987	22998691	22998699	22998711	22998720
			AGS Reference	ES2	ES3	ES1	ES2	ES3	ES1
2-Chlorophenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<200	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<2000	<1000	<1000	<1000	<1000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP317	TP317	TP321	TP321	TP321
			Depth (m)	1.40 - 1.50	1.90 - 2.00	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998734	22998746	22998758	22998904	22998912	22998921
			AGS Reference	ES2	ES3	ES4	ES1	ES2	ES3
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Nitrophenol	<100 µg/kg	TM157		<500	<500	<500	<100	<200	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP317	TP317	TP321	TP321	TP321
			Depth (m)	1.40 - 1.50	1.90 - 2.00	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998734	22998746	22998758	22998904	22998912	22998921
			AGS Reference	ES2	ES3	ES4	ES1	ES2	ES3
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<2000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP321	TP321	TP322	TP322	TP322	TP322
			Depth (m)	2.00 - 2.10	3.00 - 3.10	0.60 - 0.70	1.00 - 1.10	1.60 - 1.70	2.70 - 2.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998932	22998940	22998772	22998778	22998793	22998807
			AGS Reference	ES5	ES7	ES2	ES3	ES4	ES7
Phenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<500	<100	<500	<1000	<500	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP321	TP321	TP322	TP322	TP322	TP322
			Depth (m)	2.00 - 2.10	3.00 - 3.10	0.60 - 0.70	1.00 - 1.10	1.60 - 1.70	2.70 - 2.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998932	22998940	22998772	22998778	22998793	22998807
			AGS Reference	ES5	ES7	ES2	ES3	ES4	ES7
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<200	<100	<100
TIC report		TM157		Not Detected	Not Detected	Detected	Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	9330	19700	<1000	<1000
Unknown	µg/kg	TM157				9330	19700		

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP323	TP323	TP323	TP324	TP324
			Depth (m)	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998818	22998830	22998852	22998870	22998877	22998887
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<500	<100	<500	<1000	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP323	TP323	TP323	TP324	TP324
			Depth (m)	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998818	22998830	22998852	22998870	22998877	22998887
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<2000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Customer Sample Ref.	TP324
Depth (m)	2.00 - 2.10
Sample Type	Soil/Solid (S)
Date Sampled	06/10/2020
Sampled Time	.
Date Received	09/10/2020
SDG Ref	201009-71
Lab Sample No.(s)	22998898
AGS Reference	ES3

Component	LOD/Units	Method	
Phenol	<100 µg/kg	TM157	<100
Pentachlorophenol	<100 µg/kg	TM157	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100
Nitrobenzene	<100 µg/kg	TM157	<100
Isophorone	<100 µg/kg	TM157	<100
Hexachloroethane	<100 µg/kg	TM157	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100
Diethyl phthalate	<100 µg/kg	TM157	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100
Dibenzofuran	<100 µg/kg	TM157	<100
Carbazole	<100 µg/kg	TM157	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100
Azobenzene	<100 µg/kg	TM157	<100
4-Nitrophenol	<100 µg/kg	TM157	<500
4-Nitroaniline	<100 µg/kg	TM157	<100
4-Methylphenol	<100 µg/kg	TM157	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100
4-Chloroaniline	<100 µg/kg	TM157	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100
3-Nitroaniline	<100 µg/kg	TM157	<100
2-Nitrophenol	<100 µg/kg	TM157	<100
2-Nitroaniline	<100 µg/kg	TM157	<100
2-Methylphenol	<100 µg/kg	TM157	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Customer Sample Ref.			TP324					
Depth (m)			2.00 - 2.10					
Sample Type			Soil/Solid (S)					
Date Sampled			06/10/2020					
Sampled Time			.					
Date Received			09/10/2020					
SDG Ref			201009-71					
Lab Sample No.(s)			22998898					
AGS Reference			ES3					
Component	**LOD/Units**	**Method**						
2-Chlorophenol	<100 µg/kg	TM157	<100					
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100					
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100					
2,4-Dimethylphenol	<100 µg/kg	TM157	<100					
2,4-Dichlorophenol	<100 µg/kg	TM157	<100					
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100					
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100					
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100					
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100					
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100					
2-Chloronaphthalene	<100 µg/kg	TM157	<100					
2-Methylnaphthalene	<100 µg/kg	TM157	<100					
Acenaphthylene	<100 µg/kg	TM157	<100					
Acenaphthene	<100 µg/kg	TM157	<100					
Anthracene	<100 µg/kg	TM157	<100					
Benzo(a)anthracene	<100 µg/kg	TM157	<100					
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100					
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100					
Benzo(a)pyrene	<100 µg/kg	TM157	<100					
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100					
Chrysene	<100 µg/kg	TM157	<100					
Fluoranthene	<100 µg/kg	TM157	<100					
Fluorene	<100 µg/kg	TM157	<100					
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100					
Phenanthrene	<100 µg/kg	TM157	<100					
Pyrene	<100 µg/kg	TM157	<100					
Naphthalene	<100 µg/kg	TM157	<100					
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100					
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100					
TIC report		TM157	Not Detected					
Total SVOC TIC	<100 µg/kg	TM157	<1000					

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
GRO Surrogate % recovery**	%	TM089		103	98.1	87.5	92.2	96.9	90.9
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	13.6	16.9	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	35.8	24.9	32.7	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	60.1	54.2	148	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	1320	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	18100	20400	9200	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	41300	39000	13600	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	19200	146000	93900	18900	5130
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	4620	56200	10800	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	23800	263000	165000	43100	5600
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	25000	316000	184000	51300	36700
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	40.1	36.2	99.2	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	3340	1400	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	2650	3770	2890	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	<1000	48300	10900	2470	28800
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	1480	<1000	<1000	2050
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	53400	19000	8170	31100
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	23800	317000	184000	51600	36700
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	95.9	92.7	197	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	99.2	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	95.9	92.7	296	<20

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP307	TP308	TP308	TP308	TP308	TP309
			Depth (m)	3.40 - 3.50	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998679	22998993	22999005	22999014	22999020	22998964
			AGS Reference	ES6	ES1	ES2	ES4	ES6	ES1
GRO Surrogate % recovery**	%	TM089		111	86	102	92.1	84	103
Aliphatics >C5-C6	<10 µg/kg	TM089		30.2	<10	<10	22	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		48.3	<10	<10	36.1	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		58.9	<10	<10	45.5	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		2040	<1000	<1000	<1000	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		24000	<1000	2380	17300	4670	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		1800	<1000	<1000	2680	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		28000	<5000	<5000	20600	5560	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		60800	<10000	<10000	33500	26700	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		39.3	<10	<10	29.8	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		1270	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		25200	<1000	<1000	8130	18500	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		6180	<1000	<1000	4730	2630	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		32800	<5000	<5000	12900	21100	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		61000	<10000	<10000	33600	26700	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		137	<50	<50	104	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		137	<20	<20	104	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP309	TP316	TP316	TP316	TP317
			Depth (m)	0.90 - 1.00	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998975	22998987	22998691	22998699	22998711	22998720
			AGS Reference	ES2	ES3	ES1	ES2	ES3	ES1
GRO Surrogate % recovery**	%	TM089		99.9	97.3	83	95.1	92.8	99
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	11.7	<10	<10	30.4	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	33.4	<10	<10	30.4	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	35.1	<10	<10	42.3	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	1600	<1000	<1000	1140	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	26200	<1000	2050	25600	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	3880	<1000	<1000	3260	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	31700	<5000	<5000	30000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	50400	<10000	<10000	45900	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	23.4	<10	<10	28.7	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	1690	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	12600	<1000	<1000	12000	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	3840	<1000	<1000	3520	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	18700	<5000	<5000	15900	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	50500	<10000	<10000	46000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	80.2	<50	<50	103	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	80.2	<20	<20	103	<20

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP317	TP317	TP321	TP321	TP321
			Depth (m)	1.40 - 1.50	1.90 - 2.00	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998734	22998746	22998758	22998904	22998912	22998921
			AGS Reference	ES2	ES3	ES4	ES1	ES2	ES3
GRO Surrogate % recovery**	%	TM089		92.8	125	98.8	116	89.3	92.9
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	28.8	<10	<10	<10	15.2
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	51.2	<10	<10	<10	33.8
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	68.8	<10	<10	<10	57.5
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	1570
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	17200	10200	12400	1220	27200
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	2260	<1000	8170	<1000	4120
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	19800	11400	20500	<5000	32900
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	29600	19200	40700	<10000	45100
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	46.4	<10	<10	<10	37.2
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	1200
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	6320	5360	19200	<1000	9060
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	3110	2210	<1000	<1000	1730
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	9750	7820	20200	<5000	12200
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	29800	19200	40700	<10000	45200
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	149	<50	<50	<50	106
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	149	<20	<20	<20	106

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP321	TP321	TP322	TP322	TP322	TP322
			Depth (m)	2.00 - 2.10	3.00 - 3.10	0.60 - 0.70	1.00 - 1.10	1.60 - 1.70	2.70 - 2.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998932	22998940	22998772	22998778	22998793	22998807
			AGS Reference	ES5	ES7	ES2	ES3	ES4	ES7
GRO Surrogate % recovery**	%	TM089		80.6	92.8	99.1	51.1 4	76.8	94.4
Aliphatics >C5-C6	<10 µg/kg	TM089		13.1	<10	29.8	55.8 4	29.8	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		38	<10	28.3	65.3 4	70	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		96.9	11.4	38.7	126 4	96.3	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	1320	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	10100	41600	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	139000	303000	1590	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	5590	387000	2300000	31100	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	416000	1380000	4960	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	6020	952000	4020000	37700	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	12900	1560000	5150000	58600	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10 4	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10 4	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		64.2	<10	25.3	84.3 4	64.8	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	3420	24200	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	19000	102000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	5060	571000	967000	13700	4330
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	1770	16600	35500	7090	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	6890	610000	1130000	21000	5330
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	12900	1560000	5150000	58900	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		148	<50	96.9	248 4	196	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		64.2	<50	<50	84.3 4	64.8	<50
GRO >C5-C10	<20 µg/kg	TM089		212	<20	96.9	332 4	261	<20

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP323	TP323	TP323	TP324	TP324
			Depth (m)	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998818	22998830	22998852	22998870	22998877	22998887
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
GRO Surrogate % recovery**	%	TM089		92.8	95.7	80.1 @	100	103	97.5
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	10.6 @	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	17.7 @	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	17.7 @	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	3010	<1000	1830	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	1750	38100	<1000	13300	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	6020	<1000	3670	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	47100	<5000	19000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	84400	<10000	27300	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10 @	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10 @	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	12.4 @	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	<1000	29600	<1000	7100	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	6700	<1000	1220	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	37300	<5000	8320	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	84400	<10000	27300	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50 @	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50 @	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20 @	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref. TP324					
			Depth (m)	2.00 - 2.10				
			Sample Type	Soil/Solid (S)				
			Date Sampled	06/10/2020				
			Sampled Time	.				
			Date Received	09/10/2020				
			SDG Ref	201009-71				
			Lab Sample No.(s)	22998898				
			AGS Reference	ES3				
GRO Surrogate % recovery**	%	TM089	119					
Aliphatics >C5-C6	<10 µg/kg	TM089	<10					
Aliphatics >C6-C8	<10 µg/kg	TM089	<10					
Aliphatics >C8-C10	<10 µg/kg	TM089	<10					
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000					
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000					
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000					
Aliphatics >C21-C35	<1000 µg/kg	TM414	2350					
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000					
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000					
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000					
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10					
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10					
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10					
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000					
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000					
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000					
Aromatics > EC21-EC35	<1000 µg/kg	TM414	1190					
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000					
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000					
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000					
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000					
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50					
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50					
GRO >C5-C10	<20 µg/kg	TM089	<20					

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
Dibromofluoromethane**	%	TM116		119	106	107	103	106	110
Toluene-d8**	%	TM116		106	101	95.2	105	97.4	91.5
4-Bromofluorobenzene**	%	TM116		98.5	97.3	76.5	93.1	84	75.5
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<7 #	<7 3 #	<7 #	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 3 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		10.2 M	<7 M	<7 M	<7 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 3 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M	62.2 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307
			Depth (m)	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	05/10/2020	05/10/2020	05/10/2020	05/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998601	22998844	22998627	22998642	22998653	22998663
			AGS Reference	ES01	ES03	ES1	ES2	ES3	ES5
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP308	TP308	TP308	TP308	TP309	TP309
			Depth (m)	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60	0.90 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998993	22999005	22999014	22999020	22998964	22998975
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
Dibromofluoromethane**	%	TM116		123	107	111	115	108	109
Toluene-d8**	%	TM116		101	101	101	93.3	99.6	99.5
4-Bromofluorobenzene**	%	TM116		91.7	90.3	95.1	76.5	96.9	95
Dichlorodifluoromethane	µg/kg	TM116	<6 M	<6 M	<120 M	<6 M	<6 M	<6 M	
Chloromethane	µg/kg	TM116	<7 #	<7 #	<140 3 #	<7 #	<7 #	<7 3 #	
Vinyl Chloride	µg/kg	TM116	<6 M	<6 M	<120 3 M	<6 M	<6 M	<6 M	
Bromomethane	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
Chloroethane	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
Trichlorofluorormethane	µg/kg	TM116	<6 3 M	<6 3 M	<120 M	<6 3 M	<6 3 M	<6 3 M	
1,1-Dichloroethene	µg/kg	TM116	<10 #	<10 #	<200 #	<10 #	<10 #	<10 #	
Carbon Disulphide	µg/kg	TM116	<7 M	<7 M	<140 M	<7 M	<7 M	<7 M	
Dichloromethane	µg/kg	TM116	<10 #	<10 #	<200 #	<10 #	<10 #	<10 #	
Methyl Tertiary Butyl Ether	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
trans-1,2-Dichloroethene	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
1,1-Dichloroethane	µg/kg	TM116	<8 M	<8 M	<160 M	<8 M	<8 M	<8 M	
cis-1,2-Dichloroethene	µg/kg	TM116	<6 M	<6 M	<120 M	<6 M	<6 M	<6 M	
2,2-Dichloropropane	µg/kg	TM116	<10	<10	<200	<10	<10	<10	
Bromochloromethane	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
Chloroform	µg/kg	TM116	<8 3 M	<8 3 M	<160 M	<8 3 M	<8 3 M	<8 3 M	
1,1,1-Trichloroethane	µg/kg	TM116	<7 M	<7 M	<140 M	<7 M	<7 M	<7 M	
1,1-Dichloropropene	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
Carbontetrachloride	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
1,2-Dichloroethane	µg/kg	TM116	<5 M	<5 M	<100 M	<5 M	<5 M	<5 M	
Benzene	µg/kg	TM116	<9 M	<9 M	<180 M	<9 M	<9 M	<9 M	
Trichloroethene	µg/kg	TM116	<9 #	<9 #	<180 #	<9 #	<9 #	<9 #	
1,2-Dichloropropane	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
Dibromomethane	µg/kg	TM116	<9 M	<9 M	<180 M	<9 M	<9 M	<9 M	
Bromodichloromethane	µg/kg	TM116	<7 M	<7 M	<140 M	<7 M	<7 M	<7 M	
cis-1,3-Dichloropropene	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	
Toluene	µg/kg	TM116	<7 M	<7 M	<140 M	<7 M	<7 M	<7 M	
trans-1,3-Dichloropropene	µg/kg	TM116	<10	<10	<200	<10	<10	<10	
1,1,2-Trichloroethane	µg/kg	TM116	<10 M	<10 M	<200 M	<10 M	<10 M	<10 M	

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP308	TP308	TP308	TP308	TP309	TP309
			Depth (m)	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60	0.90 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998993	22999005	22999014	22999020	22998964	22998975
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<140 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<100 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<100 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<80 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<100 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<320 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<180 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<160 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<280 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<180 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<200	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<160 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<100 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<220	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<280 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<400	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<400	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<260 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP308	TP308	TP308	TP308	TP309	TP309
			Depth (m)	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60	0.90 - 1.00
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998993	22999005	22999014	22999020	22998964	22998975
			AGS Reference	ES1	ES2	ES4	ES6	ES1	ES2
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<400 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.4	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<800	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<1000	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP316	TP316	TP316	TP317	TP317
			Depth (m)	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998987	22998691	22998699	22998711	22998720	22998734
			AGS Reference	ES3	ES1	ES2	ES3	ES1	ES2
Dibromofluoromethane**	%	TM116		105	115	106	124	113	119
Toluene-d8**	%	TM116		102	105	101	99.1	99.1	104
4-Bromofluorobenzene**	%	TM116		96.8	86.4	95.5	95	90.3	96
Dichlorodifluoromethane	<6 µg/kg	TM116		<120 M	<6 M	<6 M	<60 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<140 3 #	<7 #	<7 3 #	<70 #	<7 3 #	<7 3 #
Vinyl Chloride	<6 µg/kg	TM116		<120 3 M	<6 M	<6 M	<60 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<120 M	<6 M	<6 M	<60 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<100 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<140 M	<7 M	<7 M	<70 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<100 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<160 M	<8 M	<8 M	<80 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<120 M	<6 M	<6 M	<60 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<200	<10	<10	<100	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<160 M	<8 M	<8 M	<80 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<140 M	<7 M	<7 M	<70 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<100 M	<5 M	<5 M	<50 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<180 M	<9 M	<9 M	<90 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<180 #	<9 #	<9 #	<90 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<180 M	<9 M	<9 M	<90 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<140 M	<7 M	<7 M	<70 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<140 M	<7 M	<7 M	<70 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<200	<10	<10	<100	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP316	TP316	TP316	TP317	TP317
			Depth (m)	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998987	22998691	22998699	22998711	22998720	22998734
			AGS Reference	ES3	ES1	ES2	ES3	ES1	ES2
1,3-Dichloropropane	<7 µg/kg	TM116		<140 M	<7 M	<7 M	<70 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<100 M	<5 M	<5 M	<50 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<100 M	<5 M	<5 M	<50 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<80 M	<4 M	<4 M	<40 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<100 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<100 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<100 #	<5 #	<5 #	<50 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<100 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<320 M	<16 M	<16 M	<160 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<180 M	<9 M	<9 M	<90 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<160 M	<8 M	<8 M	<80 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<280 M	<14 M	<14 M	<140 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<180 #	<9 #	<9 #	<90 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<200	<10	<10	<100	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<160 M	<8 M	<8 M	<80 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<100 M	<5 M	<5 M	<50 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<220	<11	<11	<110	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<100 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<280 M	<14 M	<14 M	<140 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<100 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<400	<20	<20	<200	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<400	<20	<20	<200	<20	<20
Naphthalene	<13 µg/kg	TM116		<260 M	<13 M	<13 M	<130 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP309	TP316	TP316	TP316	TP317	TP317
			Depth (m)	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	05/10/2020	05/10/2020	05/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998987	22998691	22998699	22998711	22998720	22998734
			AGS Reference	ES3	ES1	ES2	ES3	ES1	ES2
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<400 #	<20 #	<20 #	<200 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.4	<0.02	<0.02	<0.2	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<800	<40	<40	<400	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<1000	<50	<50	<500	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP321	TP321	TP321	TP321	TP321
			Depth (m)	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70	2.00 - 2.10	3.00 - 3.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998758	22998904	22998912	22998921	22998932	22998940
			AGS Reference	ES4	ES1	ES2	ES3	ES5	ES7
Dibromofluoromethane**	%	TM116		104	109	109	109	108	111
Toluene-d8**	%	TM116		99.2	102	101	93.9	103	98.1
4-Bromofluorobenzene**	%	TM116		75.6	86.2	94	71.8	93.6	85.3
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 3 #	<7 3 #	<7 #	<7 #	<7 3 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP321	TP321	TP321	TP321	TP321
			Depth (m)	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70	2.00 - 2.10	3.00 - 3.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998758	22998904	22998912	22998921	22998932	22998940
			AGS Reference	ES4	ES1	ES2	ES3	ES5	ES7
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP317	TP321	TP321	TP321	TP321	TP321
			Depth (m)	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70	2.00 - 2.10	3.00 - 3.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998758	22998904	22998912	22998921	22998932	22998940
			AGS Reference	ES4	ES1	ES2	ES3	ES5	ES7
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP322	TP322	TP322	TP323	TP323	TP323
			Depth (m)	0.60 - 0.70	1.00 - 1.10	2.70 - 2.80	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	05/10/2020	05/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998772	22998778	22998807	22998818	22998830	22998852
			AGS Reference	ES2	ES3	ES7	ES1	ES2	ES4
Dibromofluoromethane**	%	TM116		115	122	109	111	111	108 @
Toluene-d8**	%	TM116		96.7	96.3	99.6	105	101	96 @
4-Bromofluorobenzene**	%	TM116		90.9	87.1	91.6	94.3	89.5	89.5 @
Dichlorodifluoromethane	<6 µg/kg	TM116		<60 M	<60 M	<6 M	<6 M	<6 M	<120 @ M
Chloromethane	<7 µg/kg	TM116		<70 #	<70 #	<7 #	<7 3 #	<7 3 #	<140 @ #
Vinyl Chloride	<6 µg/kg	TM116		<60 M	<60 M	<6 M	<6 M	<6 M	<120 @ M
Bromomethane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Chloroethane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Trichlorofluorormethane	<6 µg/kg	TM116		<60 M	<60 M	<6 M	<6 M	<6 M	<120 @ M
1,1-Dichloroethene	<10 µg/kg	TM116		<100 #	<100 #	<10 #	<10 #	<10 #	<200 @ #
Carbon Disulphide	<7 µg/kg	TM116		<70 M	114 M	<7 M	<7 M	<7 M	<140 @ M
Dichloromethane	<10 µg/kg	TM116		<100 #	<100 #	<10 #	<10 #	<10 #	<200 @ #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
1,1-Dichloroethane	<8 µg/kg	TM116		<80 M	<80 M	<8 M	<8 M	<8 M	<160 @ M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<60 M	<60 M	<6 M	<6 M	<6 M	<120 @ M
2,2-Dichloropropane	<10 µg/kg	TM116		<100	<100	<10	<10	<10	<200 @
Bromochloromethane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Chloroform	<8 µg/kg	TM116		<80 M	<80 M	<8 M	<8 M	<8 M	<160 @ M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<70 M	<70 M	<7 M	<7 M	<7 M	<140 @ M
1,1-Dichloropropene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Carbontetrachloride	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
1,2-Dichloroethane	<5 µg/kg	TM116		<50 M	<50 M	<5 M	<5 M	<5 M	<100 @ M
Benzene	<9 µg/kg	TM116		<90 M	<90 M	<9 M	<9 M	<9 M	<180 @ M
Trichloroethene	<9 µg/kg	TM116		<90 #	<90 #	<9 #	<9 #	<9 #	<180 @ #
1,2-Dichloropropane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Dibromomethane	<9 µg/kg	TM116		<90 M	<90 M	<9 M	<9 M	<9 M	<180 @ M
Bromodichloromethane	<7 µg/kg	TM116		<70 M	<70 M	<7 M	<7 M	<7 M	<140 @ M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Toluene	<7 µg/kg	TM116		<70 M	<70 M	<7 M	<7 M	<7 M	<140 @ M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<100	<100	<10	<10	<10	<200 @
1,1,2-Trichloroethane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP322	TP322	TP322	TP323	TP323	TP323
			Depth (m)	0.60 - 0.70	1.00 - 1.10	2.70 - 2.80	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	05/10/2020	05/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998772	22998778	22998807	22998818	22998830	22998852
			AGS Reference	ES2	ES3	ES7	ES1	ES2	ES4
1,3-Dichloropropane	<7 µg/kg	TM116		<70 M	<70 M	<7 M	<7 M	<7 M	<140 @ M
Tetrachloroethene	<5 µg/kg	TM116		<50 M	<50 M	<5 M	<5 M	<5 M	<100 @ M
Dibromochloromethane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
1,2-Dibromoethane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Chlorobenzene	<5 µg/kg	TM116		<50 M	<50 M	<5 M	<5 M	<5 M	<100 @ M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Ethylbenzene	<4 µg/kg	TM116		<40 M	<40 M	<4 M	<4 M	<4 M	<80 @ M
p/m-Xylene	<10 µg/kg	TM116		<100 #	<100 #	<10 #	<10 #	<10 #	<200 @ #
o-Xylene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Styrene	<10 µg/kg	TM116		<100 #	<100 #	<10 #	<10 #	<10 #	<200 @ #
Bromoform	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Isopropylbenzene	<5 µg/kg	TM116		<50 #	<50 #	<5 #	<5 #	<5 #	<100 @ #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<100 #	<100 #	<10 #	<10 #	<10 #	<200 @ #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<160 M	<160 M	<16 M	<16 M	<16 M	<320 @ M
Bromobenzene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
Propylbenzene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
2-Chlorotoluene	<9 µg/kg	TM116		<90 M	<90 M	<9 M	<9 M	<9 M	<180 @ M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<80 M	<80 M	<8 M	<8 M	<8 M	<160 @ M
4-Chlorotoluene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
tert-Butylbenzene	<14 µg/kg	TM116		<140 M	<140 M	<14 M	<14 M	<14 M	<280 @ M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<90 #	<90 #	<9 #	<9 #	<9 #	<180 @ #
sec-Butylbenzene	<10 µg/kg	TM116		<100	<100	<10	<10	<10	<200 @
4-Isopropyltoluene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<80 M	<80 M	<8 M	<8 M	<8 M	<160 @ M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<50 M	<50 M	<5 M	<5 M	<5 M	<100 @ M
n-Butylbenzene	<11 µg/kg	TM116		<110	<110	<11	<11	<11	<220 @
1,2-Dichlorobenzene	<10 µg/kg	TM116		<100 M	<100 M	<10 M	<10 M	<10 M	<200 @ M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<140 M	<140 M	<14 M	<14 M	<14 M	<280 @ M
Tert-amyl methyl ether	<10 µg/kg	TM116		<100 #	<100 #	<10 #	<10 #	<10 #	<200 @ #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<200	<200	<20	<20	<20	<400 @
Hexachlorobutadiene	<20 µg/kg	TM116		<200	<200	<20	<20	<20	<400 @
Naphthalene	<13 µg/kg	TM116		<130 M	<130 M	<13 M	<13 M	<13 M	<260 @ M

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP322	TP322	TP322	TP323	TP323	TP323
			Depth (m)	0.60 - 0.70	1.00 - 1.10	2.70 - 2.80	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	05/10/2020	05/10/2020	05/10/2020	06/10/2020	06/10/2020	06/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020	09/10/2020
			SDG Ref	201009-71	201009-71	201009-71	201009-71	201009-71	201009-71
			Lab Sample No.(s)	22998772	22998778	22998807	22998818	22998830	22998852
			AGS Reference	ES2	ES3	ES7	ES1	ES2	ES4
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<200 #	<200 #	<20 #	<20 #	<20 #	<400 @ #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected @
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.2	<0.2	<0.02	<0.02	<0.02	<0.4 @
Sum of BTEX	<40 µg/kg	TM116		<400	<400	<40	<40	<40	<800 @
Total VOC TIC	<50 µg/kg	TM116		<500	<500	<50	<50	<50	<1000

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP324	TP324	TP324		
			Depth (m)	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20	2.00 - 2.10		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020		
			Sampled Time	.	.	.	.		
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020		
			SDG Ref	201009-71	201009-71	201009-71	201009-71		
			Lab Sample No.(s)	22998870	22998877	22998887	22998898		
			AGS Reference	ES6	ES1	ES2	ES3		
Dibromofluoromethane**	%	TM116		108	110	112	102		
Toluene-d8**	%	TM116		101	101	99.8	93.7		
4-Bromofluorobenzene**	%	TM116		98.8	94.8	94.1	71.1		
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M		
Chloromethane	<7 µg/kg	TM116		<7 3 #	<7 #	<7 #	<7 #		
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M		
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 3 M	<6 3 M	<6 3 M		
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #		
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M		
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #		
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M		
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M		
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10		
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Chloroform	<8 µg/kg	TM116		<8 M	<8 3 M	<8 3 M	<8 3 M		
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M		
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M		
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M		
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #		
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M		
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M		
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M		
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10		
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP324	TP324	TP324		
			Depth (m)	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20	2.00 - 2.10		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020		
			Sampled Time	.	.	.	.		
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020		
			SDG Ref	201009-71	201009-71	201009-71	201009-71		
			Lab Sample No.(s)	22998870	22998877	22998887	22998898		
			AGS Reference	ES6	ES1	ES2	ES3		
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M		
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M		
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M		
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M		
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #		
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #		
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #		
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #		
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M		
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M		
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M		
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M		
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #		
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10		
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M		
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M		
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11		
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M		
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M		
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #		
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20		
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20		
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M		

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP323	TP324	TP324	TP324		
			Depth (m)	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20	2.00 - 2.10		
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
			Date Sampled	06/10/2020	06/10/2020	06/10/2020	06/10/2020		
			Sampled Time	.	.	.	.		
			Date Received	09/10/2020	09/10/2020	09/10/2020	09/10/2020		
			SDG Ref	201009-71	201009-71	201009-71	201009-71		
			Lab Sample No.(s)	22998870	22998877	22998887	22998898		
			AGS Reference	ES6	ES1	ES2	ES3		
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #		
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected		
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02		
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40		
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50		

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH304ES01 0.50 - 0.50 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998601 TM048	22/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH304ES03 1.50 - 1.50 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998844 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP307ES1 0.40 - 0.50 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998627 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP307ES2 0.90 - 1.00 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998642 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP307ES3 1.50 - 1.60 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998653 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP307ES5 2.50 - 2.60 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998663 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP307ES6 3.40 - 3.50 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998679 TM048	22/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP308ES1 0.50 - 0.60 SOLID 07/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998993 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP308ES2 1.00 - 1.10 SOLID 07/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22999005 TM048	20/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP308ES4 1.90 - 2.00 SOLID 07/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22999014 TM048	20/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP308ES6 2.80 - 2.90 SOLID 07/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22999020 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP309ES1 0.50 - 0.60 SOLID 07/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998964 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP309ES2 0.90 - 1.00 SOLID 07/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998975 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP309ES3 1.90 - 2.00 SOLID 07/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998987 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP316ES1 0.40 - 0.50 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998691 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP316ES2 0.80 - 1.00 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998699 TM048	20/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP316ES3 1.50 - 1.60 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998711 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP317ES1 0.40 - 0.50 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998720 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP317ES2 1.40 - 1.50 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998734 TM048	22/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP317ES3 1.90 - 2.00 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998746 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP317ES4 3.10 - 3.20 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998758 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP321ES1 0.40 - 0.50 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998904 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP321ES2 0.90 - 1.00 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998912 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP321ES3 1.60 - 1.70 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998921 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP321ES5 2.00 - 2.10 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998932 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP321ES7 3.00 - 3.10 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998940 TM048	22/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 201009-71 **Client Reference:** 2020WW102 **Report Number:** 579785
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP322ES2 0.60 - 0.70 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998772 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP322ES3 1.00 - 1.10 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998778 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP322ES4 1.60 - 1.70 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998793 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP322ES7 2.70 - 2.80 SOLID 05/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998807 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP323ES1 0.40 - 0.50 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998818 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP323ES2 1.40 - 1.50 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998830 TM048	20/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP323ES4 2.00 - 2.10 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998852 TM048	27/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP323ES6 2.50 - 2.60 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998870 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP324ES1 0.50 - 0.60 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998877 TM048	22/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP324ES2 1.10 - 1.20 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998887 TM048	22/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP324ES3 2.00 - 2.10 SOLID 06/10/2020 00:00:00 09/10/2020 11:07:00 201009-71 22998898 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.102	**Natural Moisture Content (%)**	13.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88.2
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998601
Sampled Date	06-Oct-2020
Customer Sample Ref.	BH304 ES01
Depth (m)	0.50 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00155	<0.0005	0.0155	<0.005	-	-	-
Barium	0.0161	<0.0002	0.161	<0.002	-	-	-
Cadmium	0.000803	<0.00008	0.00803	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00108	<0.0003	0.0108	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00497	<0.0004	0.0497	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.013	<0.001	0.13	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	116	<2	1160	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	199	<5	1990	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.19
Conductivity (µS/cm)	257.00
Temperature (°C)	20.50
Volume Leachant (Litres)	0.888

Mcerts Certification does not apply to leachates

14/12/2020 14:32:43

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.096	**Natural Moisture Content (%)**	6.26
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.1
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998627
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP307 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	5.58	<3	55.8	<30	-	-	-
Fluoride	0.555	<0.5	5.55	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00261	<0.001	0.0261	<0.01	-	-	-
Arsenic	0.0064	<0.0005	0.064	<0.005	-	-	-
Barium	0.0149	<0.0002	0.149	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00438	<0.0003	0.0438	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00807	<0.003	0.0807	<0.03	-	-	-
Nickel	0.000966	<0.0004	0.00966	<0.004	-	-	-
Selenium	0.00131	<0.001	0.0131	<0.01	-	-	-
Zinc	0.00293	<0.001	0.0293	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	206	<2	2060	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	369	<5	3690	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	8.33
Conductivity (µS/cm)	480.00
Temperature (°C)	18.90
Volume Leachant (Litres)	0.894

Mcerts Certification does not apply to leachates

14/12/2020 14:32:43

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.108	**Natural Moisture Content (%)**	20.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.1
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998642
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP307 ES2
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11.2	<3	112	<30	-	-	-
Fluoride	0.705	<0.5	7.05	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0012	<0.0005	0.012	<0.005	-	-	-
Barium	0.237	<0.0002	2.37	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00774	<0.0003	0.0774	<0.003	-	-	-
Lead	0.000216	<0.0002	0.00216	<0.002	-	-	-
Molybdenum	0.00432	<0.003	0.0432	<0.03	-	-	-
Nickel	0.000509	<0.0004	0.00509	<0.004	-	-	-
Selenium	0.00103	<0.001	0.0103	<0.01	-	-	-
Zinc	0.0265	<0.001	0.265	<0.01	-	-	-
Chloride	7.6	<2	76	<20	-	-	-
Sulphate (soluble)	147	<2	1470	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	393	<5	3930	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	7.99
Conductivity (µS/cm)	519.00
Temperature (°C)	18.00
Volume Leachant (Litres)	0.882

Mcerts Certification does not apply to leachates

14/12/2020 14:32:43

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.116	**Natural Moisture Content (%)**	28.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77.8
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998653
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP307 ES3
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	14.6	<3	146	<30	-	-	-
Fluoride	0.759	<0.5	7.59	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00121	<0.0005	0.0121	<0.005	-	-	-
Barium	0.228	<0.0002	2.28	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0055	<0.0003	0.055	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00705	<0.003	0.0705	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.016	<0.001	0.16	<0.01	-	-	-
Chloride	12.3	<2	123	<20	-	-	-
Sulphate (soluble)	132	<2	1320	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	448	<5	4480	<50	-	-	-

Leach Test Information

Date Prepared	19-Oct-2020
pH (pH Units)	8.10
Conductivity (µS/cm)	573.00
Temperature (°C)	18.70
Volume Leachant (Litres)	0.875

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.133	**Natural Moisture Content (%)**	47.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	67.8
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998663
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP307 ES5
Depth (m)	2.50 - 2.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	69.6	<9	696	<90	-	-	-
Fluoride	0.881	<0.5	8.81	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000164	<0.00001	0.000164	<0.0001	-	-	-
Antimony	0.00174	<0.001	0.0174	<0.01	-	-	-
Arsenic	0.0463	<0.0005	0.463	<0.005	-	-	-
Barium	0.673	<0.0002	6.73	<0.002	-	-	-
Cadmium	0.000267	<0.00008	0.00267	<0.0008	-	-	-
Chromium	0.00597	<0.001	0.0597	<0.01	-	-	-
Copper	0.0153	<0.0003	0.153	<0.003	-	-	-
Lead	0.0612	<0.0002	0.612	<0.002	-	-	-
Molybdenum	0.00903	<0.003	0.0903	<0.03	-	-	-
Nickel	0.0059	<0.0004	0.059	<0.004	-	-	-
Selenium	0.00311	<0.001	0.0311	<0.01	-	-	-
Zinc	0.524	<0.001	5.24	<0.01	-	-	-
Chloride	18.5	<10	185	<100	-	-	-
Sulphate (soluble)	<10	<10	<100	<100	-	-	-
Cresols by HPLC (W)	<0.03	<0.03	<0.3	<0.3	-	-	-
Phenol by HPLC (W)	<0.01	<0.01	<0.1	<0.1	-	-	-
Total Monohydric Phenols (W)	<0.08	<0.08	<0.8	<0.8	-	-	-
Xylenols by HPLC (W)	<0.04	<0.04	<0.4	<0.4	-	-	-
Total Dissolved Solids	175	<5	1750	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	7.56
Conductivity (µS/cm)	209.00
Temperature (°C)	15.80
Volume Leachant (Litres)	0.858

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.164	**Natural Moisture Content (%)**	82.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	54.8
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998679
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP307 ES6
Depth (m)	3.40 - 3.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	13.2	<3	132	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00104	<0.001	0.0104	<0.01	-	-	-
Arsenic	0.0332	<0.0005	0.332	<0.005	-	-	-
Barium	0.00879	<0.0002	0.0879	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00101	<0.001	0.0101	<0.01	-	-	-
Copper	0.00818	<0.0003	0.0818	<0.003	-	-	-
Lead	0.00112	<0.0002	0.0112	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00107	<0.0004	0.0107	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00943	<0.001	0.0943	<0.01	-	-	-
Chloride	16.5	<2	165	<20	-	-	-
Sulphate (soluble)	14.5	<2	145	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	88.5	<5	885	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.66
Conductivity (µS/cm)	116.00
Temperature (°C)	20.60
Volume Leachant (Litres)	0.826

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.103	**Natural Moisture Content (%)**	13.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998691
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP316 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000593	<0.0005	0.00593	<0.005	-	-	-
Barium	0.176	<0.0002	1.76	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0129	<0.001	0.129	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	2.1	<2	21	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	27.7	<5	277	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	8.04
Conductivity (µS/cm)	30.80
Temperature (°C)	18.60
Volume Leachant (Litres)	0.888

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.107	**Natural Moisture Content (%)**	19.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.7
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998699
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP316 ES2
Depth (m)	0.80 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00118	<0.0005	0.0118	<0.005	-	-	-
Barium	0.0313	<0.0002	0.313	<0.002	-	-	-
Cadmium	0.000998	<0.00008	0.00998	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.105	<0.0003	1.05	<0.003	-	-	-
Lead	0.00063	<0.0002	0.0063	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00834	<0.0004	0.0834	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.273	<0.001	2.73	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	31.7	<2	317	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	62.7	<5	627	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	6.15
Conductivity (µS/cm)	80.60
Temperature (°C)	19.70
Volume Leachant (Litres)	0.883

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.183	**Natural Moisture Content (%)**	105
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	48.8
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998711
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP316 ES3
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	17.3	<3	173	<30	-	-	-
Fluoride	3.81	<1	38.1	<10	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0139	<0.0005	0.139	<0.005	-	-	-
Barium	0.252	<0.0002	2.52	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00148	<0.0003	0.0148	<0.003	-	-	-
Lead	0.000441	<0.0002	0.00441	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00966	<0.0004	0.0966	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.66	<0.001	6.6	<0.01	-	-	-
Chloride	3.9	<2	39	<20	-	-	-
Sulphate (soluble)	161	<2	1610	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	286	<5	2860	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	6.09
Conductivity (µS/cm)	377.00
Temperature (°C)	18.20
Volume Leachant (Litres)	0.806

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.096	**Natural Moisture Content (%)**	6.52
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	93.9
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998720
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP317 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0276	<0.0002	0.276	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0014	<0.0003	0.014	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00716	<0.003	0.0716	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00323	<0.001	0.0323	<0.01	-	-	-
Chloride	2.2	<2	22	<20	-	-	-
Sulphate (soluble)	130	<2	1300	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	232	<5	2320	<50	-	-	-

Leach Test Information

Date Prepared	19-Oct-2020
pH (pH Units)	7.92
Conductivity (µS/cm)	293.00
Temperature (°C)	18.80
Volume Leachant (Litres)	0.894

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.101	**Natural Moisture Content (%)**	12.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88.6
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998734
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP317 ES2
Depth (m)	1.40 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.24	<3	32.4	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000957	<0.0005	0.00957	<0.005	-	-	-
Barium	0.00315	<0.0002	0.0315	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000689	<0.0003	0.00689	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00154	<0.001	0.0154	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	4.2	<2	42	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	31.5	<5	315	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	7.56
Conductivity (µS/cm)	37.00
Temperature (°C)	21.40
Volume Leachant (Litres)	0.889

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.145	**Natural Moisture Content (%)**	61.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	61.9
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998746
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP317 ES3
Depth (m)	1.90 - 2.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	25.1	<3	251	<30	-	-	-
Fluoride	1.18	<0.5	11.8	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000122	<0.00001	0.000122	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0383	<0.0005	0.383	<0.005	-	-	-
Barium	0.297	<0.0002	2.97	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00224	<0.001	0.0224	<0.01	-	-	-
Copper	0.0223	<0.0003	0.223	<0.003	-	-	-
Lead	0.0185	<0.0002	0.185	<0.002	-	-	-
Molybdenum	0.00322	<0.003	0.0322	<0.03	-	-	-
Nickel	0.0025	<0.0004	0.025	<0.004	-	-	-
Selenium	0.00119	<0.001	0.0119	<0.01	-	-	-
Zinc	0.22	<0.001	2.2	<0.01	-	-	-
Chloride	8.7	<2	87	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	80.4	<5	804	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	7.20
Conductivity (µS/cm)	98.20
Temperature (°C)	16.90
Volume Leachant (Litres)	0.845

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.130	**Natural Moisture Content (%)**	45.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	68.6
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998758
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP317 ES4
Depth (m)	3.10 - 3.20

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	5.19	<3	51.9	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0595	<0.0005	0.595	<0.005	-	-	-
Barium	0.172	<0.0002	1.72	<0.002	-	-	-
Cadmium	0.000109	<0.00008	0.00109	<0.0008	-	-	-
Chromium	0.00116	<0.001	0.0116	<0.01	-	-	-
Copper	0.00303	<0.0003	0.0303	<0.003	-	-	-
Lead	0.00463	<0.0002	0.0463	<0.002	-	-	-
Molybdenum	0.00696	<0.003	0.0696	<0.03	-	-	-
Nickel	0.000873	<0.0004	0.00873	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.105	<0.001	1.05	<0.01	-	-	-
Chloride	3.1	<2	31	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	21.1	<5	211	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	7.48
Conductivity (µS/cm)	23.80
Temperature (°C)	17.10
Volume Leachant (Litres)	0.860

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.130	**Natural Moisture Content (%)**	45.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	68.7
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998772
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP322 ES2
Depth (m)	0.60 - 0.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	33.7	<3	337	<30	-	-	-
Fluoride	2.58	<0.5	25.8	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00145	<0.001	0.0145	<0.01	-	-	-
Arsenic	0.00854	<0.0005	0.0854	<0.005	-	-	-
Barium	0.015	<0.0002	0.15	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00118	<0.0003	0.0118	<0.003	-	-	-
Lead	0.000341	<0.0002	0.00341	<0.002	-	-	-
Molybdenum	0.0277	<0.003	0.277	<0.03	-	-	-
Nickel	0.00352	<0.0004	0.0352	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00463	<0.001	0.0463	<0.01	-	-	-
Chloride	34.4	<2	344	<20	-	-	-
Sulphate (soluble)	317	<2	3170	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	567	<5	5670	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	7.30
Conductivity (µS/cm)	747.00
Temperature (°C)	18.40
Volume Leachant (Litres)	0.860

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.143	**Natural Moisture Content (%)**	57.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	63.5
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998778
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP322 ES3
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	77	<3	770	<30	-	-	-
Fluoride	2.87	<0.5	28.7	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000134	<0.00001	0.000134	<0.0001	-	-	-
Antimony	0.00302	<0.001	0.0302	<0.01	-	-	-
Arsenic	0.0163	<0.0005	0.163	<0.005	-	-	-
Barium	0.0288	<0.0002	0.288	<0.002	-	-	-
Cadmium	0.000108	<0.00008	0.00108	<0.0008	-	-	-
Chromium	0.00446	<0.001	0.0446	<0.01	-	-	-
Copper	0.0041	<0.0003	0.041	<0.003	-	-	-
Lead	0.0096	<0.0002	0.096	<0.002	-	-	-
Molybdenum	0.0599	<0.003	0.599	<0.03	-	-	-
Nickel	0.00708	<0.0004	0.0708	<0.004	-	-	-
Selenium	0.00103	<0.001	0.0103	<0.01	-	-	-
Zinc	0.00882	<0.001	0.0882	<0.01	-	-	-
Chloride	122	<4	1220	<40	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	503	<5	5030	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	8.08
Conductivity (µS/cm)	653.00
Temperature (°C)	17.50
Volume Leachant (Litres)	0.847

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.140	**Natural Moisture Content (%)**	55.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	64.4
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998793
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP322 ES4
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	58.1	<9	581	<90	-	-	-
Fluoride	0.565	<0.5	5.65	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00364	<0.001	0.0364	<0.01	-	-	-
Arsenic	0.0317	<0.0005	0.317	<0.005	-	-	-
Barium	0.365	<0.0002	3.65	<0.002	-	-	-
Cadmium	0.000405	<0.00008	0.00405	<0.0008	-	-	-
Chromium	0.00622	<0.001	0.0622	<0.01	-	-	-
Copper	0.125	<0.0003	1.25	<0.003	-	-	-
Lead	0.0334	<0.0002	0.334	<0.002	-	-	-
Molybdenum	0.00999	<0.003	0.0999	<0.03	-	-	-
Nickel	0.0061	<0.0004	0.061	<0.004	-	-	-
Selenium	0.00392	<0.001	0.0392	<0.01	-	-	-
Zinc	0.309	<0.001	3.09	<0.01	-	-	-
Chloride	25.3	<10	253	<100	-	-	-
Sulphate (soluble)	<10	<10	<100	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	155	<5	1550	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	6.55
Conductivity (µS/cm)	185.00
Temperature (°C)	16.90
Volume Leachant (Litres)	0.849

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	18.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	84.6
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998807
Sampled Date	05-Oct-2020
Customer Sample Ref.	TP322 ES7
Depth (m)	2.70 - 2.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.13	<3	41.3	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00447	<0.001	0.0447	<0.01	-	-	-
Arsenic	0.0223	<0.0005	0.223	<0.005	-	-	-
Barium	0.00658	<0.0002	0.0658	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00119	<0.001	0.0119	<0.01	-	-	-
Copper	0.00533	<0.0003	0.0533	<0.003	-	-	-
Lead	0.0017	<0.0002	0.017	<0.002	-	-	-
Molybdenum	0.00505	<0.003	0.0505	<0.03	-	-	-
Nickel	0.00219	<0.0004	0.0219	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00651	<0.001	0.0651	<0.01	-	-	-
Chloride	3.8	<2	38	<20	-	-	-
Sulphate (soluble)	11.9	<2	119	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	40.6	<5	406	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	7.94
Conductivity (µS/cm)	49.70
Temperature (°C)	21.00
Volume Leachant (Litres)	0.884

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.098	**Natural Moisture Content (%)**	9.27
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	91.5
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998818
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP323 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0221	<0.0002	0.221	<0.002	-	-	-
Cadmium	0.000353	<0.00008	0.00353	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00556	<0.0004	0.0556	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0178	<0.001	0.178	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	52.1	<2	521	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	196	<5	1960	<50	-	-	-

Leach Test Information

Date Prepared	19-Oct-2020
pH (pH Units)	7.76
Conductivity (µS/cm)	118.00
Temperature (°C)	18.00
Volume Leachant (Litres)	0.892

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.101	**Natural Moisture Content (%)**	11.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	89.4
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998830
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP323 ES2
Depth (m)	1.40 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0081	<0.0005	0.081	<0.005	-	-	-
Barium	0.204	<0.0002	2.04	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00121	<0.0003	0.0121	<0.003	-	-	-
Lead	0.000559	<0.0002	0.00559	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00132	<0.0004	0.0132	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0733	<0.001	0.733	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	14.2	<2	142	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	57.4	<5	574	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	6.79
Conductivity (µS/cm)	73.40
Temperature (°C)	18.40
Volume Leachant (Litres)	0.889

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.102	**Natural Moisture Content (%)**	13.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88.3
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998844
Sampled Date	06-Oct-2020
Customer Sample Ref.	BH304 ES03
Depth (m)	1.50 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000981	<0.0005	0.00981	<0.005	-	-	-
Barium	0.00612	<0.0002	0.0612	<0.002	-	-	-
Cadmium	0.00017	<0.00008	0.0017	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000455	<0.0003	0.00455	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00185	<0.0004	0.0185	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0102	<0.001	0.102	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	32.1	<2	321	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	65.9	<5	659	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.39
Conductivity (µS/cm)	81.50
Temperature (°C)	20.50
Volume Leachant (Litres)	0.888

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.164	**Natural Moisture Content (%)**	82.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	54.8
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998852
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP323 ES4
Depth (m)	2.00 - 2.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11.4	<3	114	<30	-	-	-
Dissolved Organic Carbon	11.4	<3	114	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00102	<0.001	0.0102	<0.01	-	-	-
Arsenic	0.0322	<0.0005	0.322	<0.005	-	-	-
Arsenic	0.00888	<0.0005	0.0888	<0.005	-	-	-
Barium	0.32	<0.0002	3.2	<0.002	-	-	-
Cadmium	0.0000965	<0.00008	0.000965	<0.0008	-	-	-
Cadmium	0.0000965	<0.00008	0.000965	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0162	<0.0003	0.162	<0.003	-	-	-
Copper	0.0162	<0.0003	0.162	<0.003	-	-	-
Lead	0.00253	<0.0002	0.0253	<0.002	-	-	-
Lead	0.00253	<0.0002	0.0253	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.0034	<0.0004	0.034	<0.004	-	-	-
Nickel	0.0034	<0.0004	0.034	<0.004	-	-	-
Chloride	3.3	<2	33	<20	-	-	-
Chloride	3.3	<2	33	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	232	<5	2320	<50	-	-	-
Total Dissolved Solids	232	<5	2320	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.41
Conductivity (µS/cm)	96.20
Temperature (°C)	21.20
Volume Leachant (Litres)	0.826

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.164	**Natural Moisture Content (%)**	82.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	54.8
Particle Size <4mm	>95%		

Case								
SDG	201009-71							
Lab Sample Number(s)	22998852							
Sampled Date	06-Oct-2020							
Customer Sample Ref.	TP323 ES4							
Depth (m)	2.00 - 2.10							

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.226	<0.001	2.26	<0.01	-	-	-
Zinc	0.226	<0.001	2.26	<0.01	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.41
Conductivity (µS/cm)	96.20
Temperature (°C)	21.20
Volume Leachant (Litres)	0.826

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.098	**Natural Moisture Content (%)**	9.07
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	91.7
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998870
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP323 ES6
Depth (m)	2.50 - 2.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00193	<0.001	0.0193	<0.01	-	-	-
Arsenic	0.00817	<0.0005	0.0817	<0.005	-	-	-
Barium	0.00346	<0.0002	0.0346	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00454	<0.0003	0.0454	<0.003	-	-	-
Lead	0.0012	<0.0002	0.012	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000577	<0.0004	0.00577	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00671	<0.001	0.0671	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	16.7	<5	167	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.68
Conductivity (µS/cm)	15.90
Temperature (°C)	20.60
Volume Leachant (Litres)	0.892

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	10.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.4
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998877
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP324 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0323	<0.0005	0.323	<0.005	-	-	-
Barium	0.00435	<0.0002	0.0435	<0.002	-	-	-
Cadmium	0.00117	<0.00008	0.0117	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00184	<0.0003	0.0184	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.0151	<0.003	0.151	<0.03	-	-	-
Nickel	0.000985	<0.0004	0.00985	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0393	<0.001	0.393	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	64.2	<2	642	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	122	<5	1220	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	9.22
Conductivity (µS/cm)	157.00
Temperature (°C)	20.10
Volume Leachant (Litres)	0.890

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.132	**Natural Moisture Content (%)**	47.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	67.7
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998887
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP324 ES2
Depth (m)	1.10 - 1.20

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	1.04	<0.5	10.4	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00152	<0.001	0.0152	<0.01	-	-	-
Arsenic	0.229	<0.00201	2.29	<0.0201	-	-	-
Barium	0.00297	<0.0002	0.0297	<0.002	-	-	-
Cadmium	0.0226	<0.00008	0.226	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	1.11	<0.0012	11.1	<0.012	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.0172	<0.003	0.172	<0.03	-	-	-
Nickel	0.0101	<0.0004	0.101	<0.004	-	-	-
Selenium	0.00169	<0.001	0.0169	<0.01	-	-	-
Zinc	5.47	<0.00401	54.7	<0.0401	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	128	<2	1280	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	204	<5	2040	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	6.48
Conductivity (µS/cm)	261.00
Temperature (°C)	20.20
Volume Leachant (Litres)	0.858

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.130	**Natural Moisture Content (%)**	45.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	68.8
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998898
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP324 ES3
Depth (m)	2.00 - 2.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	9.4	<3	94	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0142	<0.0005	0.142	<0.005	-	-	-
Barium	0.0408	<0.0002	0.408	<0.002	-	-	-
Cadmium	0.000557	<0.00008	0.00557	<0.0008	-	-	-
Chromium	0.00104	<0.001	0.0104	<0.01	-	-	-
Copper	0.0148	<0.0003	0.148	<0.003	-	-	-
Lead	0.00249	<0.0002	0.0249	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00184	<0.0004	0.0184	<0.004	-	-	-
Selenium	0.00194	<0.001	0.0194	<0.01	-	-	-
Zinc	4.33	<0.001	43.3	<0.01	-	-	-
Chloride	5	<2	50	<20	-	-	-
Sulphate (soluble)	30.1	<2	301	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	74.3	<5	743	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	6.07
Conductivity (µS/cm)	93.30
Temperature (°C)	20.80
Volume Leachant (Litres)	0.860

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Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.097	**Natural Moisture Content (%)**	8.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	92
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998904
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP321 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000923	<0.0005	0.00923	<0.005	-	-	-
Barium	0.00241	<0.0002	0.0241	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00624	<0.003	0.0624	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00157	<0.001	0.0157	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	63.2	<5	632	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	7.16
Conductivity (µS/cm)	66.80
Temperature (°C)	18.50
Volume Leachant (Litres)	0.892

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.101	**Natural Moisture Content (%)**	12.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	89
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998912
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP321 ES2
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.09	<3	30.9	<30	-	-	-
Fluoride	1.15	<0.5	11.5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000908	<0.0005	0.00908	<0.005	-	-	-
Barium	0.0229	<0.0002	0.229	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00106	<0.0003	0.0106	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00309	<0.001	0.0309	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	52.1	<2	521	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	158	<5	1580	<50	-	-	-

Leach Test Information

Date Prepared	19-Oct-2020
pH (pH Units)	7.88
Conductivity (µS/cm)	204.00
Temperature (°C)	18.50
Volume Leachant (Litres)	0.889

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.136	**Natural Moisture Content (%)**	50.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	66.3
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998921
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP321 ES3
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	39.1	<3	391	<30	-	-	-
Fluoride	1.55	<0.5	15.5	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000246	<0.00001	0.000246	<0.0001	-	-	-
Antimony	0.00159	<0.001	0.0159	<0.01	-	-	-
Arsenic	0.0573	<0.0005	0.573	<0.005	-	-	-
Barium	0.359	<0.0002	3.59	<0.002	-	-	-
Cadmium	0.000122	<0.00008	0.00122	<0.0008	-	-	-
Chromium	0.00411	<0.001	0.0411	<0.01	-	-	-
Copper	0.0634	<0.0003	0.634	<0.003	-	-	-
Lead	0.054	<0.0002	0.54	<0.002	-	-	-
Molybdenum	0.0063	<0.003	0.063	<0.03	-	-	-
Nickel	0.00372	<0.0004	0.0372	<0.004	-	-	-
Selenium	0.00254	<0.001	0.0254	<0.01	-	-	-
Zinc	0.284	<0.001	2.84	<0.01	-	-	-
Chloride	10.9	<2	109	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	136	<5	1360	<50	-	-	-

Leach Test Information

Date Prepared	18-Oct-2020
pH (pH Units)	7.36
Conductivity (µS/cm)	165.00
Temperature (°C)	17.80
Volume Leachant (Litres)	0.854

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.115	**Natural Moisture Content (%)**	28.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77.8
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998932
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP321 ES5
Depth (m)	2.00 - 2.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11.6	<3	116	<30	-	-	-
Fluoride	0.687	<0.5	6.87	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0461	<0.0005	0.461	<0.005	-	-	-
Barium	0.2	<0.0002	2	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00195	<0.001	0.0195	<0.01	-	-	-
Copper	0.00788	<0.0003	0.0788	<0.003	-	-	-
Lead	0.00853	<0.0002	0.0853	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.0011	<0.0004	0.011	<0.004	-	-	-
Selenium	0.00122	<0.001	0.0122	<0.01	-	-	-
Zinc	0.0858	<0.001	0.858	<0.01	-	-	-
Chloride	6.4	<2	64	<20	-	-	-
Sulphate (soluble)	4.2	<2	42	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	97	<5	970	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	7.60
Conductivity (µS/cm)	121.00
Temperature (°C)	20.70
Volume Leachant (Litres)	0.875

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.120	**Natural Moisture Content (%)**	32.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	75.4
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998940
Sampled Date	06-Oct-2020
Customer Sample Ref.	TP321 ES7
Depth (m)	3.00 - 3.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	5.09	<3	50.9	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00167	<0.001	0.0167	<0.01	-	-	-
Arsenic	0.0348	<0.0005	0.348	<0.005	-	-	-
Barium	0.00357	<0.0002	0.0357	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00126	<0.001	0.0126	<0.01	-	-	-
Copper	0.00646	<0.0003	0.0646	<0.003	-	-	-
Lead	0.00529	<0.0002	0.0529	<0.002	-	-	-
Molybdenum	0.00847	<0.003	0.0847	<0.03	-	-	-
Nickel	0.000753	<0.0004	0.00753	<0.004	-	-	-
Selenium	0.0015	<0.001	0.015	<0.01	-	-	-
Zinc	0.00841	<0.001	0.0841	<0.01	-	-	-
Chloride	5.4	<2	54	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	27.8	<5	278	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.61
Conductivity (µS/cm)	32.10
Temperature (°C)	20.80
Volume Leachant (Litres)	0.870

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.124	**Natural Moisture Content (%)**	37.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	72.9
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998964
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP309 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000137	<0.00001	0.000137	<0.0001	-	-	-
Antimony	0.00138	<0.001	0.0138	<0.01	-	-	-
Arsenic	0.207	<0.00173	2.07	<0.0173	-	-	-
Barium	0.00497	<0.0002	0.0497	<0.002	-	-	-
Cadmium	0.00426	<0.00008	0.0426	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.311	<0.0003	3.11	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.0132	<0.003	0.132	<0.03	-	-	-
Nickel	0.00155	<0.0004	0.0155	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.571	<0.001	5.71	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	33.1	<2	331	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	64.1	<5	641	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.21
Conductivity (µS/cm)	79.10
Temperature (°C)	20.90
Volume Leachant (Litres)	0.867

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.103	**Natural Moisture Content (%)**	13.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88.2
Particle Size <4mm	>95%		

Case				
SDG	201009-71			
Lab Sample Number(s)	22998975			
Sampled Date	07-Oct-2020			
Customer Sample Ref.	TP309 ES2			
Depth (m)	0.90 - 1.00			

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00141	<0.0005	0.0141	<0.005	-	-	-
Barium	0.00395	<0.0002	0.0395	<0.002	-	-	-
Cadmium	0.0000988	<0.00008	0.000988	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000301	<0.0003	0.00301	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00161	<0.001	0.0161	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	17.4	<2	174	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	47	<5	470	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.56
Conductivity (µS/cm)	55.90
Temperature (°C)	20.70
Volume Leachant (Litres)	0.888

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.166	**Natural Moisture Content (%)**	85.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	54
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998987
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP309 ES3
Depth (m)	1.90 - 2.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11.5	<3	115	<30	-	-	-
Fluoride	2.41	<0.5	24.1	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00805	<0.0005	0.0805	<0.005	-	-	-
Barium	0.263	<0.0002	2.63	<0.002	-	-	-
Cadmium	0.00172	<0.00008	0.0172	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00541	<0.0003	0.0541	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00784	<0.0004	0.0784	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	14.9	<0.00531	149	<0.0531	-	-	-
Chloride	8.7	<2	87	<20	-	-	-
Sulphate (soluble)	107	<2	1070	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	207	<5	2070	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	6.29
Conductivity (µS/cm)	259.00
Temperature (°C)	19.70
Volume Leachant (Litres)	0.823

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.104	**Natural Moisture Content (%)**	15
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	87
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22998993
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP308 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00318	<0.0002	0.0318	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	4.4	<2	44	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	19.5	<5	195	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	8.35
Conductivity (µS/cm)	20.50
Temperature (°C)	20.20
Volume Leachant (Litres)	0.887

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.102	**Natural Moisture Content (%)**	11.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	89.4
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22999005
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP308 ES2
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00604	<0.0002	0.0604	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000855	<0.0004	0.00855	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0029	<0.001	0.029	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	14.5	<2	145	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	36.8	<5	368	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	8.02
Conductivity (µS/cm)	44.30
Temperature (°C)	20.60
Volume Leachant (Litres)	0.889

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.145	**Natural Moisture Content (%)**	60.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	62.1
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22999014
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP308 ES4
Depth (m)	1.90 - 2.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	20.9	<3	209	<30	-	-	-
Fluoride	0.519	<0.5	5.19	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00136	<0.001	0.0136	<0.01	-	-	-
Arsenic	0.0418	<0.0005	0.418	<0.005	-	-	-
Barium	0.281	<0.0002	2.81	<0.002	-	-	-
Cadmium	0.000156	<0.00008	0.00156	<0.0008	-	-	-
Chromium	0.00207	<0.001	0.0207	<0.01	-	-	-
Copper	0.0557	<0.0003	0.557	<0.003	-	-	-
Lead	0.0303	<0.0002	0.303	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00212	<0.0004	0.0212	<0.004	-	-	-
Selenium	0.0013	<0.001	0.013	<0.01	-	-	-
Zinc	0.23	<0.001	2.3	<0.01	-	-	-
Chloride	3.4	<2	34	<20	-	-	-
Sulphate (soluble)	25.2	<2	252	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	82.1	<5	821	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	7.01
Conductivity (µS/cm)	100.00
Temperature (°C)	19.30
Volume Leachant (Litres)	0.845

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.115	**Natural Moisture Content (%)**	28
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78.1
Particle Size <4mm	>95%		

Case	
SDG	201009-71
Lab Sample Number(s)	22999020
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP308 ES6
Depth (m)	2.80 - 2.90

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.83	<3	48.3	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.0054	<0.001	0.054	<0.01	-	-	-
Arsenic	0.0134	<0.0005	0.134	<0.005	-	-	-
Barium	0.154	<0.0002	1.54	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00327	<0.0003	0.0327	<0.003	-	-	-
Lead	0.00135	<0.0002	0.0135	<0.002	-	-	-
Molybdenum	0.00565	<0.003	0.0565	<0.03	-	-	-
Nickel	0.00342	<0.0004	0.0342	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0906	<0.001	0.906	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	16.5	<2	165	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	41.1	<5	411	<50	-	-	-

Leach Test Information

Date Prepared	17-Oct-2020
pH (pH Units)	6.31
Conductivity (µS/cm)	51.00
Temperature (°C)	19.70
Volume Leachant (Litres)	0.875

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

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
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) 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
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
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
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
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	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

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

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	22998601	22998844	22998627	22998642	22998653	22998663	22998679	22998993	22999005	22999014
Customer Sample Ref.	BH304	BH304	TP307	TP307	TP307	TP307	TP307	TP308	TP308	TP308
AGS Ref.	ES01	ES03	ES1	ES2	ES3	ES5	ES6	ES1	ES2	ES4
Depth	0.50 - 0.50	1.50 - 1.50	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60	3.40 - 3.50	0.50 - 0.60	1.00 - 1.10	1.90 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Asbestos ID in Solid Samples	22-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020
CEN 10:1 Leachate (1 Stage)	17-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
CEN Readings	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Chromium III	22-Oct-2020	23-Oct-2020	22-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Coronene	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Dissolved Metals by ICP-MS	21-Oct-2020	21-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020
Dissolved Organic/Inorganic Carbon	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Easily Liberated Sulphide	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Fluoride	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020
GRO by GC-FID (S)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Hexavalent Chromium (s)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Loss on Ignition in soils	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	19-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Mercury Dissolved	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020
Metals in solid samples by OES	22-Oct-2020	23-Oct-2020	22-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Moisture at 105C	17-Oct-2020	17-Oct-2020	18-Oct-2020	18-Oct-2020	19-Oct-2020	18-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
PAH 16 & 17 Calc	23-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
PAH by GCMS	23-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
PCBs by GCMS	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
pH	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Phenols by HPLC (W)	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020
Sample description	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
Semi Volatile Organic Compounds	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Total Dissolved Solids	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Total Organic Carbon	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	23-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020
TPH CWG GC (S)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
VOC MS (S)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020		20-Oct-2020	20-Oct-2020	19-Oct-2020

Lab Sample No(s)	22999020	22998964	22998975	22998987	22998691	22998699	22998711	22998720	22998734	22998746
Customer Sample Ref.	TP308	TP309	TP309	TP309	TP316	TP316	TP316	TP317	TP317	TP317
AGS Ref.	ES6	ES1	ES2	ES3	ES1	ES2	ES3	ES1	ES2	ES3
Depth	2.80 - 2.90	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	0.40 - 0.50	0.80 - 1.00	1.50 - 1.60	0.40 - 0.50	1.40 - 1.50	1.90 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020	21-Oct-2020
Asbestos ID in Solid Samples	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020
CEN 10:1 Leachate (1 Stage)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020
CEN Readings	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020
Chromium III	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	23-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Coronene	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Dissolved Metals by ICP-MS	22-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020
Dissolved Organic/Inorganic Carbon	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020
Easily Liberated Sulphide	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Fluoride	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020
GRO by GC-FID (S)	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Hexavalent Chromium (s)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Loss on Ignition in soils	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Mercury Dissolved	20-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020
Metals in solid samples by OES	20-Oct-2020	23-Oct-2020	21-Oct-2020	23-Oct-2020	23-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Moisture at 105C	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	18-Oct-2020	17-Oct-2020	18-Oct-2020	19-Oct-2020	16-Oct-2020	18-Oct-2020
PAH 16 & 17 Calc	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
PAH by GCMS	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
PCBs by GCMS	21-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
pH	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Phenols by HPLC (W)	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020
Sample description	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
Semi Volatile Organic Compounds	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Total Dissolved Solids	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	19-Oct-2020	21-Oct-2020
Total Organic Carbon	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	22-Oct-2020
TPH CWG GC (S)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
VOC MS (S)	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	

Validated

CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Lab Sample No(s)	22998758	22998904	22998912	22998921	22998932	22998940	22998772	22998778	22998793	22998807
Customer Sample Ref.	TP317	TP321	TP321	TP321	TP321	TP321	TP322	TP322	TP322	TP322
AGS Ref.	ES4	ES1	ES2	ES3	ES5	ES7	ES2	ES3	ES4	ES7
Depth	3.10 - 3.20	0.40 - 0.50	0.90 - 1.00	1.60 - 1.70	2.00 - 2.10	3.00 - 3.10	0.60 - 0.70	1.00 - 1.10	1.60 - 1.70	2.70 - 2.80
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020
Asbestos ID in Solid Samples	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
CEN 10:1 Leachate (1 Stage)	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	17-Oct-2020
CEN Readings	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020
Chromium III	20-Oct-2020	22-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Coronene	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Dissolved Metals by ICP-MS	22-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020
Dissolved Organic/Inorganic Carbon	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
Easily Liberated Sulphide	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Fluoride	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
GRO by GC-FID (S)	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Hexavalent Chromium (s)	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Loss on Ignition in soils	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Mercury Dissolved	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
Metals in solid samples by OES	20-Oct-2020	22-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Moisture at 105C	18-Oct-2020	18-Oct-2020	19-Oct-2020	18-Oct-2020	16-Oct-2020	17-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	16-Oct-2020
PAH 16 & 17 Calc	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	23-Oct-2020	24-Oct-2020	24-Oct-2020	21-Oct-2020	21-Oct-2020
PAH by GCMS	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	23-Oct-2020	24-Oct-2020	24-Oct-2020	21-Oct-2020	21-Oct-2020
PCBs by GCMS	21-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020
pH	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020
Phenols by HPLC (W)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
Sample description	17-Oct-2020	19-Oct-2020	17-Oct-2020	16-Oct-2020	17-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
Semi Volatile Organic Compounds	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Total Dissolved Solids	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020
Total Organic Carbon	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	20-Oct-2020	23-Oct-2020	22-Oct-2020	22-Oct-2020	20-Oct-2020	22-Oct-2020
TPH CWG GC (S)	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
VOC MS (S)	19-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020		19-Oct-2020

Lab Sample No(s)	22998818	22998830	22998852	22998870	22998877	22998887	22998898
Customer Sample Ref.	TP323	TP323	TP323	TP323	TP324	TP324	TP324
AGS Ref.	ES1	ES2	ES4	ES6	ES1	ES2	ES3
Depth	0.40 - 0.50	1.40 - 1.50	2.00 - 2.10	2.50 - 2.60	0.50 - 0.60	1.10 - 1.20	2.00 - 2.10
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	21-Oct-2020	21-Oct-2020	26-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Asbestos ID in Solid Samples		20-Oct-2020	27-Oct-2020	21-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020
CEN 10:1 Leachate (1 Stage)	19-Oct-2020	19-Oct-2020	24-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
CEN Readings	20-Oct-2020	20-Oct-2020	26-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020
Chromium III	21-Oct-2020	20-Oct-2020	28-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020
Coronene		19-Oct-2020	23-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate		20-Oct-2020	23-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Dissolved Metals by ICP-MS	22-Oct-2020	21-Oct-2020	29-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Dissolved Organic/Inorganic Carbon	21-Oct-2020	21-Oct-2020	29-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Easily Liberated Sulphide		19-Oct-2020	28-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)		20-Oct-2020	23-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Fluoride	21-Oct-2020	21-Oct-2020	27-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
GRO by GC-FID (S)		19-Oct-2020	24-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Hexavalent Chromium (s)		20-Oct-2020	28-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Loss on Ignition in soils		20-Oct-2020	26-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Mercury Dissolved	21-Oct-2020	21-Oct-2020	27-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Metals in solid samples by OES		20-Oct-2020	26-Oct-2020	20-Oct-2020	20-Oct-2020	23-Oct-2020	21-Oct-2020
Moisture at 105C		18-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
PAH 16 & 17 Calc	23-Oct-2020	21-Oct-2020	23-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
PAH by GCMS		21-Oct-2020	23-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
PCBs by GCMS		19-Oct-2020	23-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020	21-Oct-2020
pH		19-Oct-2020	27-Oct-2020	20-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Phenols by HPLC (W)	21-Oct-2020	21-Oct-2020	28-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020
Sample description	19-Oct-2020	17-Oct-2020	21-Oct-2020	16-Oct-2020	17-Oct-2020	17-Oct-2020	16-Oct-2020
Semi Volatile Organic Compounds		20-Oct-2020	26-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020
Total Dissolved Solids	21-Oct-2020	21-Oct-2020	29-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Total Organic Carbon		20-Oct-2020	28-Oct-2020	20-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020
TPH CWG GC (S)	21-Oct-2020	20-Oct-2020	23-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
VOC MS (S)		19-Oct-2020	25-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020

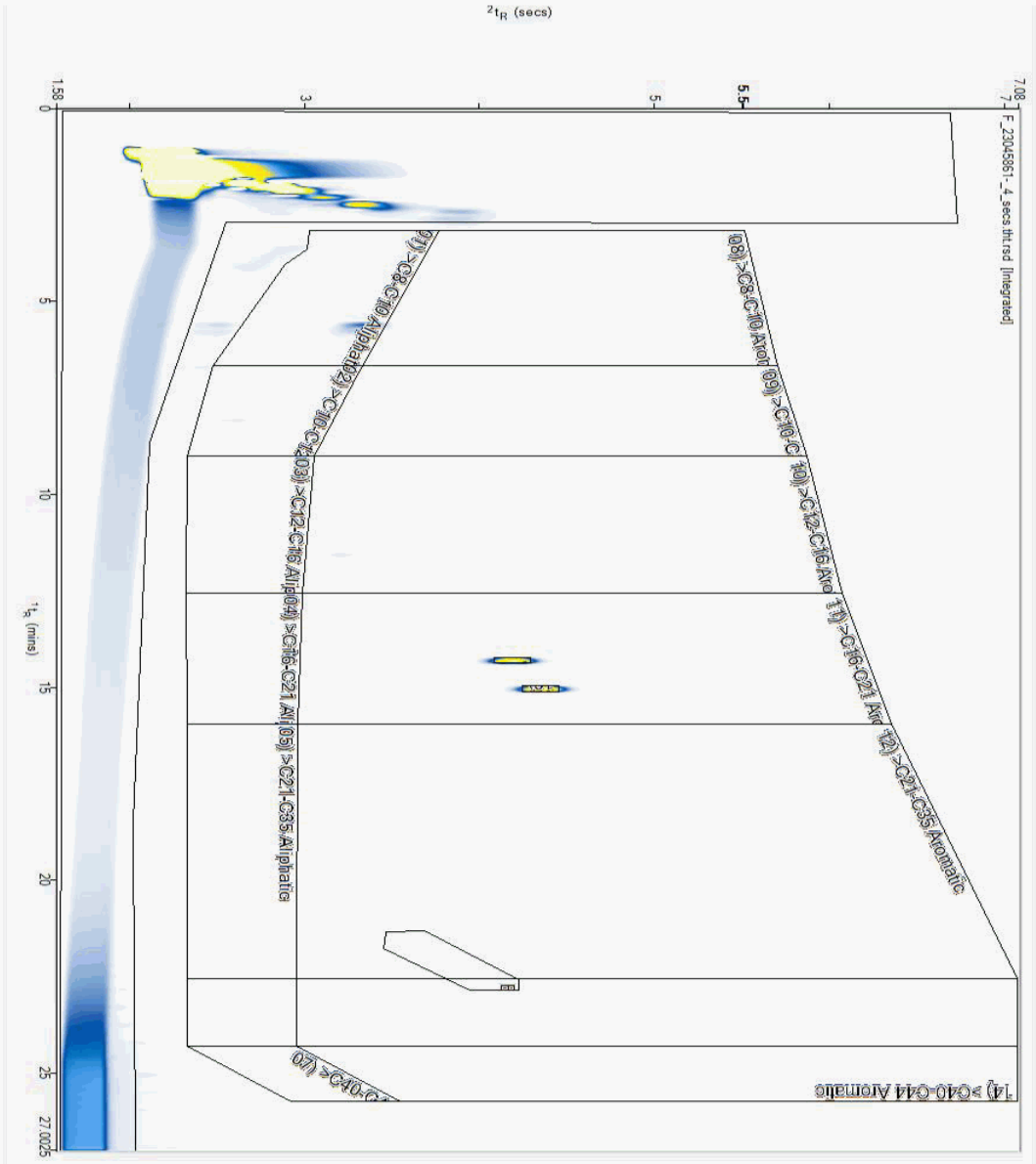
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23045861 **Depth :** 2.50 - 2.60
Sample ID : TP323

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23045861-_4_secs.tht
Date Acquired   :  19/10/20 11:09:04
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



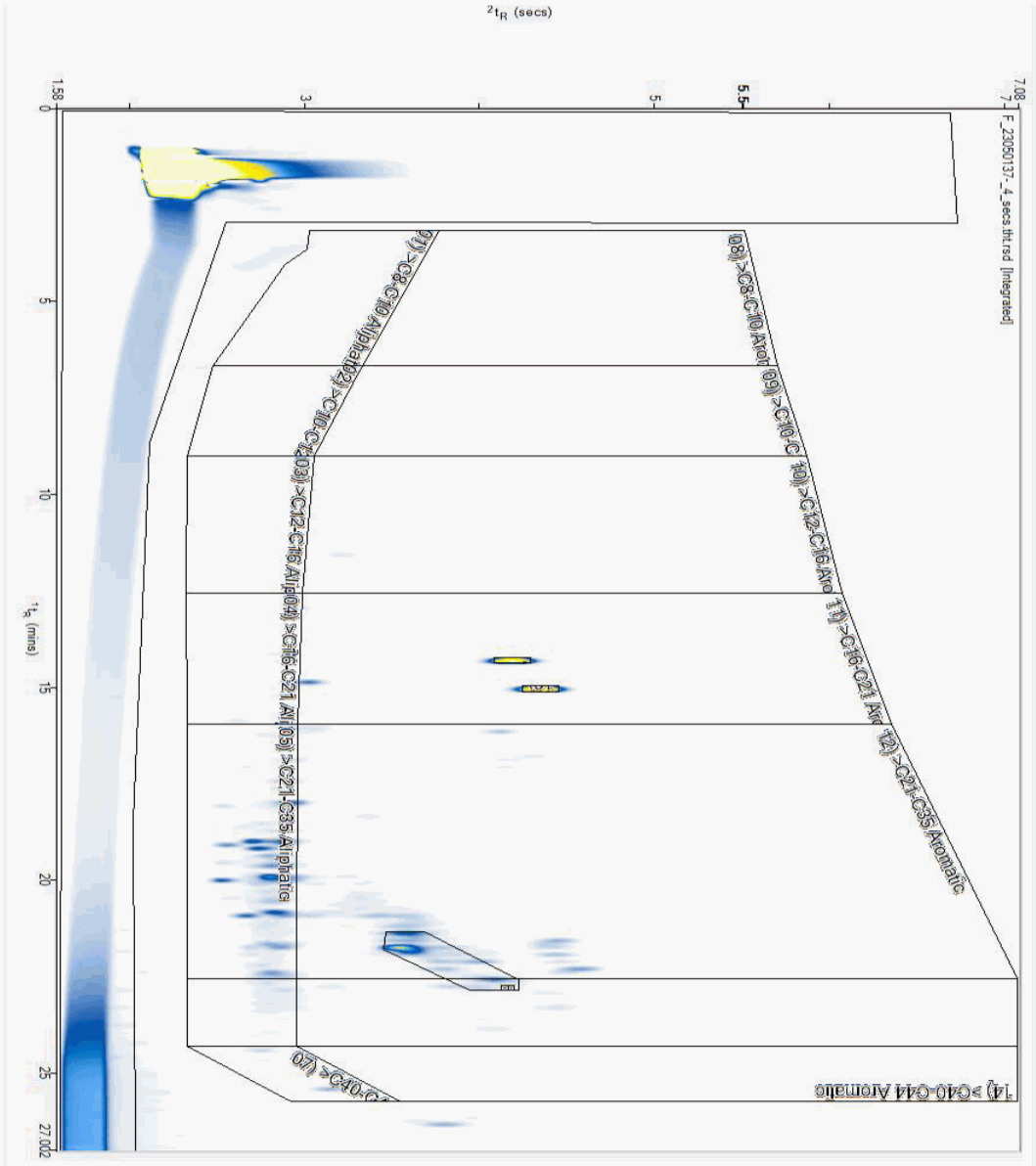
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23050137 **Depth :** 1.60 - 1.70
Sample ID : TP321

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23050137-_4_secs.tht
Date Acquired   :  20/10/20 12:11:48
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



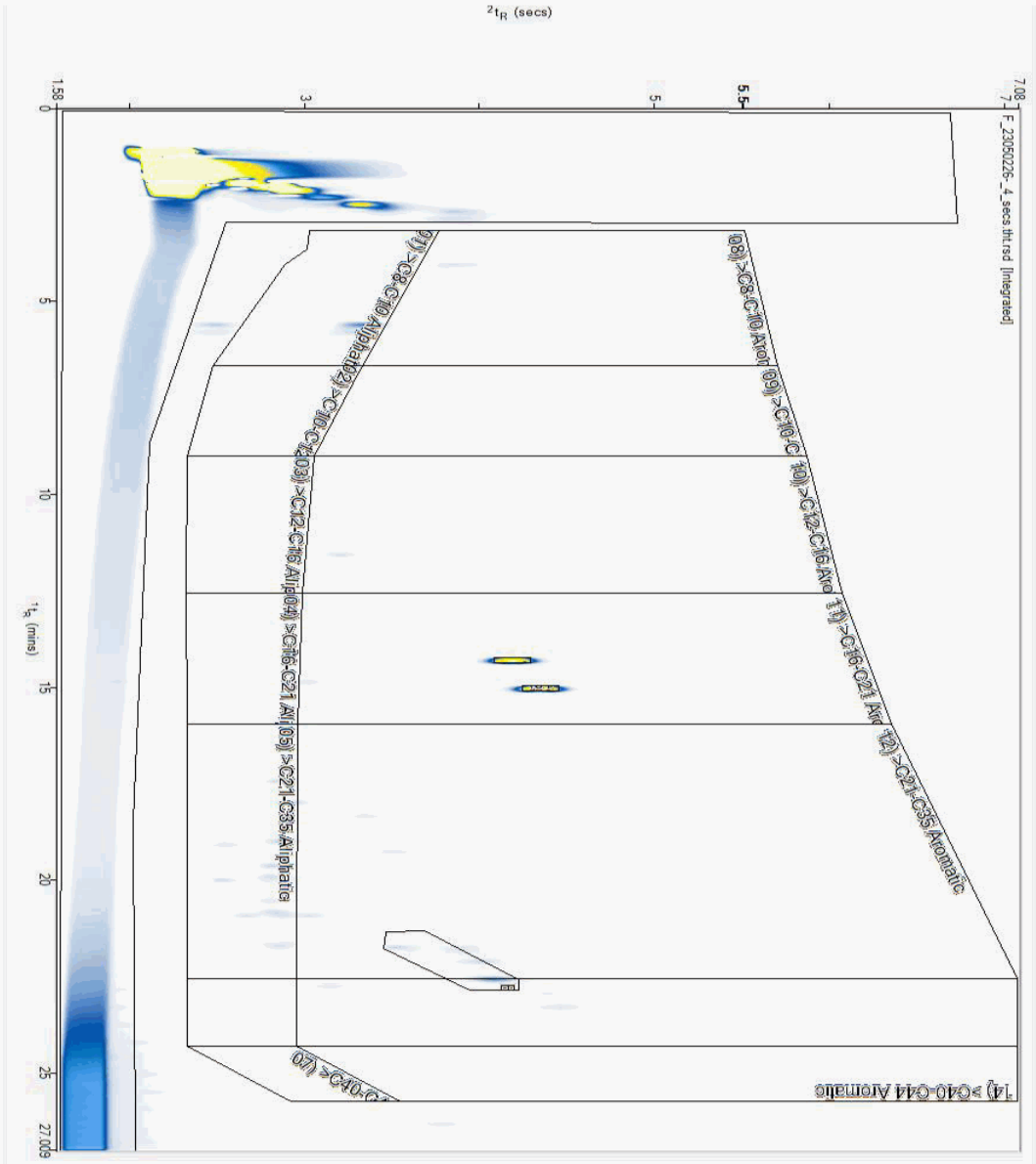
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23050226 **Depth :** 2.00 - 2.10
Sample ID : TP324

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23050226-_4_secs.tht
Date Acquired   :  19/10/20 08:32:15
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



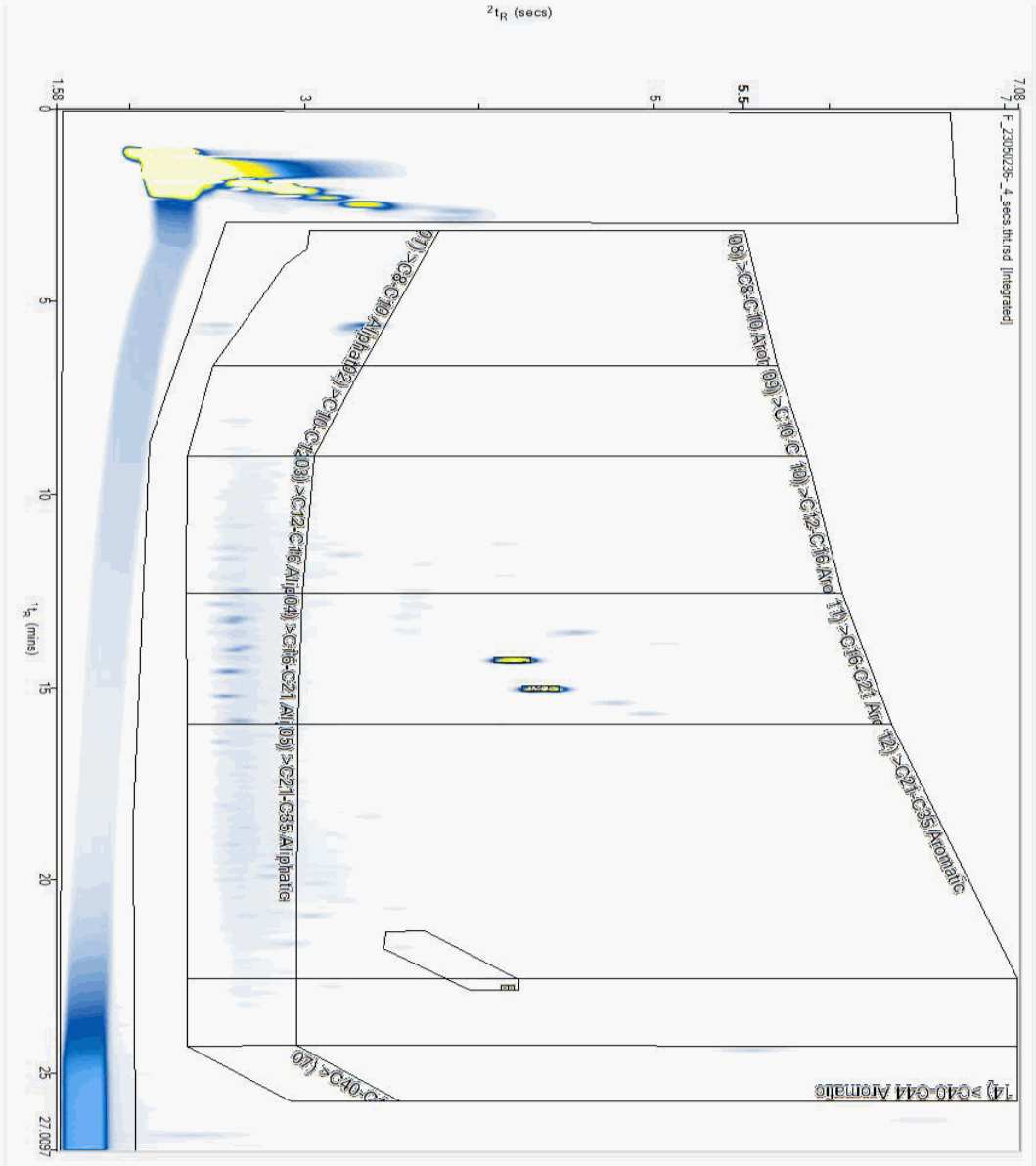
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23050236 **Depth :** 1.50 - 1.60
Sample ID : TP307

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23050236-_4_secs.tht
Date Acquired   :  19/10/20 06:58:11
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



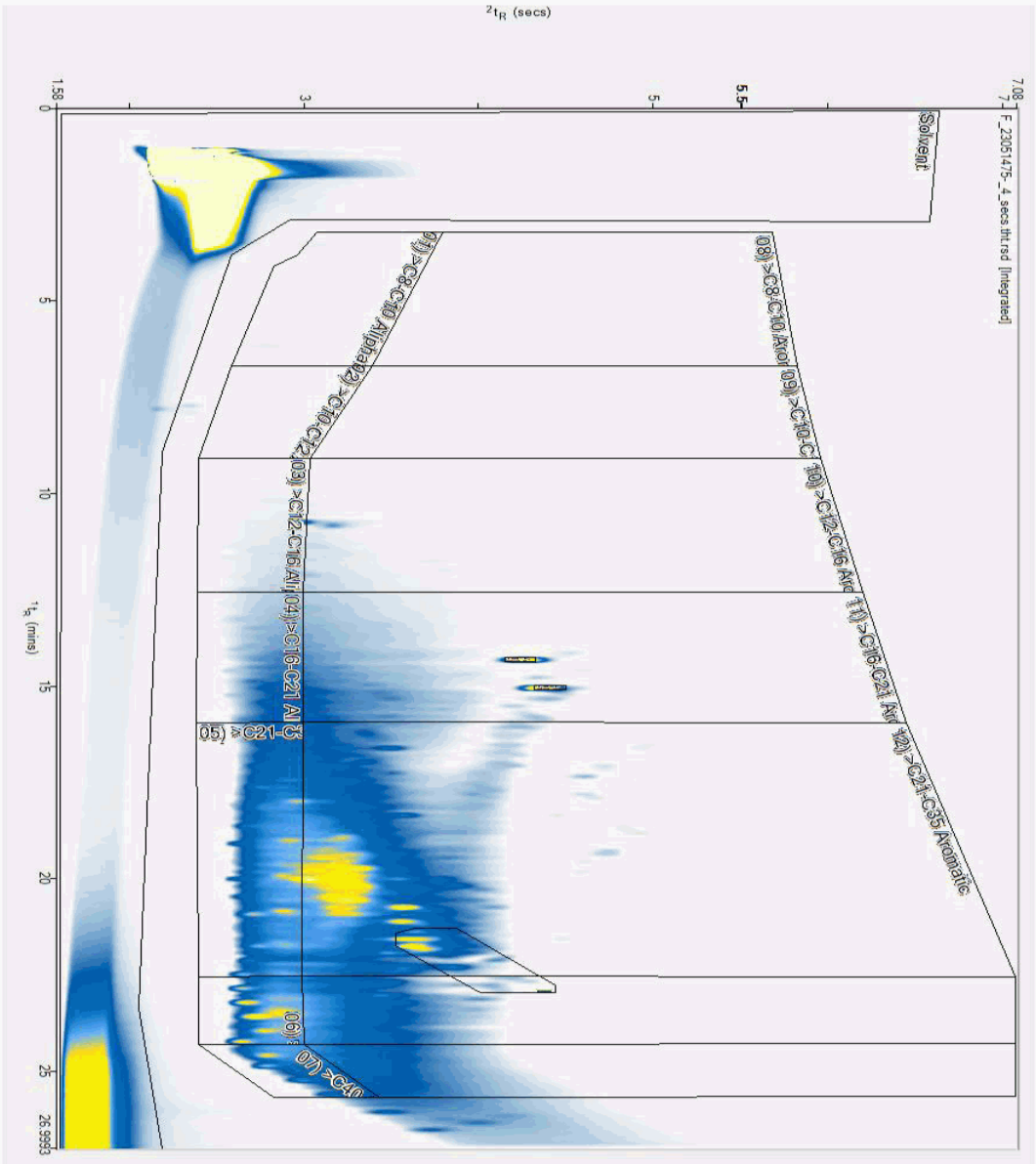
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23051475 **Depth :** 0.60 - 0.70
Sample ID : TP322

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23051475-_4_secs.tht
Date Acquired   :  19/10/20 11:42:00
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



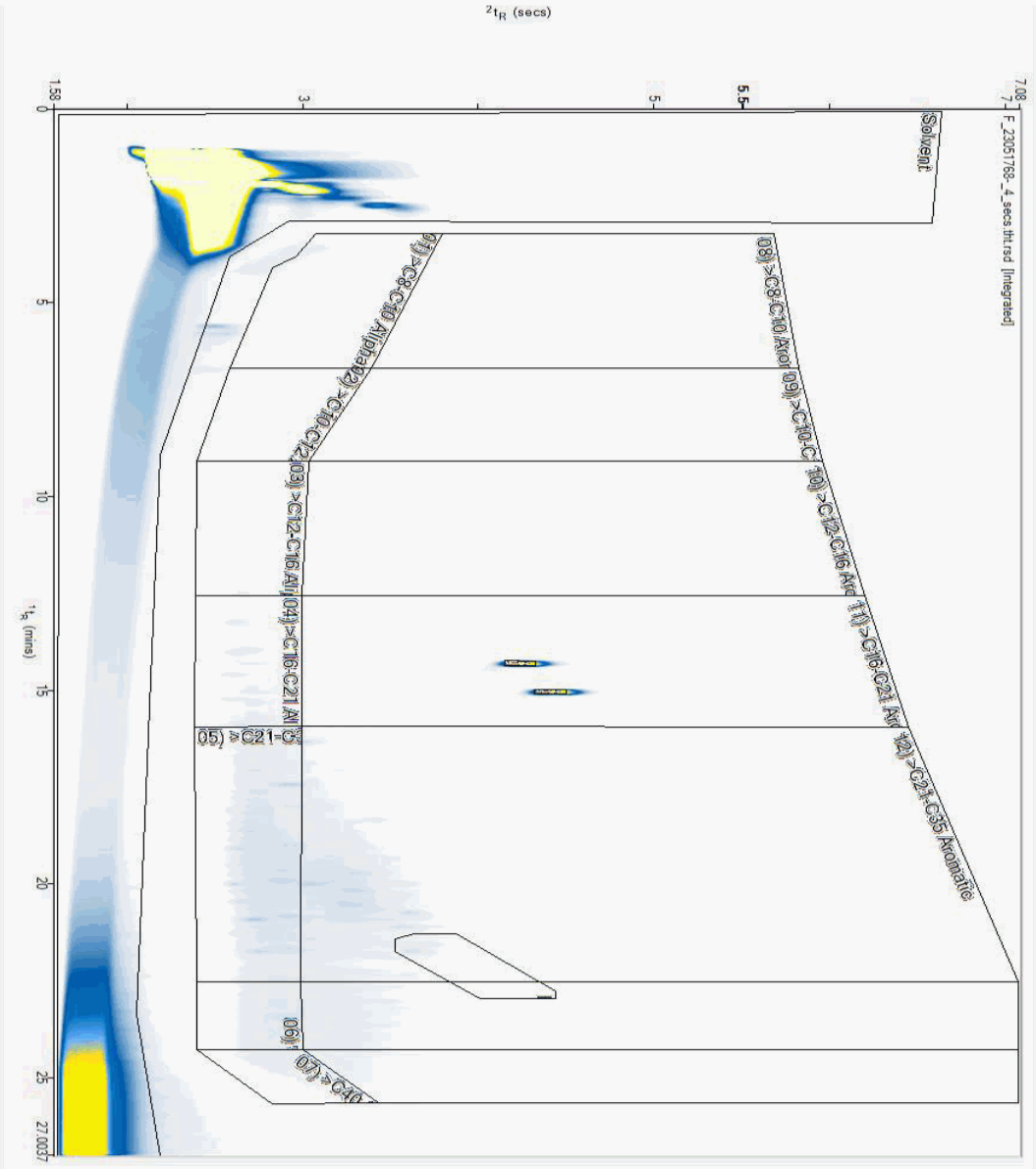
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23051768 **Depth :** 0.50 - 0.60
Sample ID : TP324

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23051768-_4_secs.tht
Date Acquired   :  19/10/20 11:10:27
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



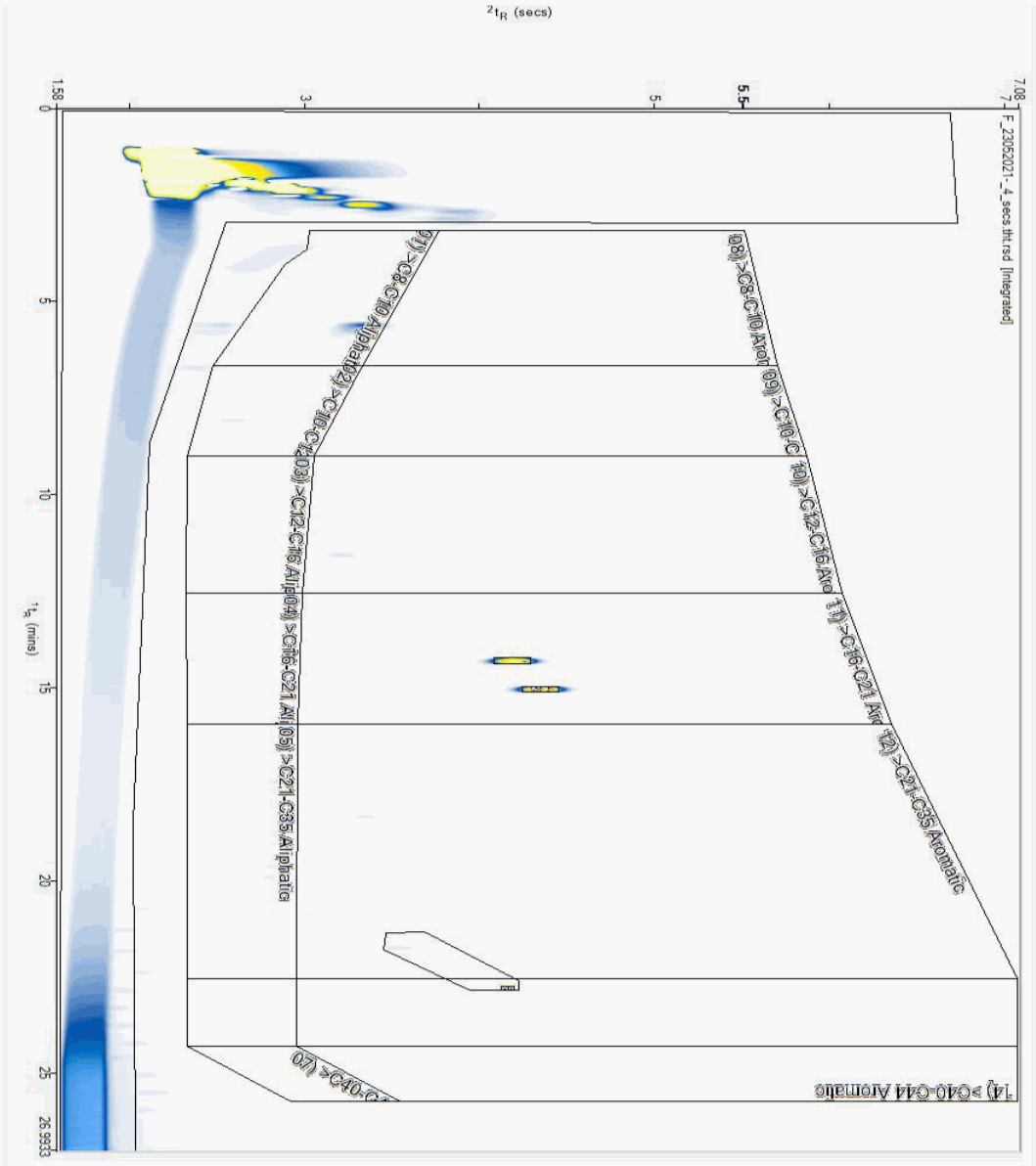
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23052021 **Depth :** 1.40 - 1.50
Sample ID : TP317

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23052021-_4_secs.tht
Date Acquired   :  19/10/20 09:35:01
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



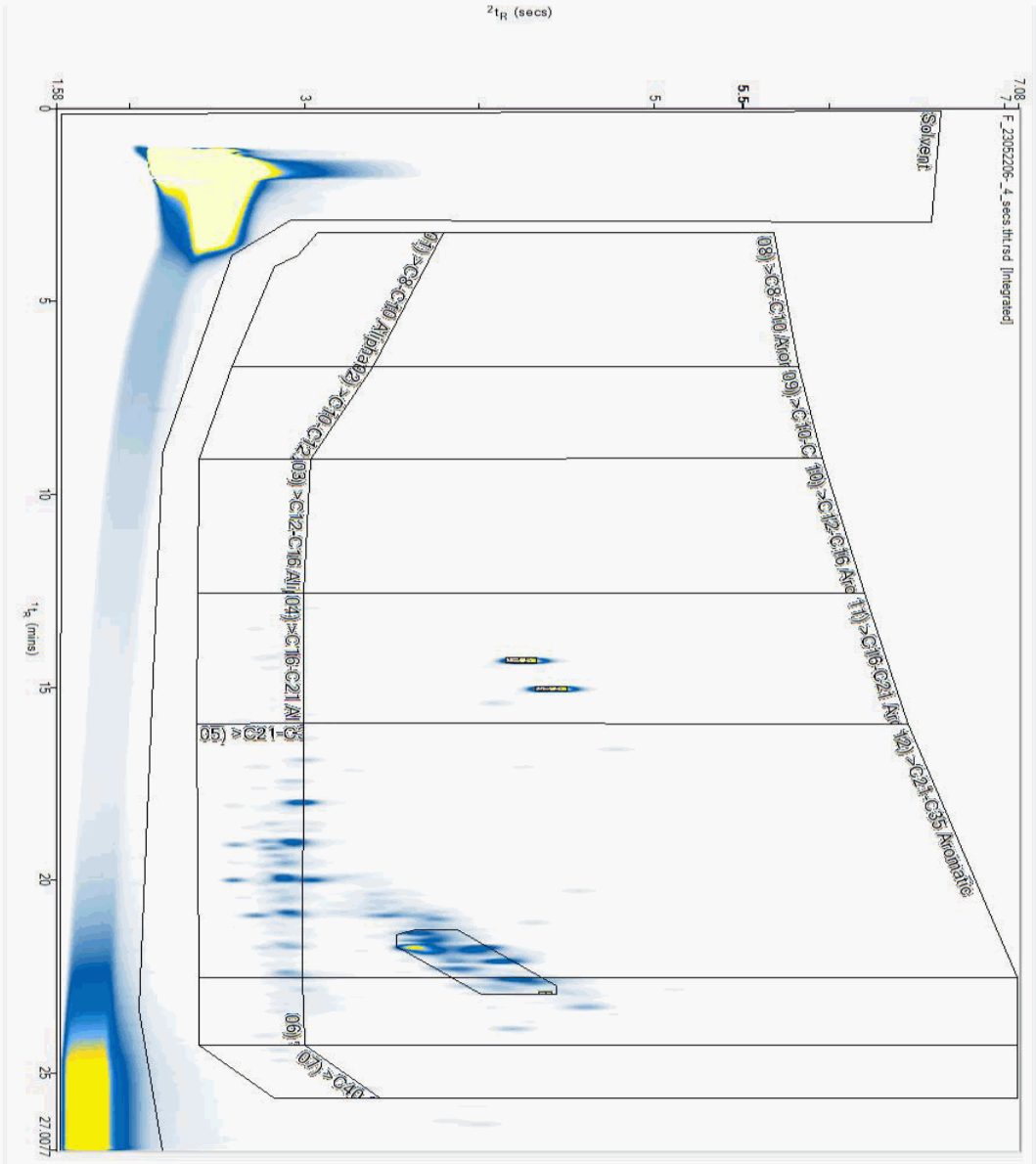
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23052206 **Depth :** 1.50 - 1.60
Sample ID : TP316

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23052206-_4_secs.tht
Date Acquired   :  19/10/20 10:38:52
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



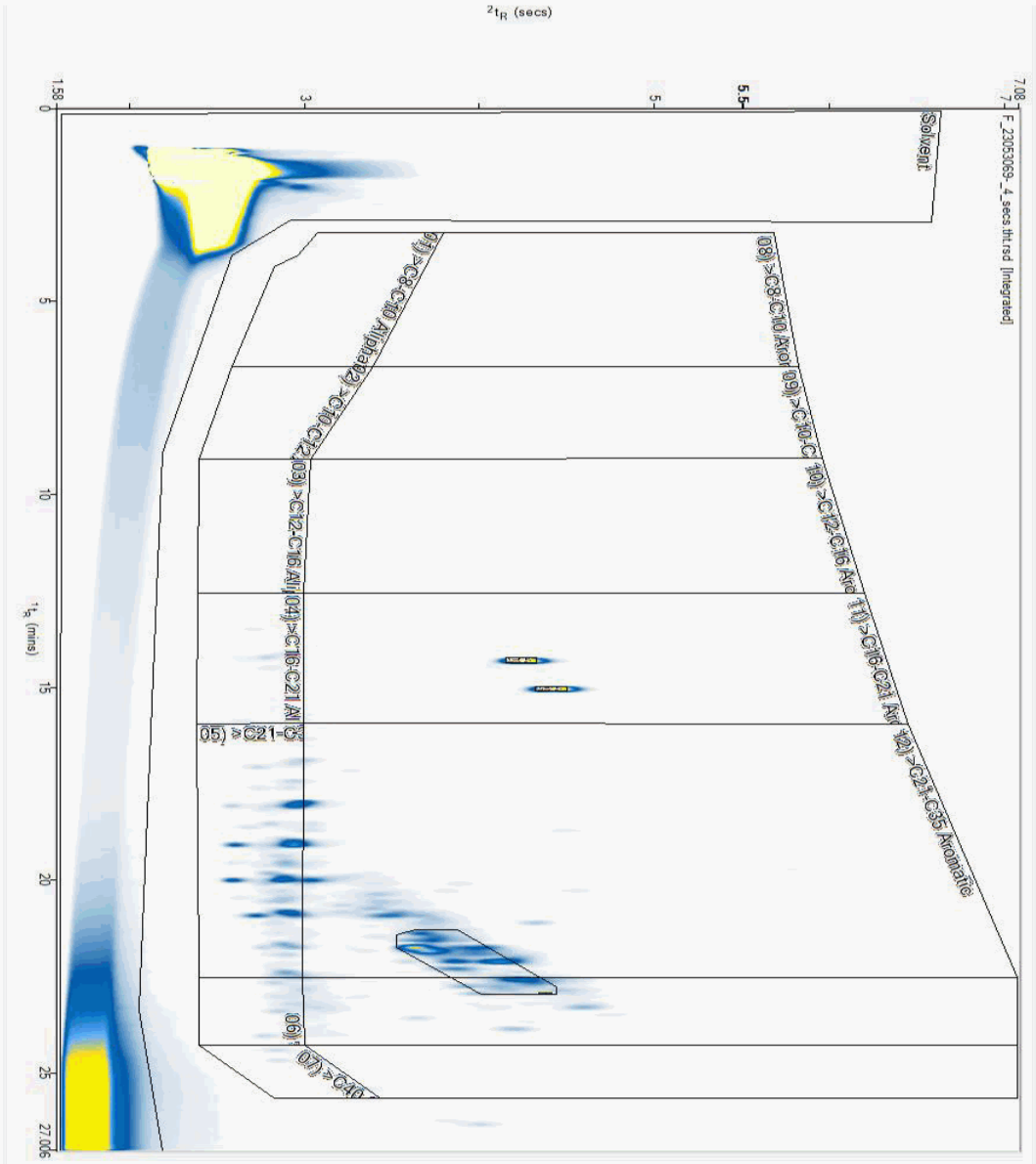
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23053069 **Depth :** 1.60 - 1.70
Sample ID : TP322

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23053069-_4_secs.tht
Date Acquired   :  19/10/20 10:07:18
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



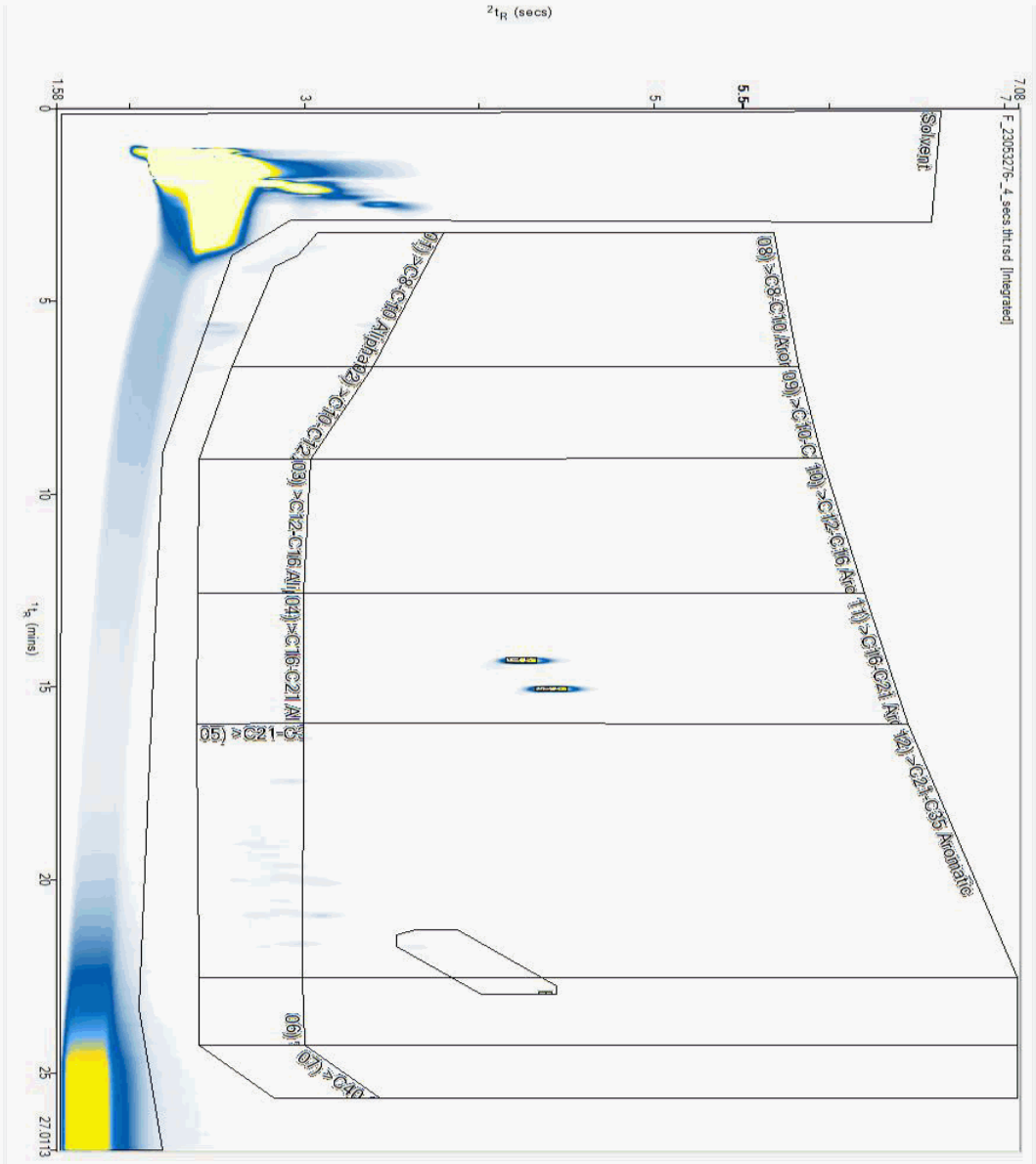
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23053276 **Depth :** 0.80 - 1.00
Sample ID : TP316

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23053276-_4_secs.tht
Date Acquired   :  19/10/20 09:04:13
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



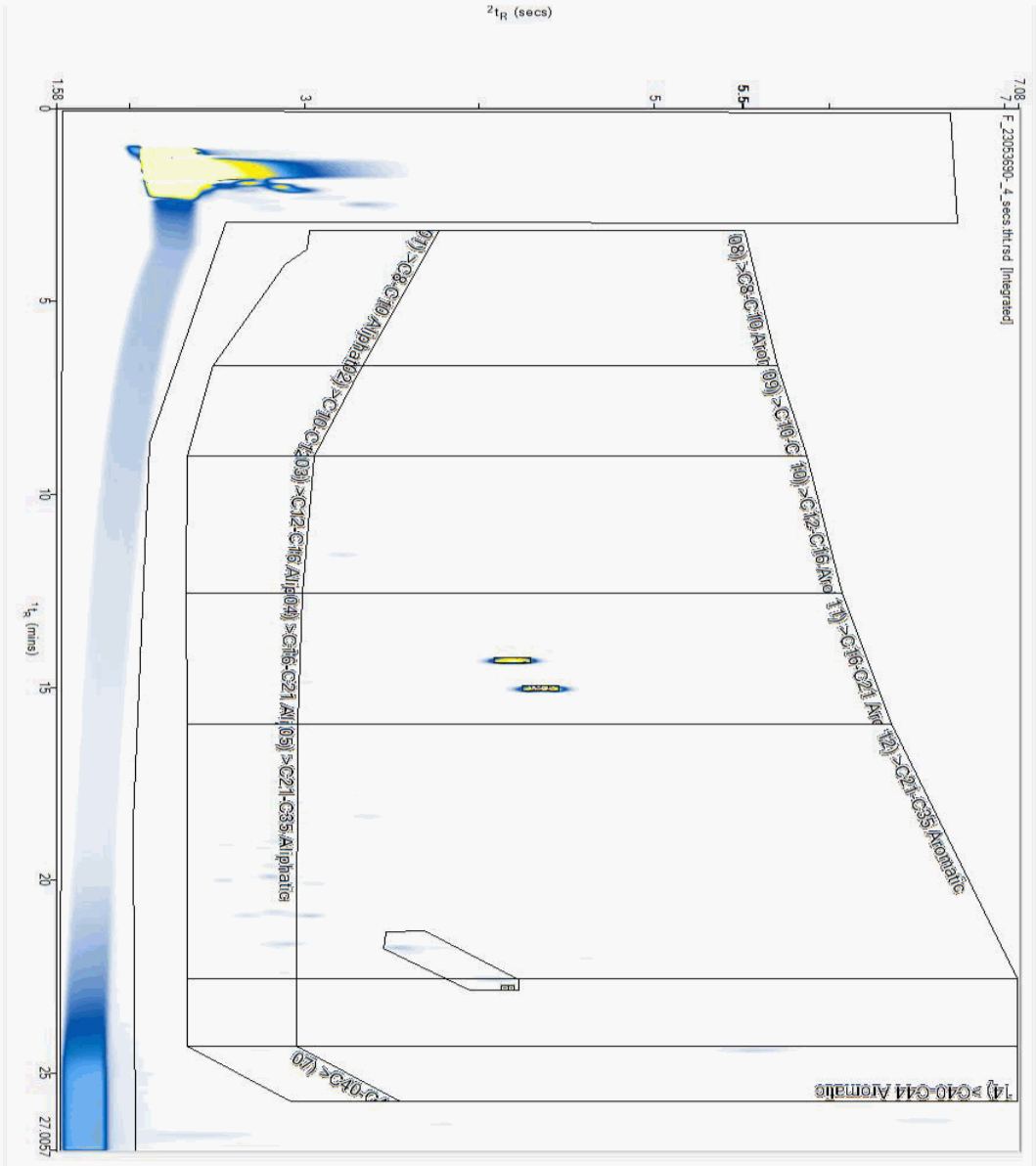
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23053690 **Depth :** 1.40 - 1.50
Sample ID : TP323

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23053690-_4_secs.tht
Date Acquired   :  19/10/20 05:55:27
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



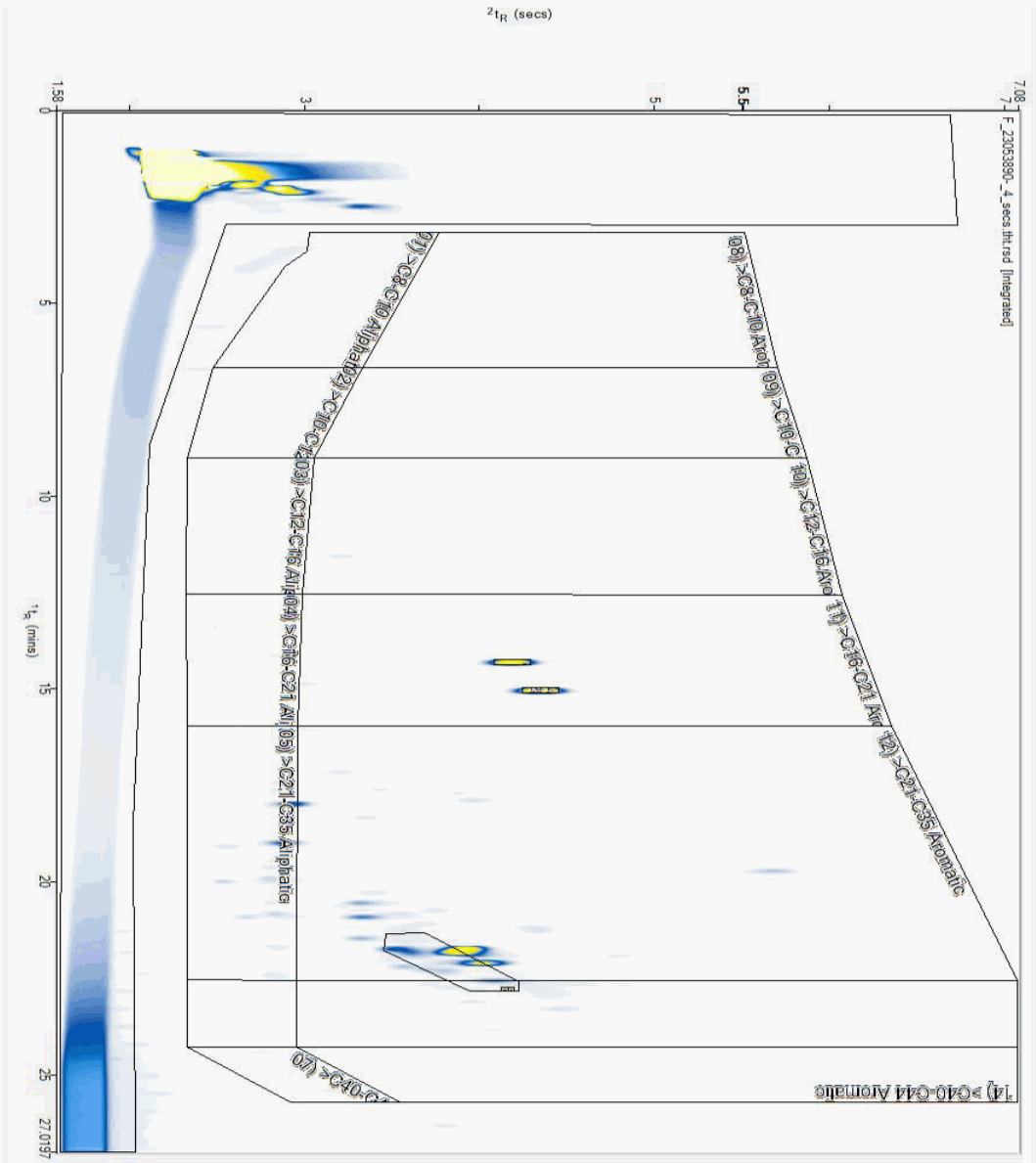
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23053890 **Depth :** 2.50 - 2.60
Sample ID : TP307

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23053890-_4_secs.tht
Date Acquired   :  19/10/20 10:06:20
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



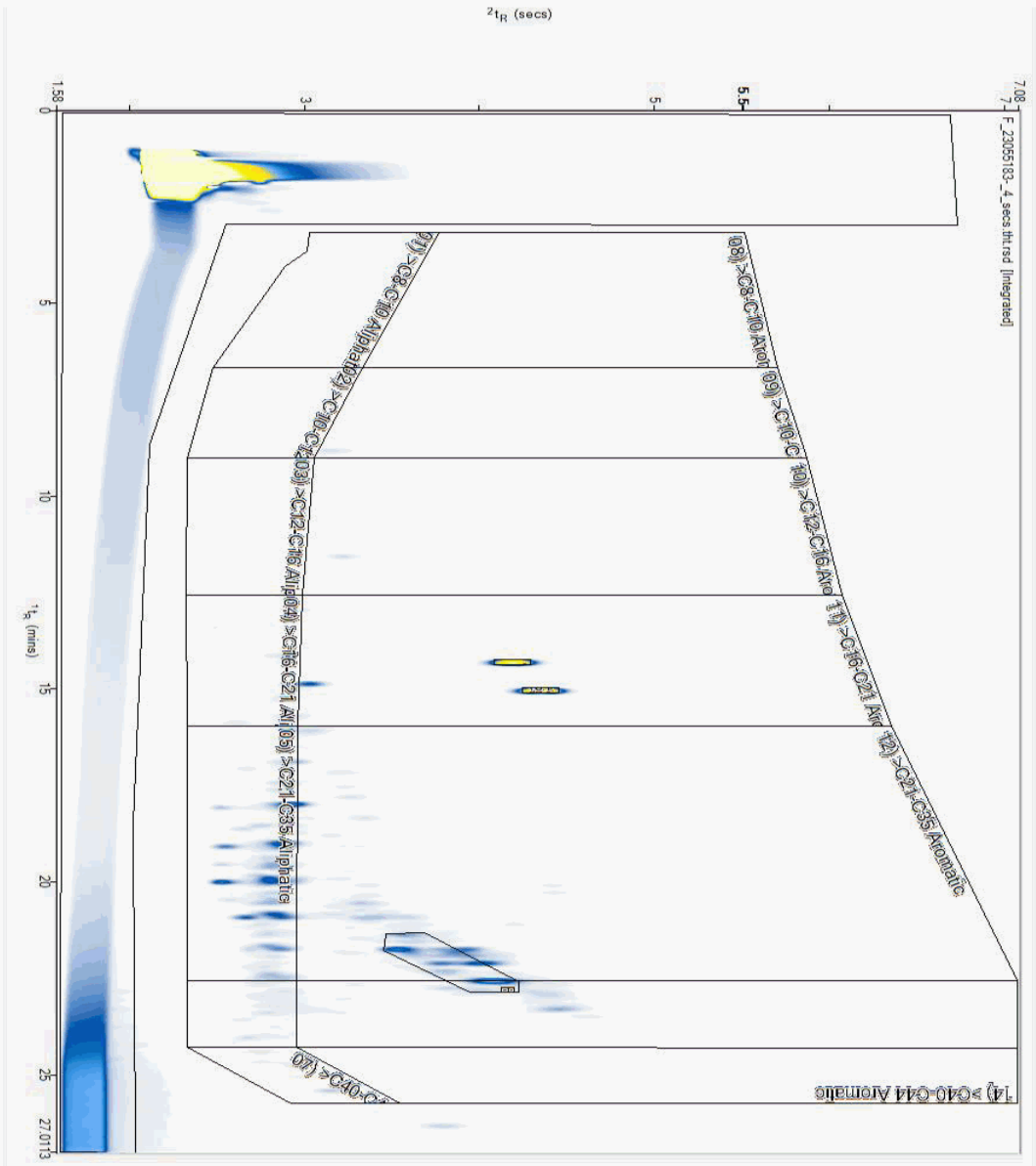
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23055183 **Depth :** 1.90 - 2.00
Sample ID : TP309

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23055183-_4_secs.tht
Date Acquired   :  19/10/20 08:00:58
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

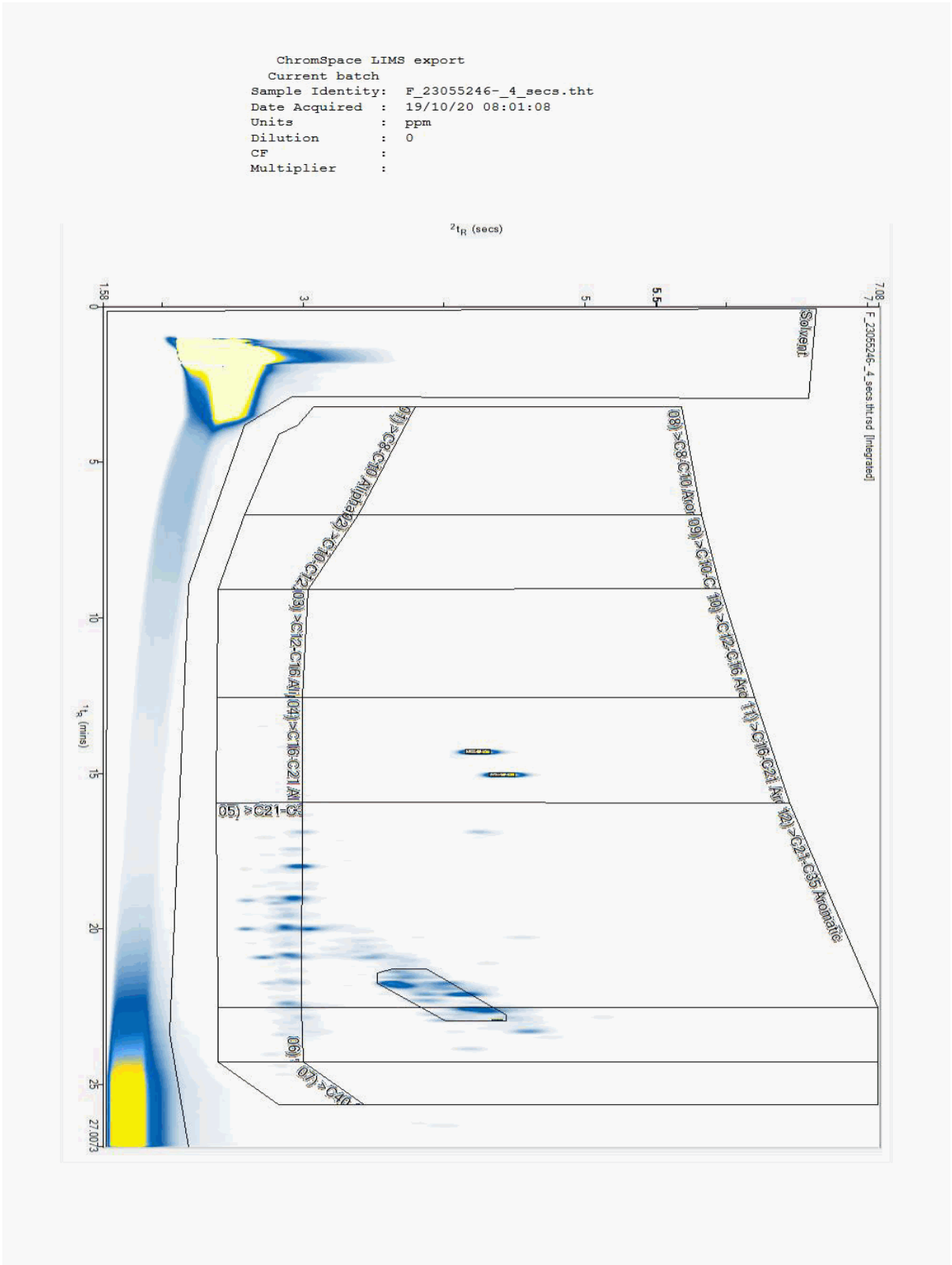


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23055246 **Depth :** 1.90 - 2.00
Sample ID : TP308



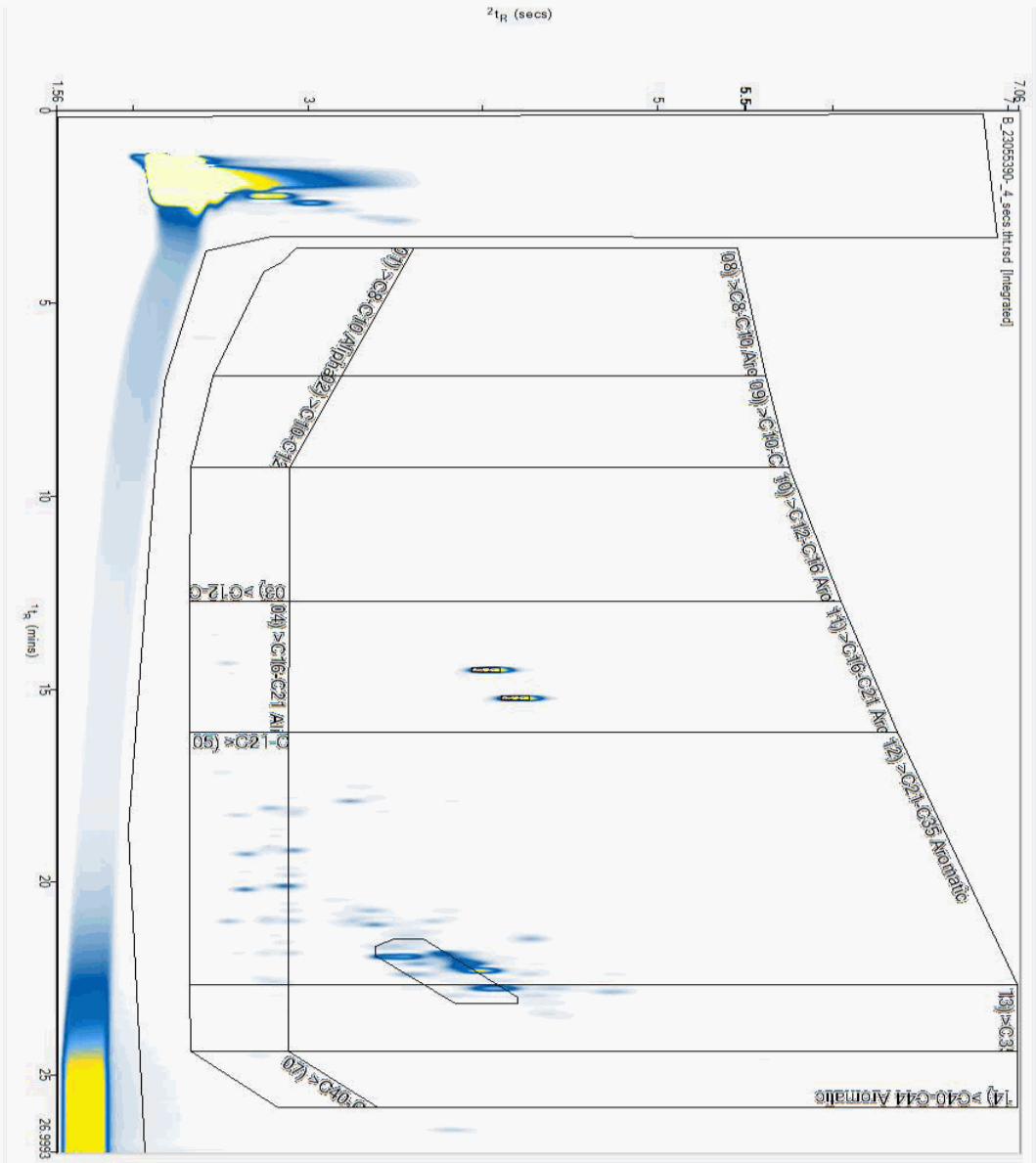
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23055390 **Depth :** 2.80 - 2.90
Sample ID : TP308

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23055390-_4_secs.tht
Date Acquired   :  19/10/20 11:42:00
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

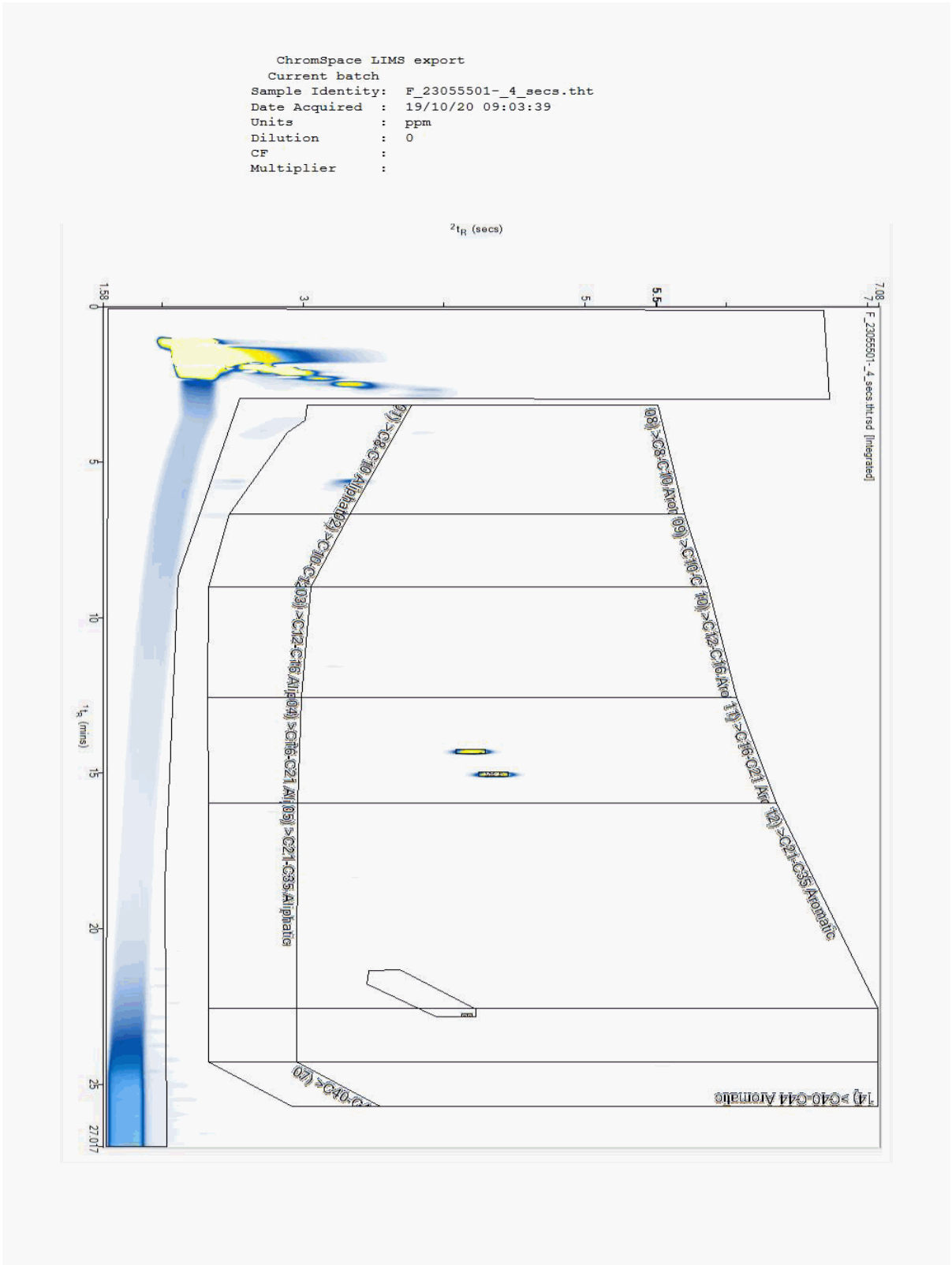


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23055501 **Depth :** 0.50 - 0.60
Sample ID : TP309



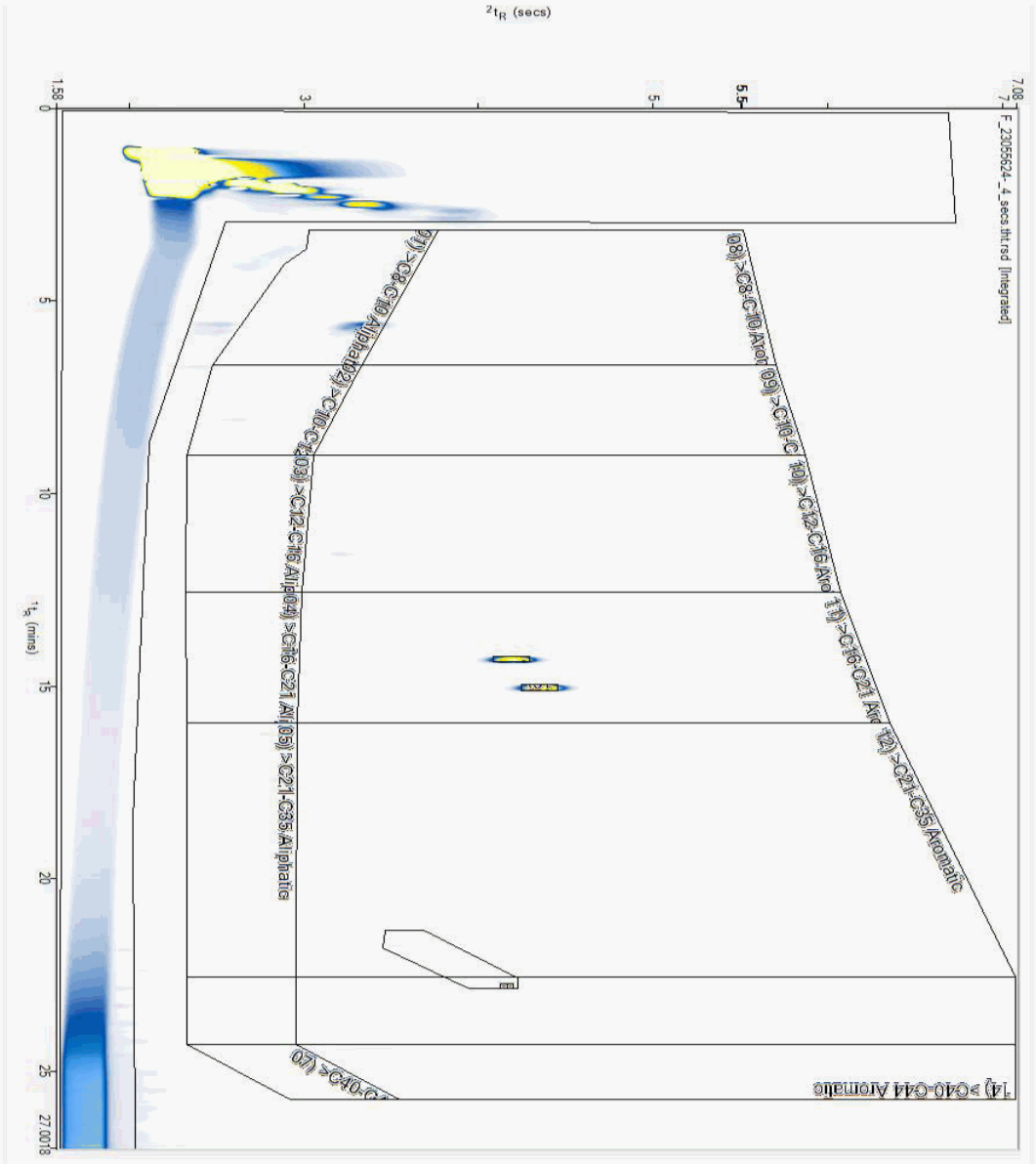
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23055624 **Depth :** 0.50 - 0.60
Sample ID : TP308

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23055624-_4_secs.tht
Date Acquired   :  19/10/20 07:29:37
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



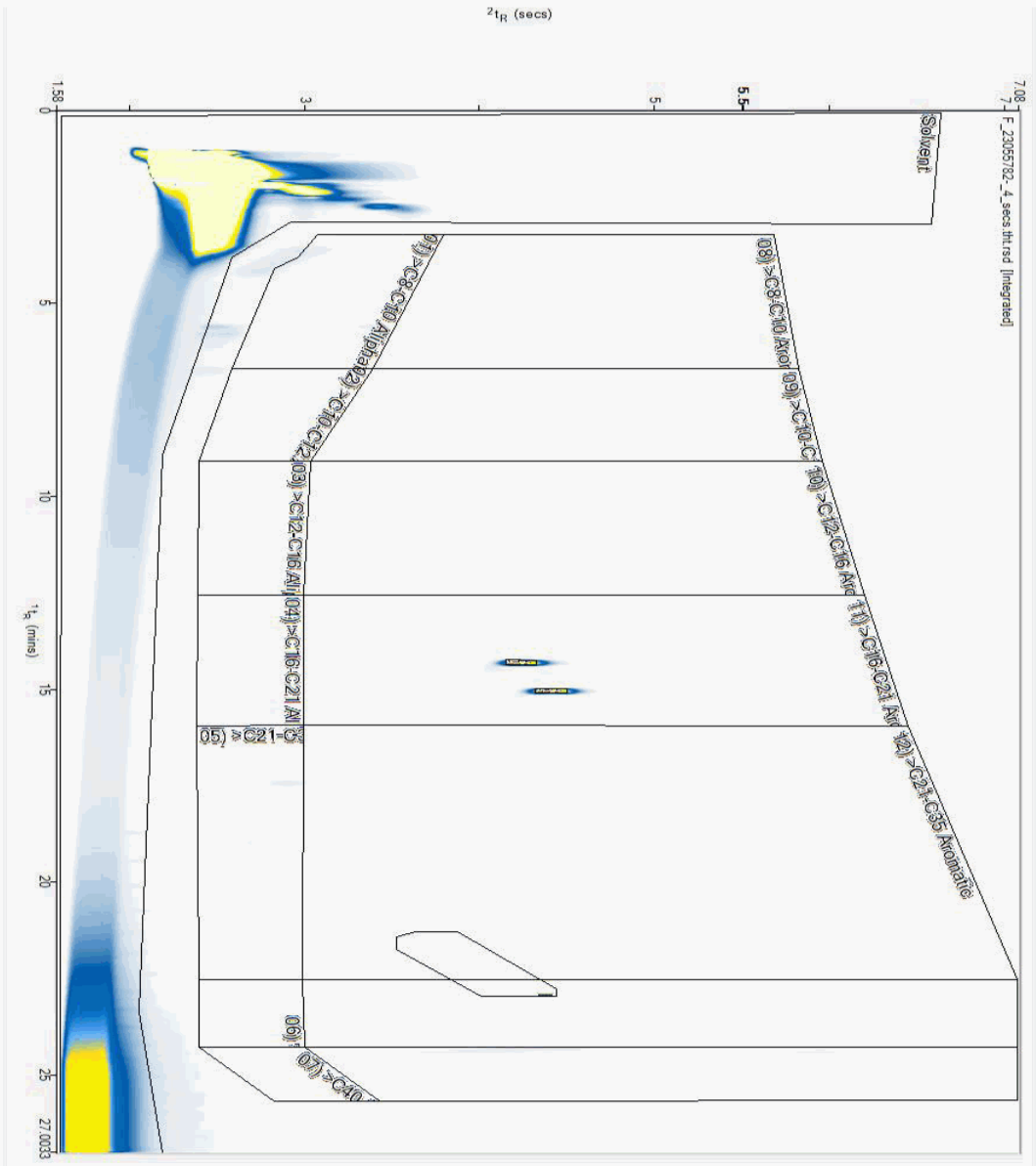
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23055782 **Depth :** 1.10 - 1.20
Sample ID : TP324

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23055782-_4_secs.tht
Date Acquired   :  19/10/20 06:26:24
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

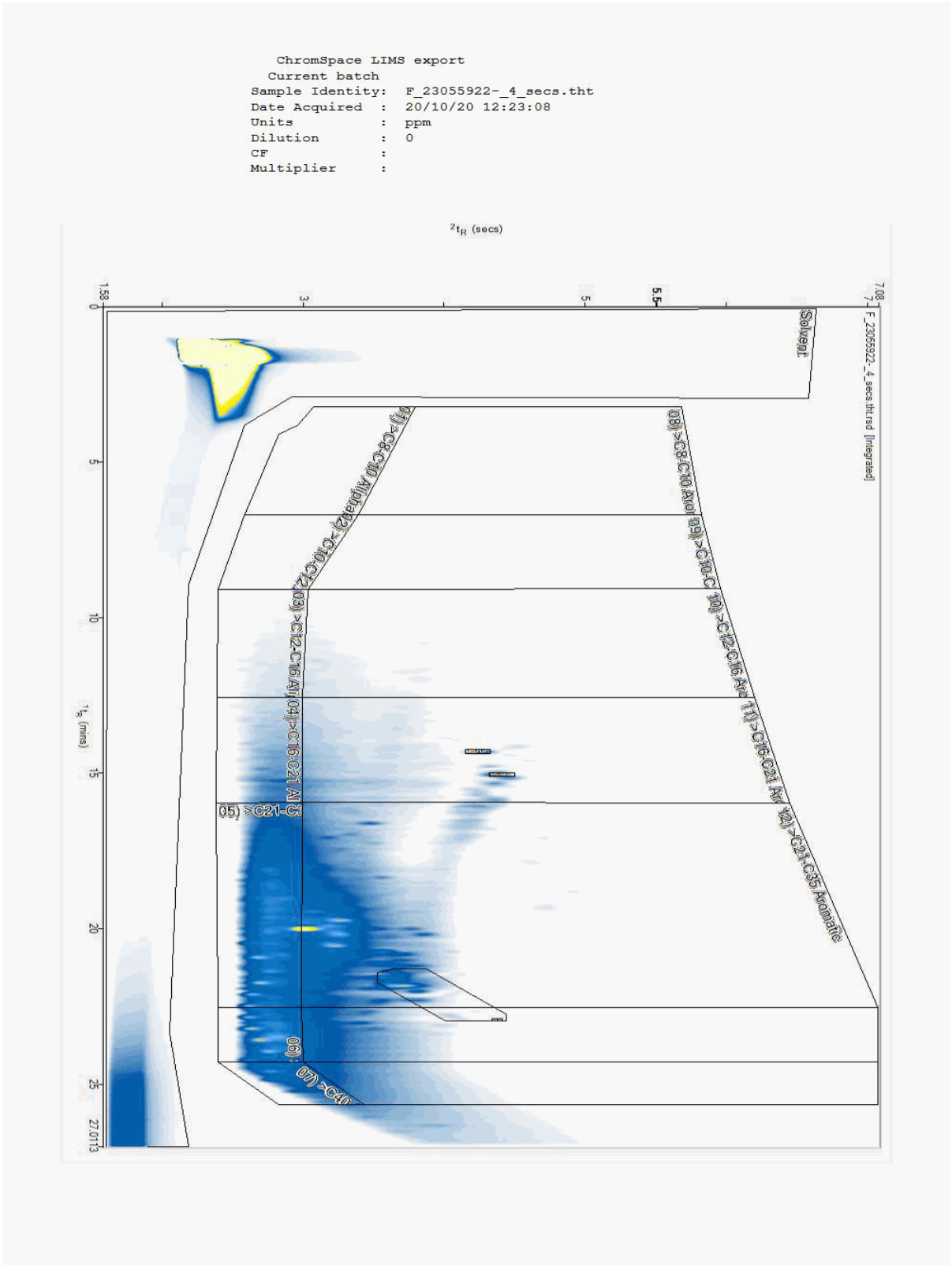


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23055922 **Depth :** 1.00 - 1.10
Sample ID : TP322

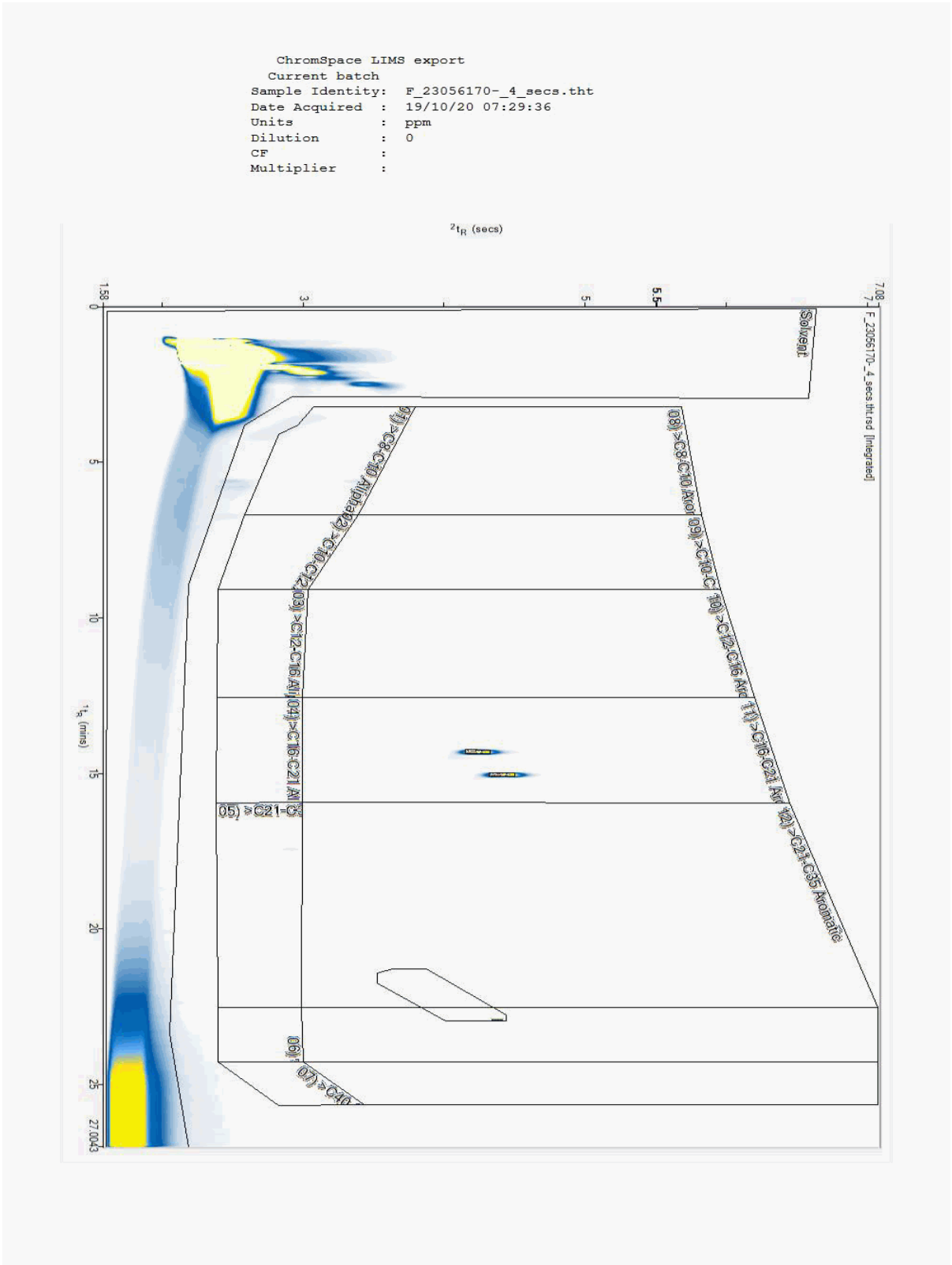


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23056170 **Depth :** 0.90 - 1.00
Sample ID : TP309



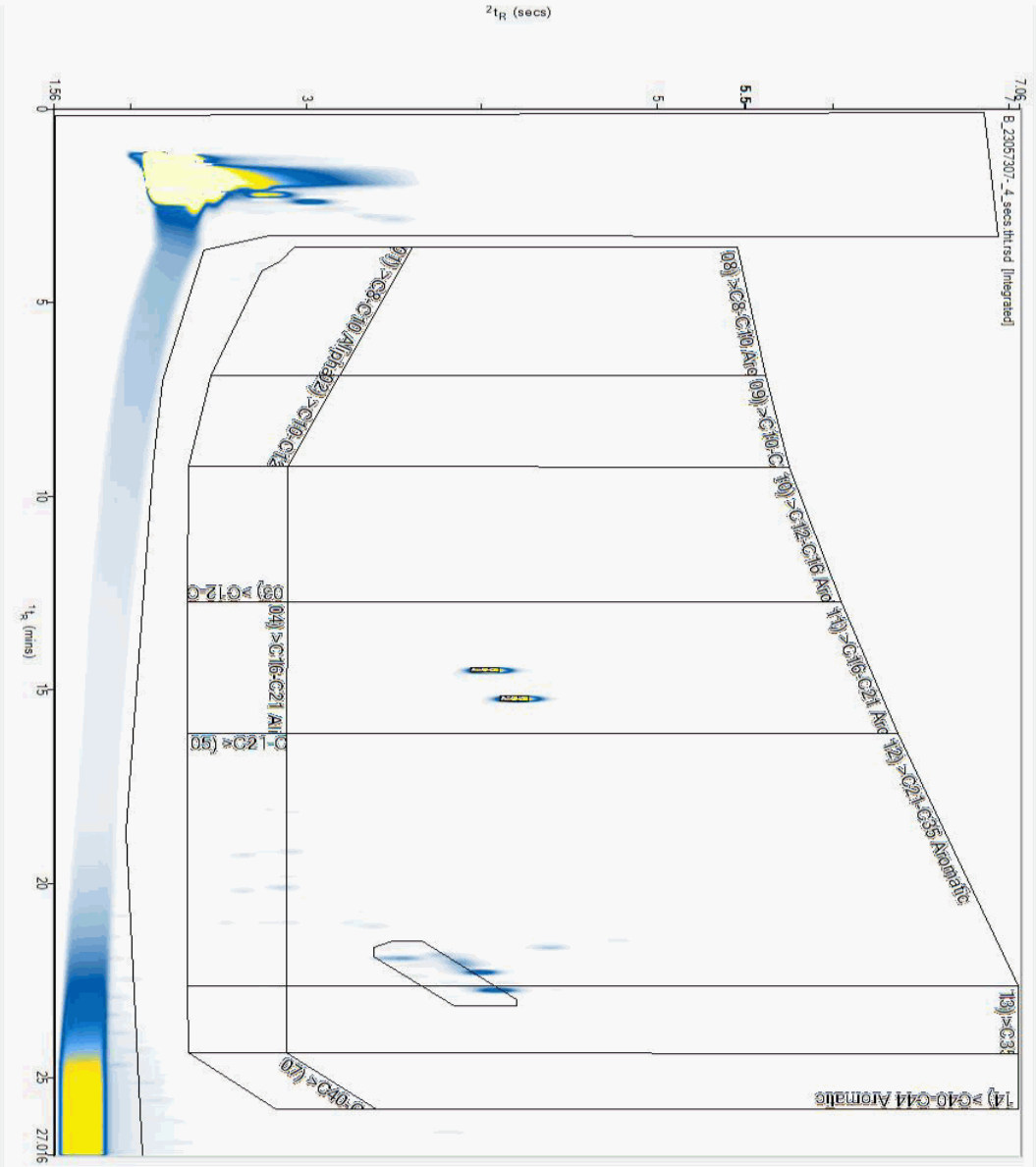
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23057307 **Depth :** 2.70 - 2.80
Sample ID : TP322

```
  ChromSpace LIMS export
 Current batch
Sample Identity:  B_23057307-_4_secs.tht
Date Acquired   :  19/10/20 06:58:00
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



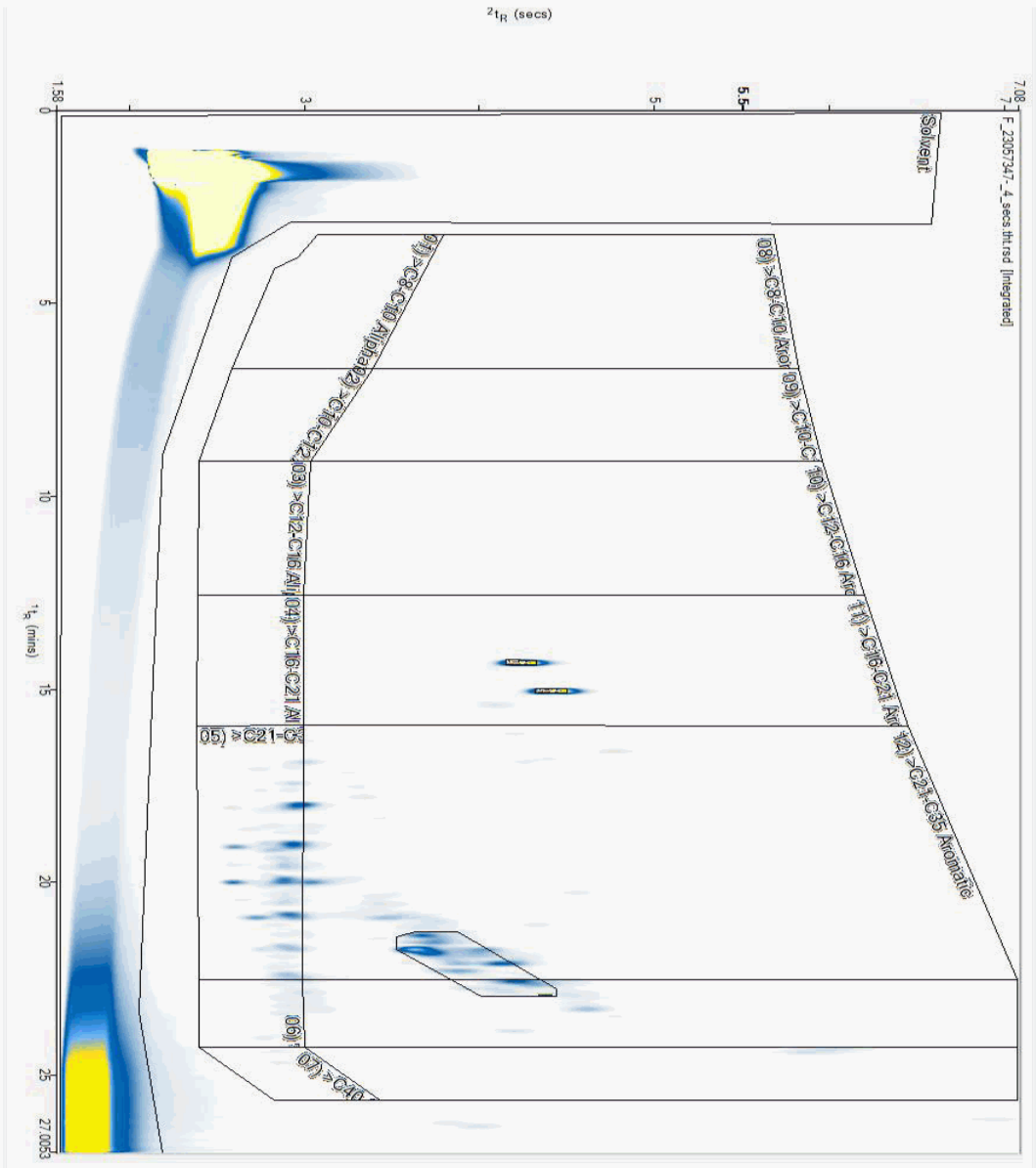
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23057347 **Depth :** 1.90 - 2.00
Sample ID : TP317

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23057347-_4_secs.tht
Date Acquired   :  19/10/20 04:51:40
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



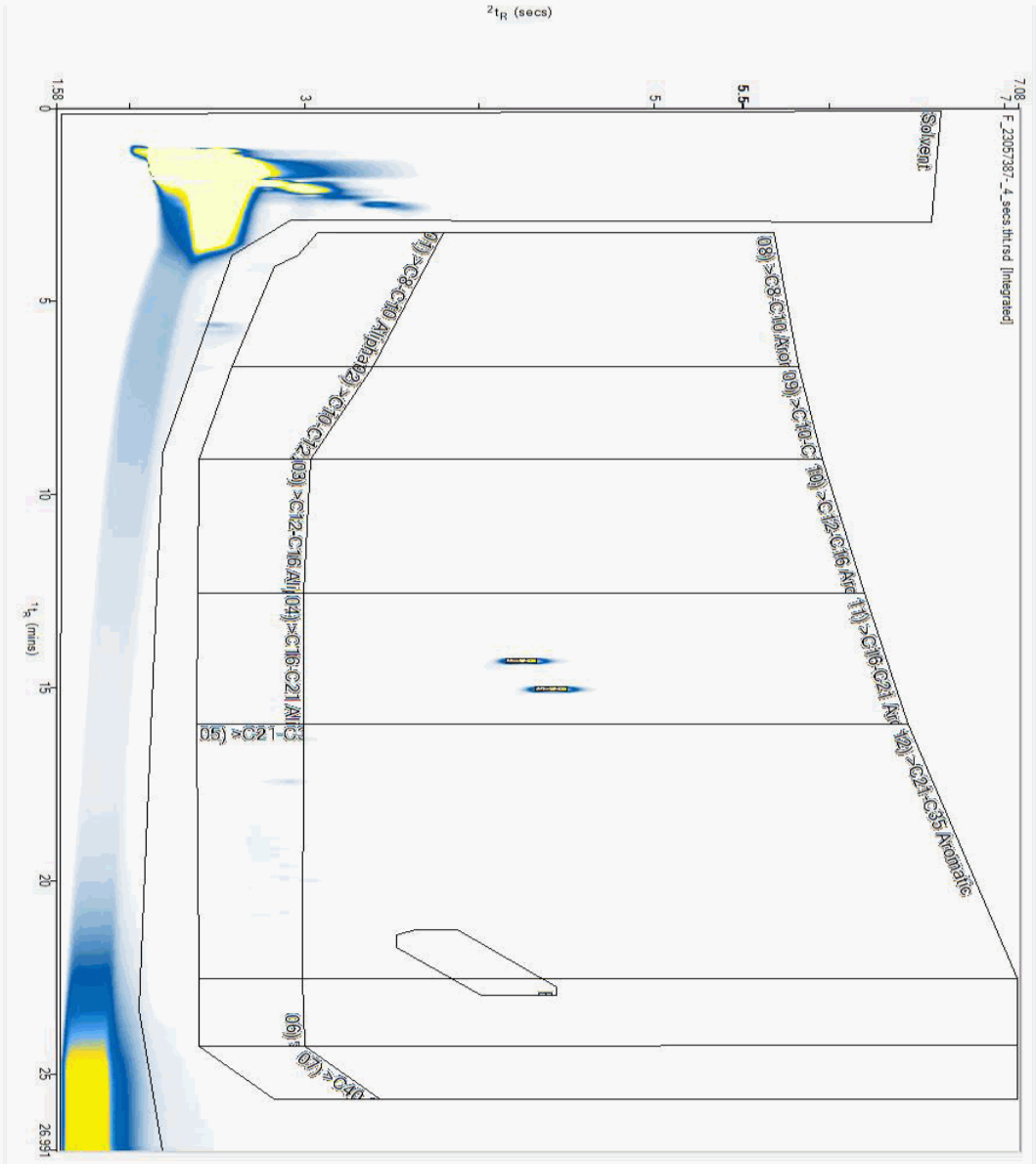
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23057387 **Depth :** 0.90 - 1.00
Sample ID : TP321

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23057387-_4_secs.tht
Date Acquired   :  19/10/20 08:32:38
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



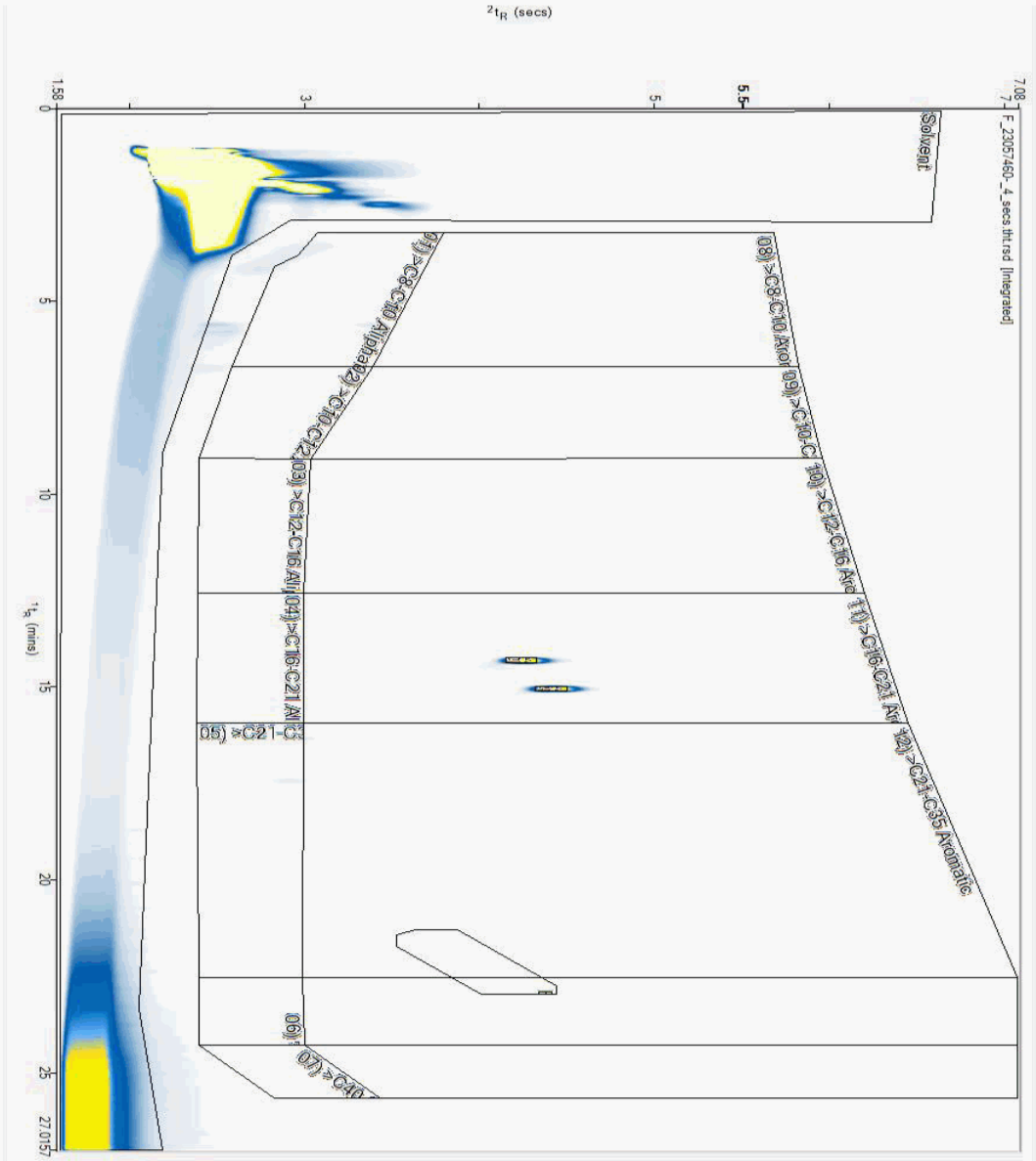
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23057460 **Depth :** 0.40 - 0.50
Sample ID : TP317

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23057460-_4_secs.tht
Date Acquired   :  19/10/20 06:58:00
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



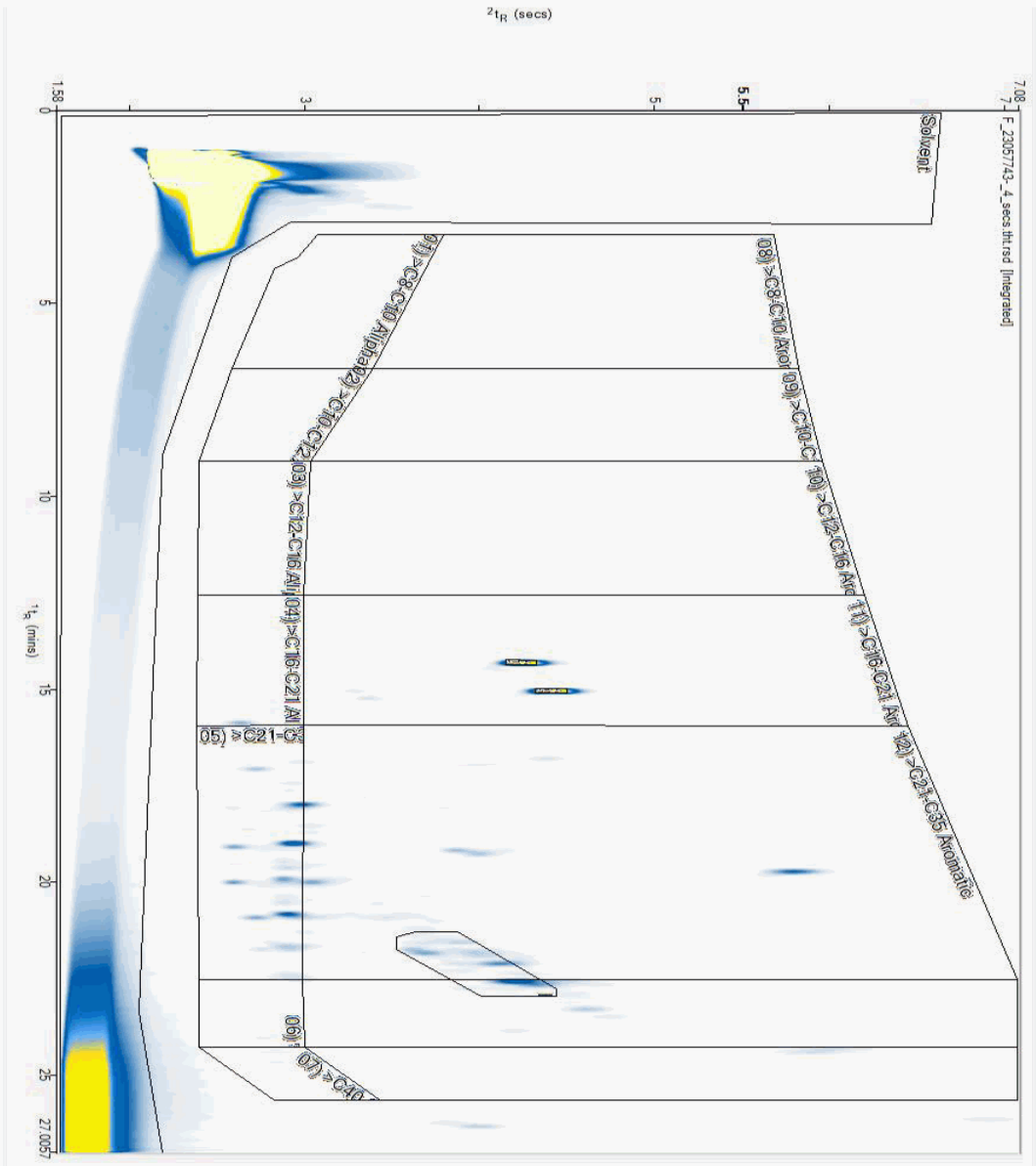
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23057743 **Depth :** 3.10 - 3.20
Sample ID : TP317

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23057743-_4_secs.tht
Date Acquired   :  19/10/20 05:54:52
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



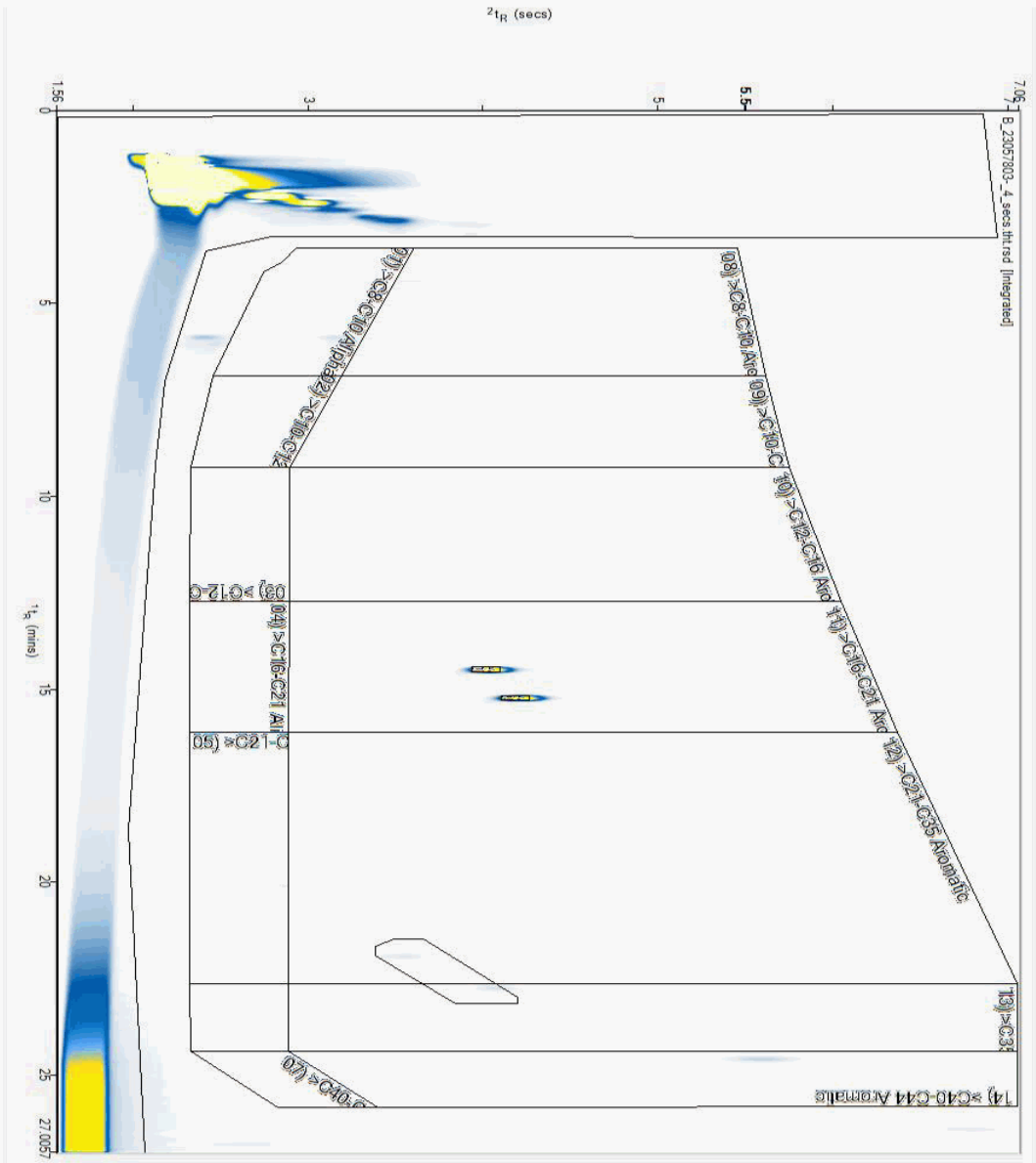
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23057803 **Depth :** 2.00 - 2.10
Sample ID : TP321

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23057803-_4_secs.tht
Date Acquired   :  19/10/20 05:54:53
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



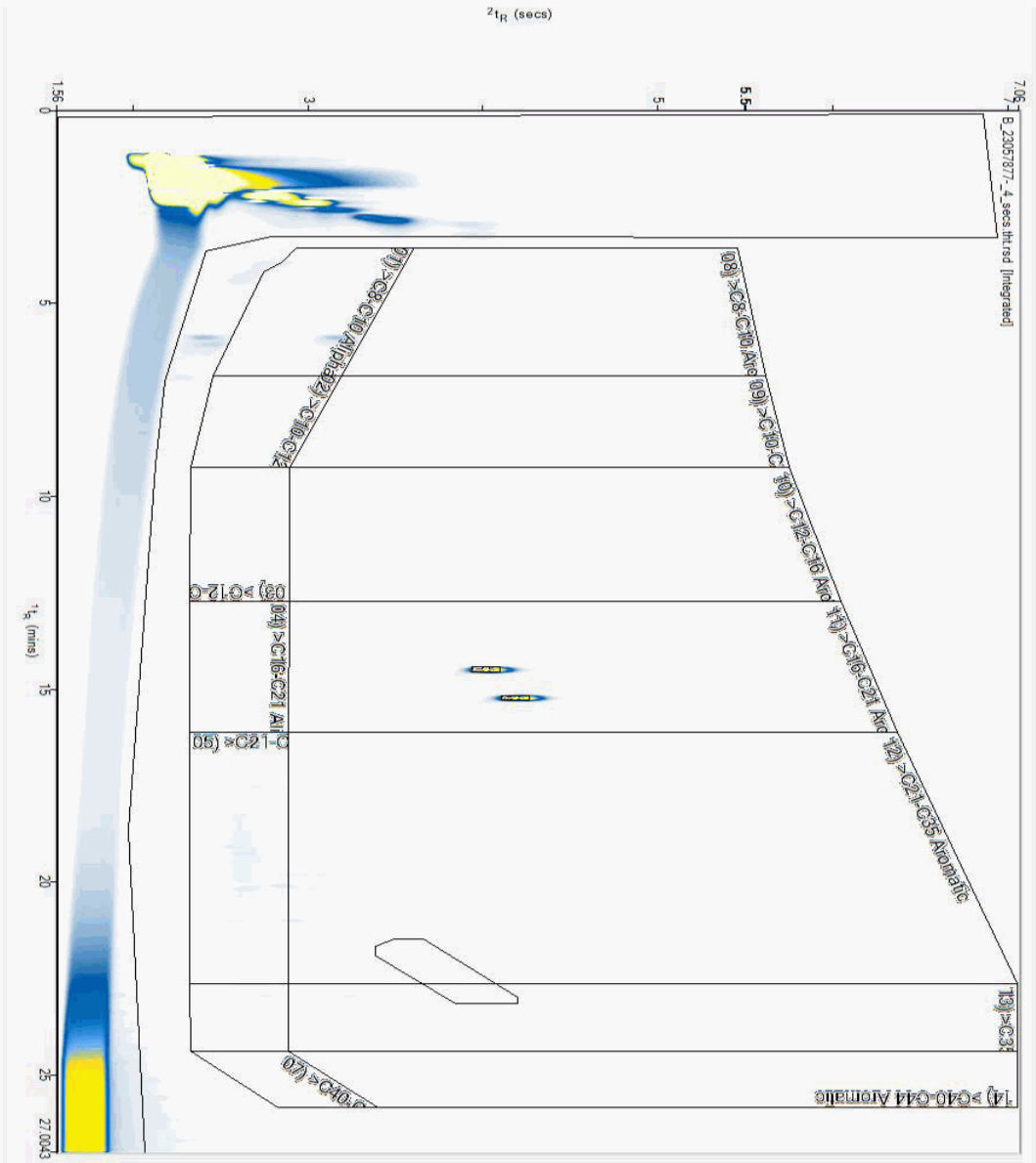
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23057877 **Depth :** 1.00 - 1.10
Sample ID : TP308

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23057877-_4_secs.tht
Date Acquired   :  19/10/20 07:29:36
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



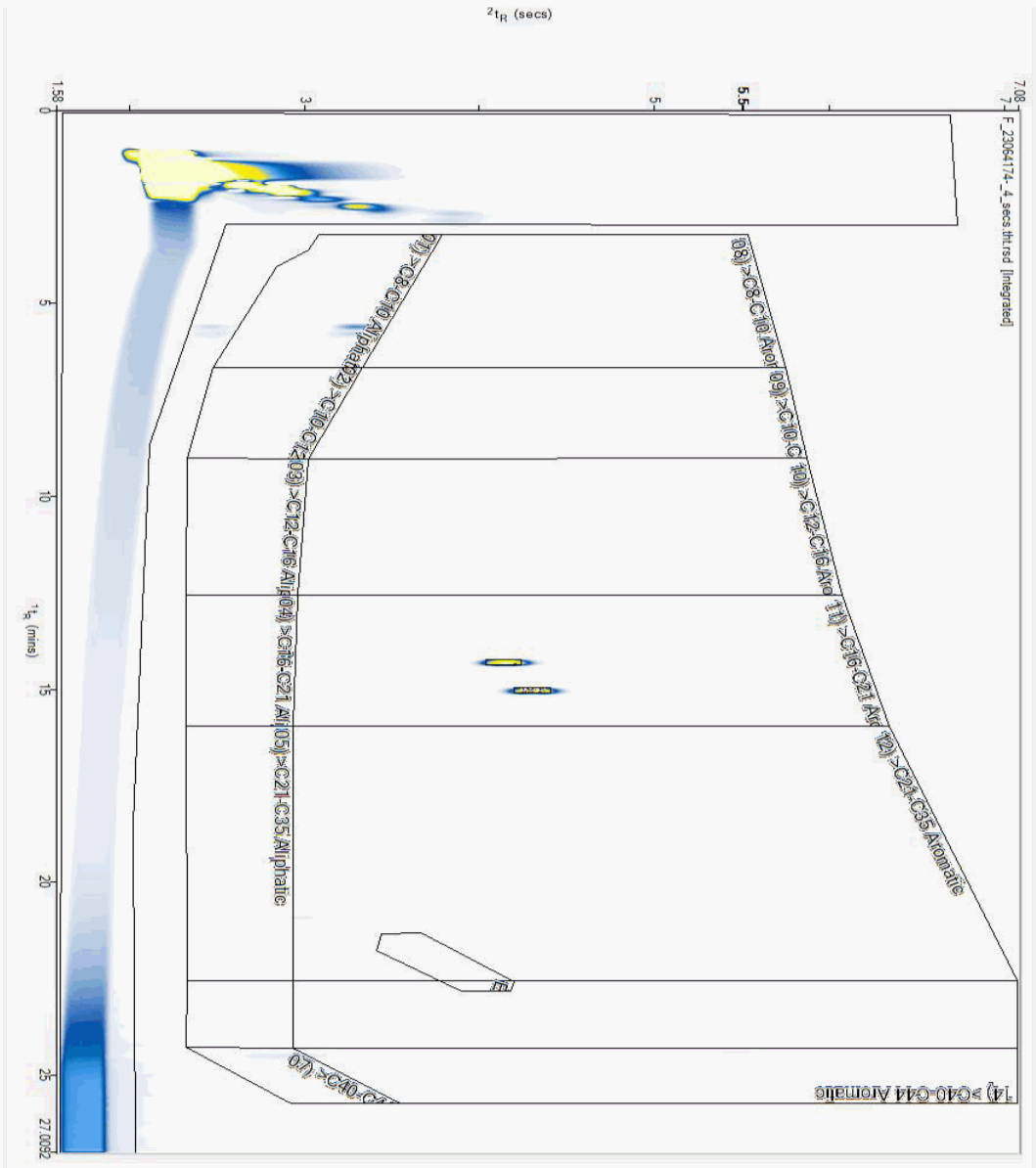
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23064174 **Depth :** 0.40 - 0.50
Sample ID : TP316

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23064174-_4_secs.tht
Date Acquired   :  20/10/20 09:09:44
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



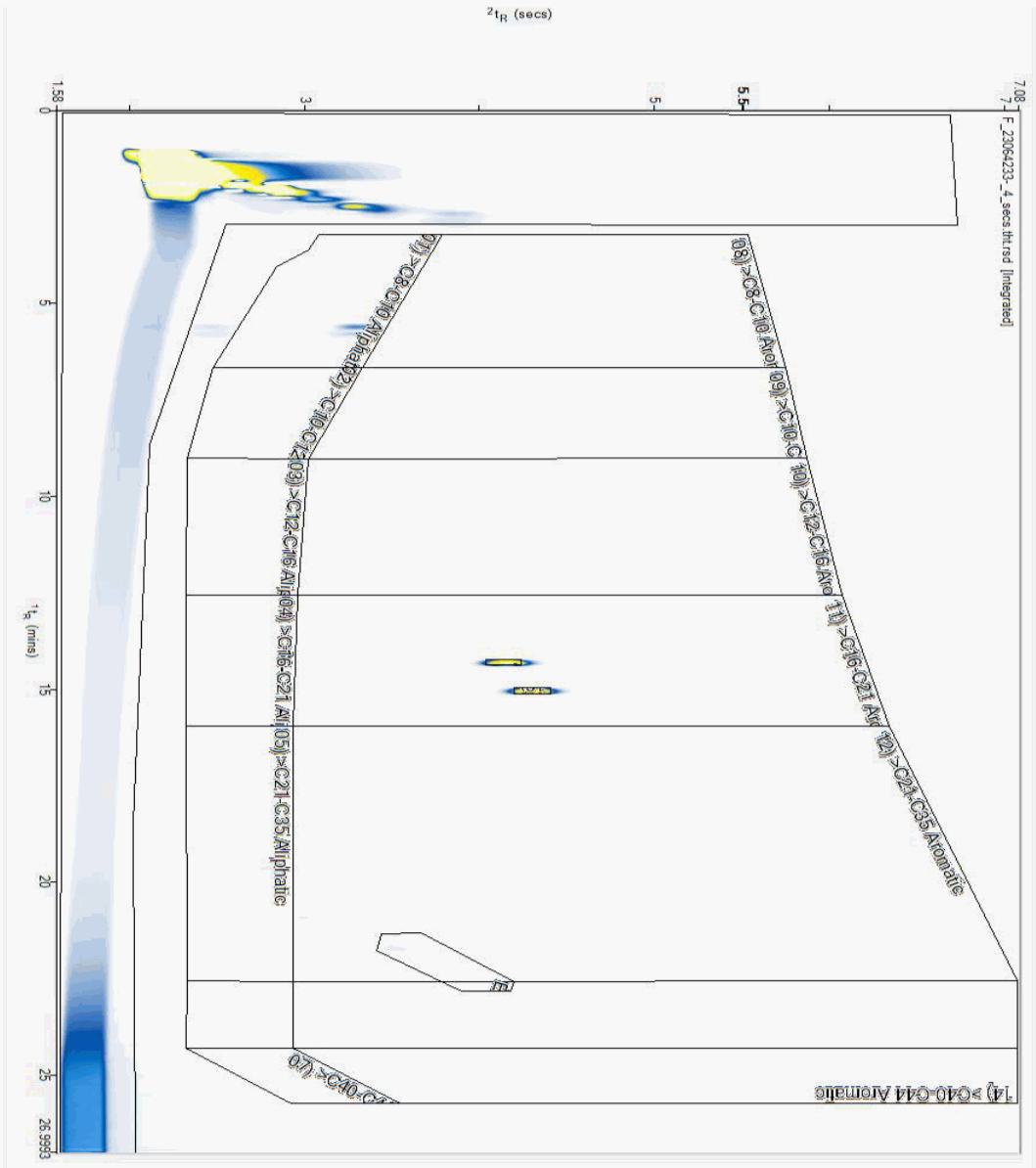
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23064233 **Depth :** 0.40 - 0.50
Sample ID : TP323

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23064233-_4_secs.tht
Date Acquired   :  20/10/20 09:41:03
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



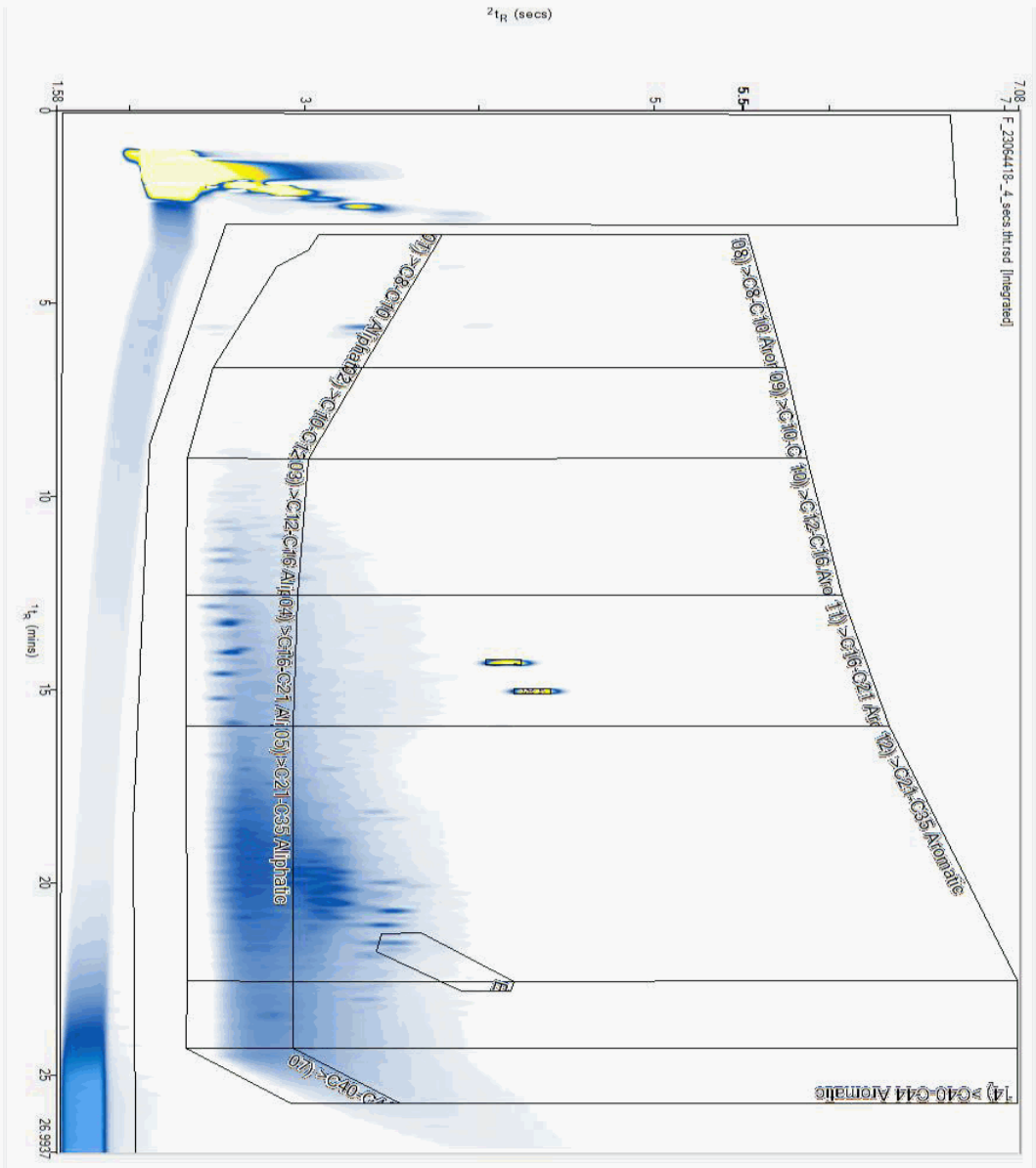
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23064418 **Depth :** 0.40 - 0.50
Sample ID : TP307

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23064418-_4_secs.tht
Date Acquired   :  21/10/20 07:37:45
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



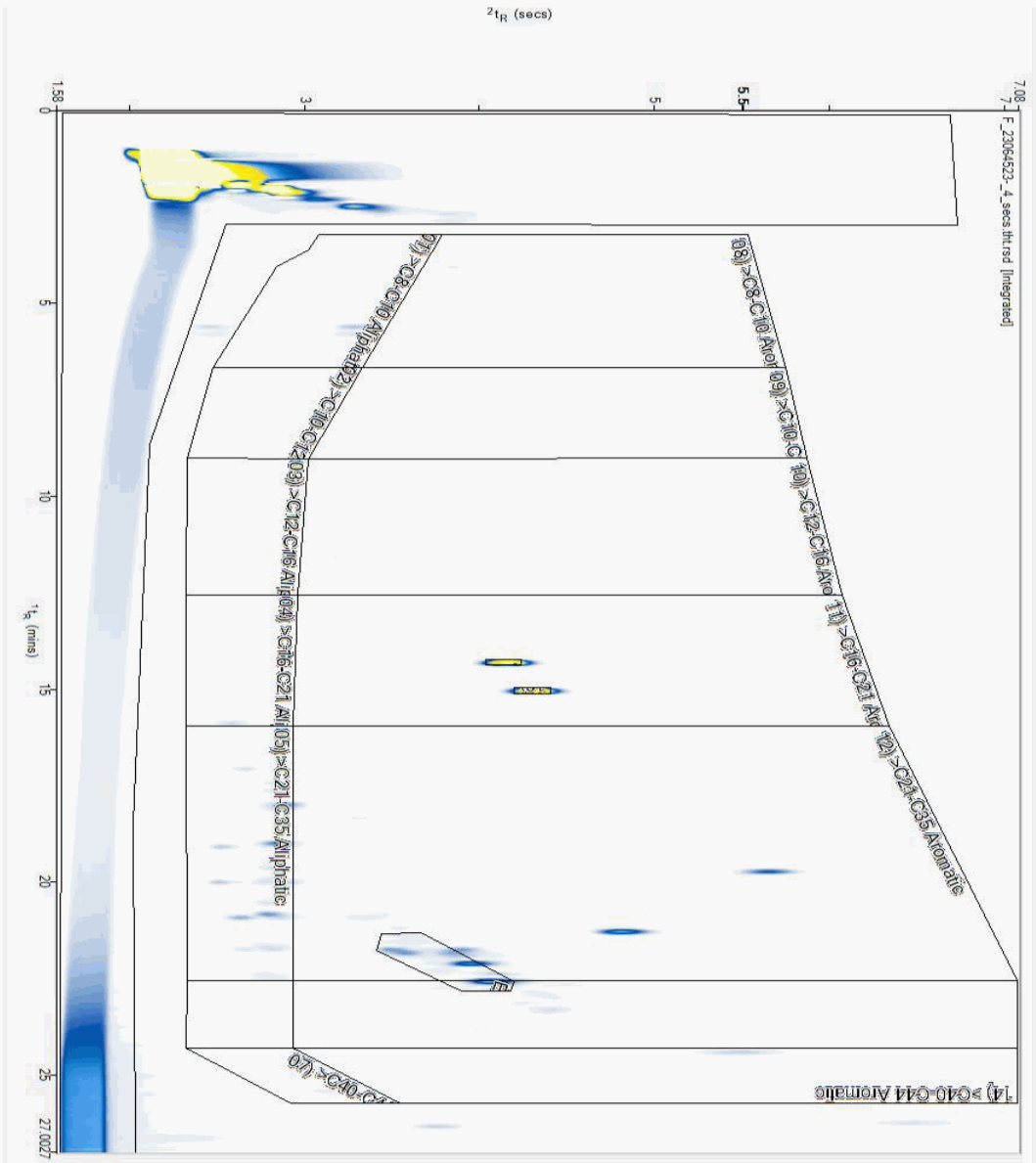
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23064523 **Depth :** 3.00 - 3.10
Sample ID : TP321

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23064523-_4_secs.tht
Date Acquired   :  20/10/20 07:35:42
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



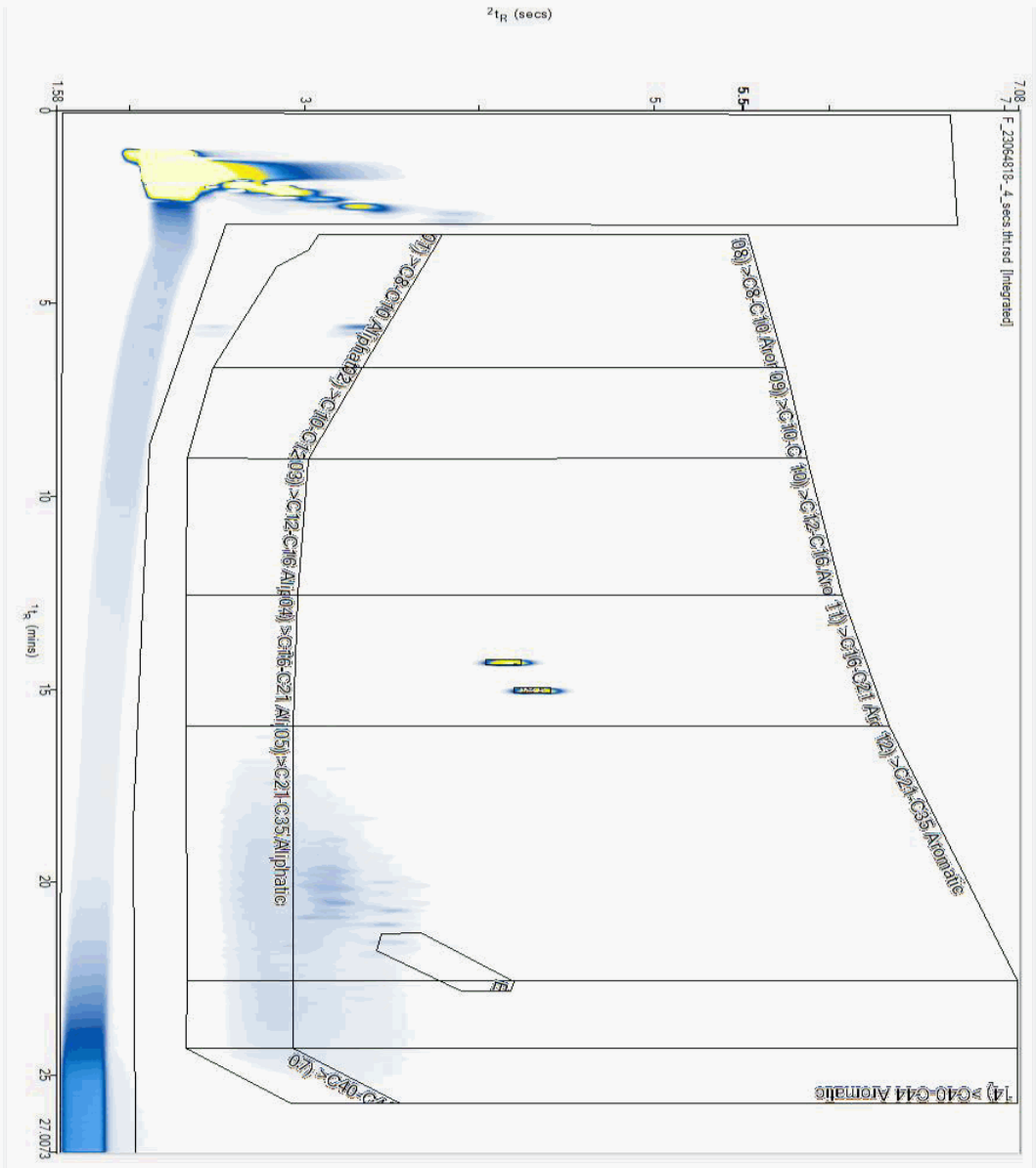
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23064818 **Depth :** 0.40 - 0.50
Sample ID : TP321

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23064818-_4_secs.tht
Date Acquired   :  21/10/20 03:26:32
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



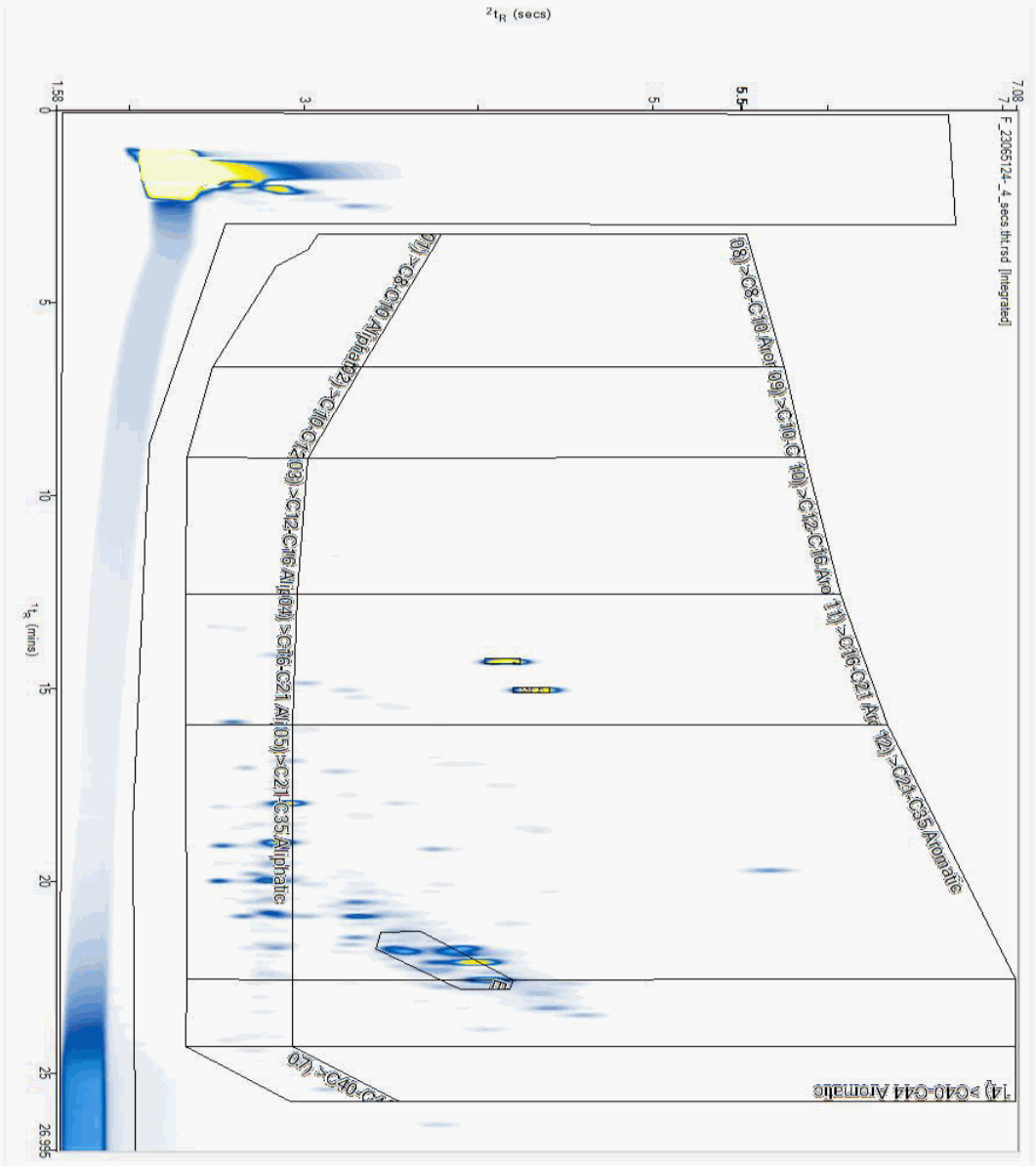
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23065124 **Depth :** 3.40 - 3.50
Sample ID : TP307

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23065124-_4_secs.tht
Date Acquired   :  20/10/20 10:12:28
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



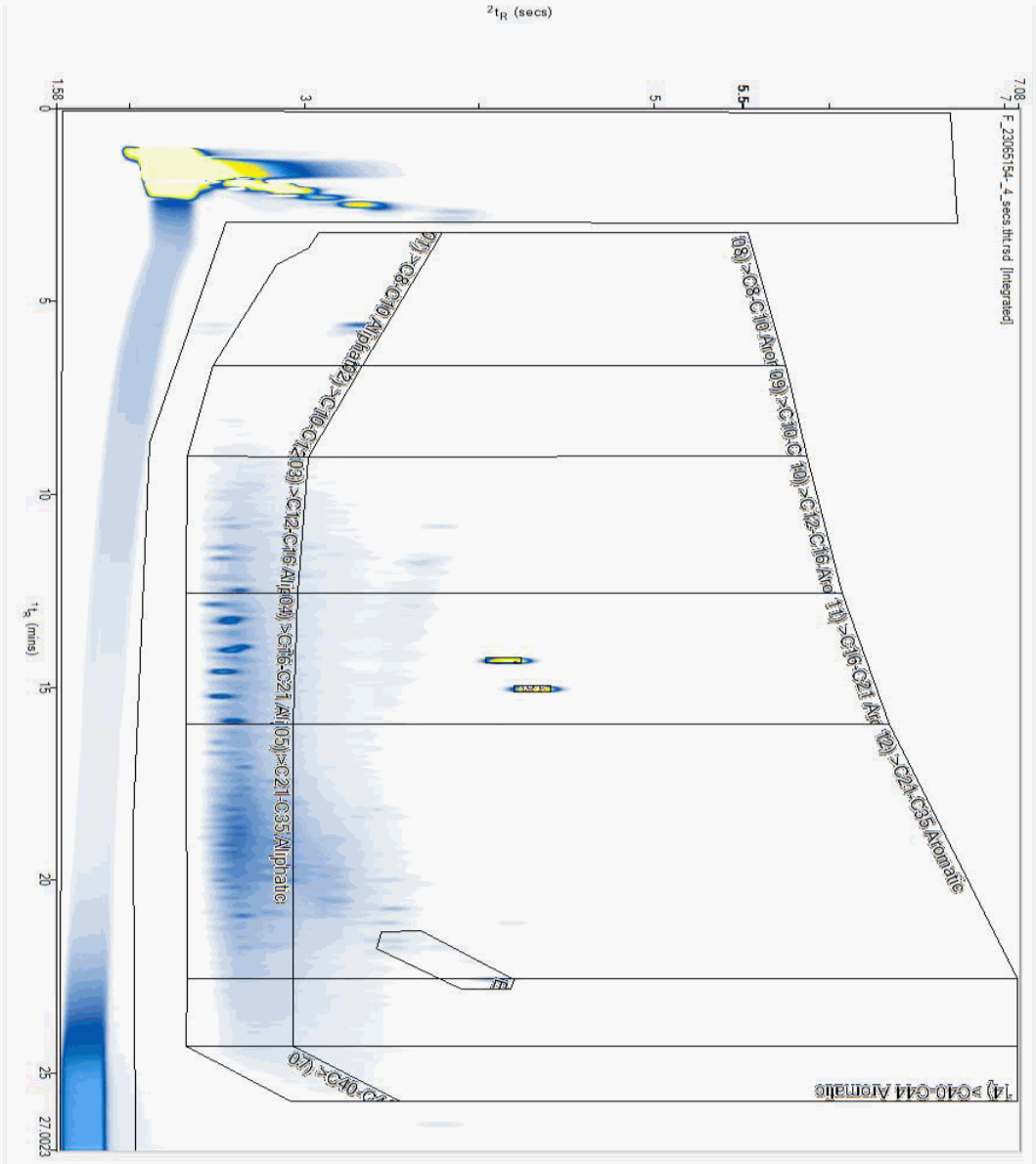
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23065154 **Depth :** 0.90 - 1.00
Sample ID : TP307

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23065154-_4_secs.tht
Date Acquired   :  21/10/20 04:29:20
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



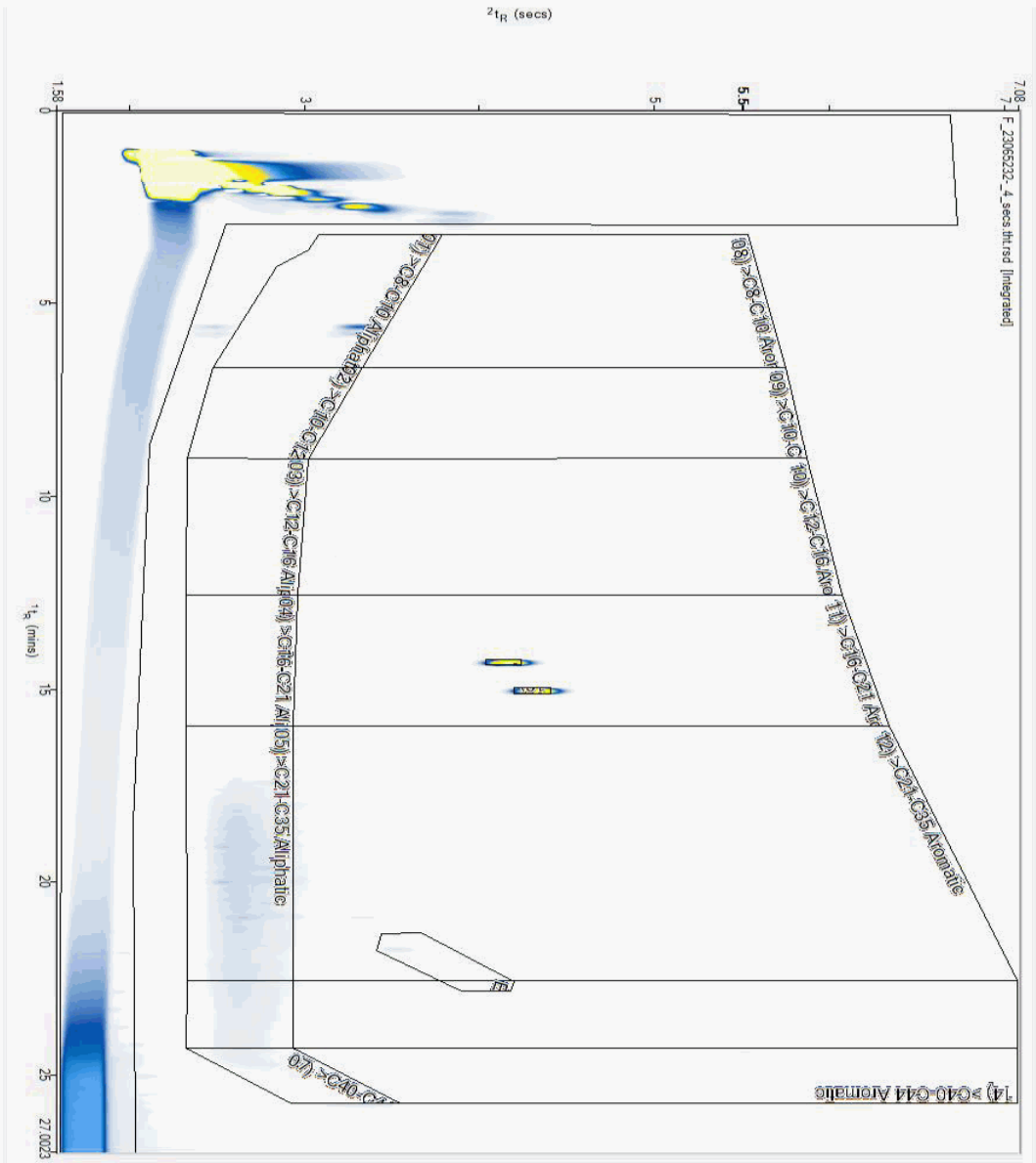
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23065232 **Depth :** 1.50 - 1.50
Sample ID : BH304

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23065232-_4_secs.tht
Date Acquired   :  20/10/20 10:43:54
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



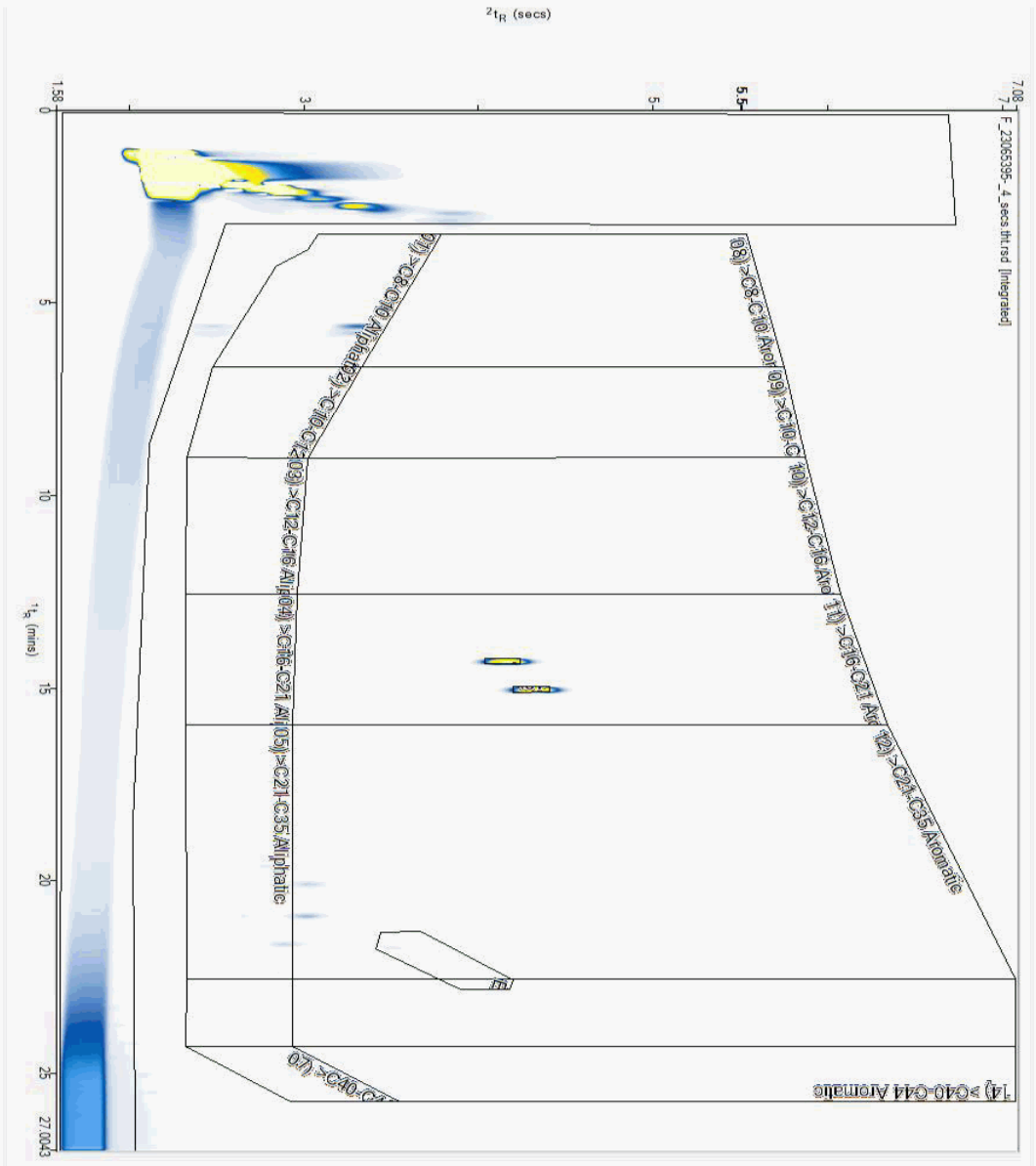
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23065395 **Depth :** 0.50 - 0.50
Sample ID : BH304

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23065395-_4_secs.tht
Date Acquired   :  20/10/20 11:15:20
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



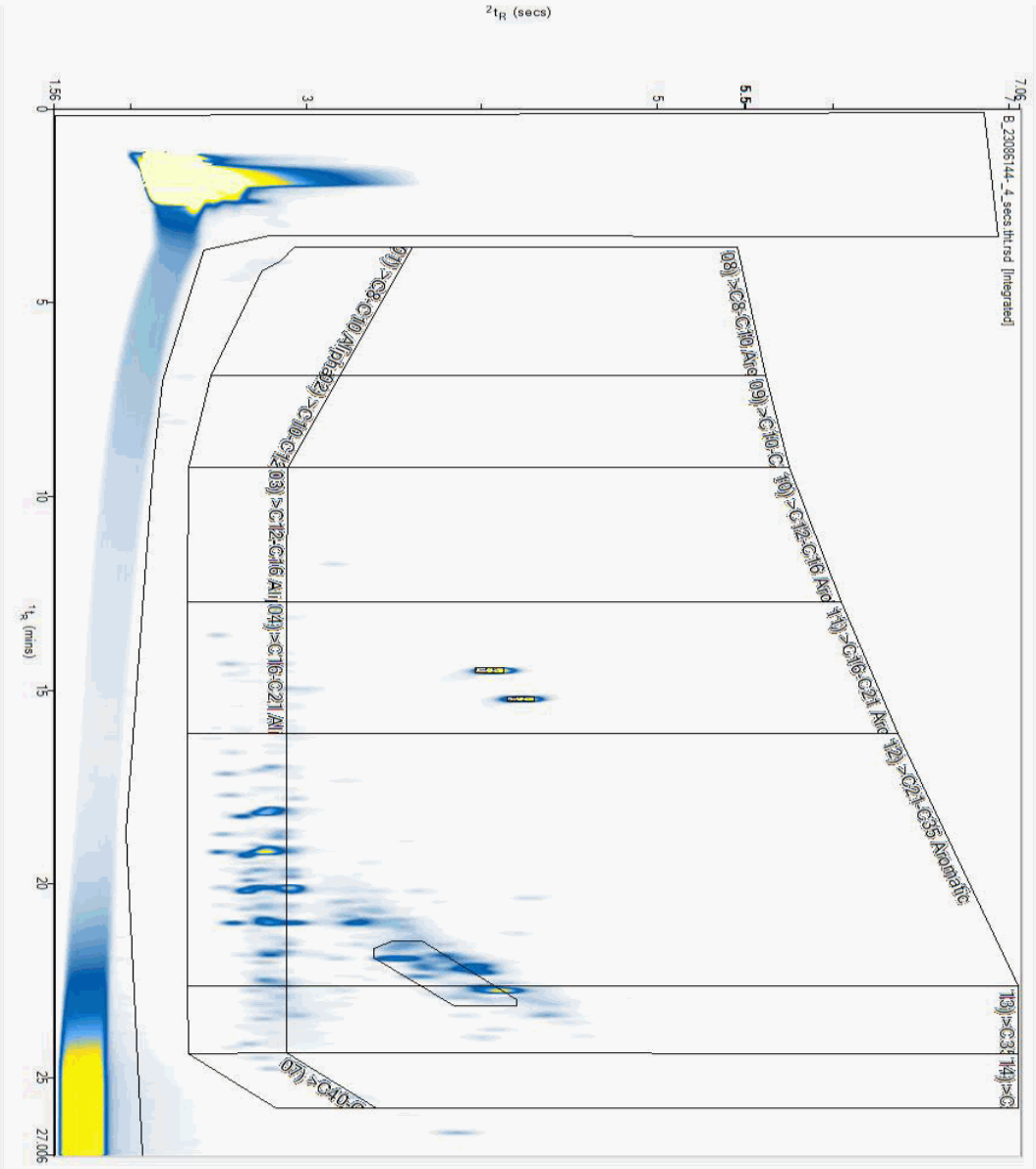
CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23086144 **Depth :** 2.00 - 2.10
Sample ID : TP323

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23086144-_4_secs.tht
Date Acquired   :  22/10/20 09:07:40
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



CERTIFICATE OF ANALYSIS

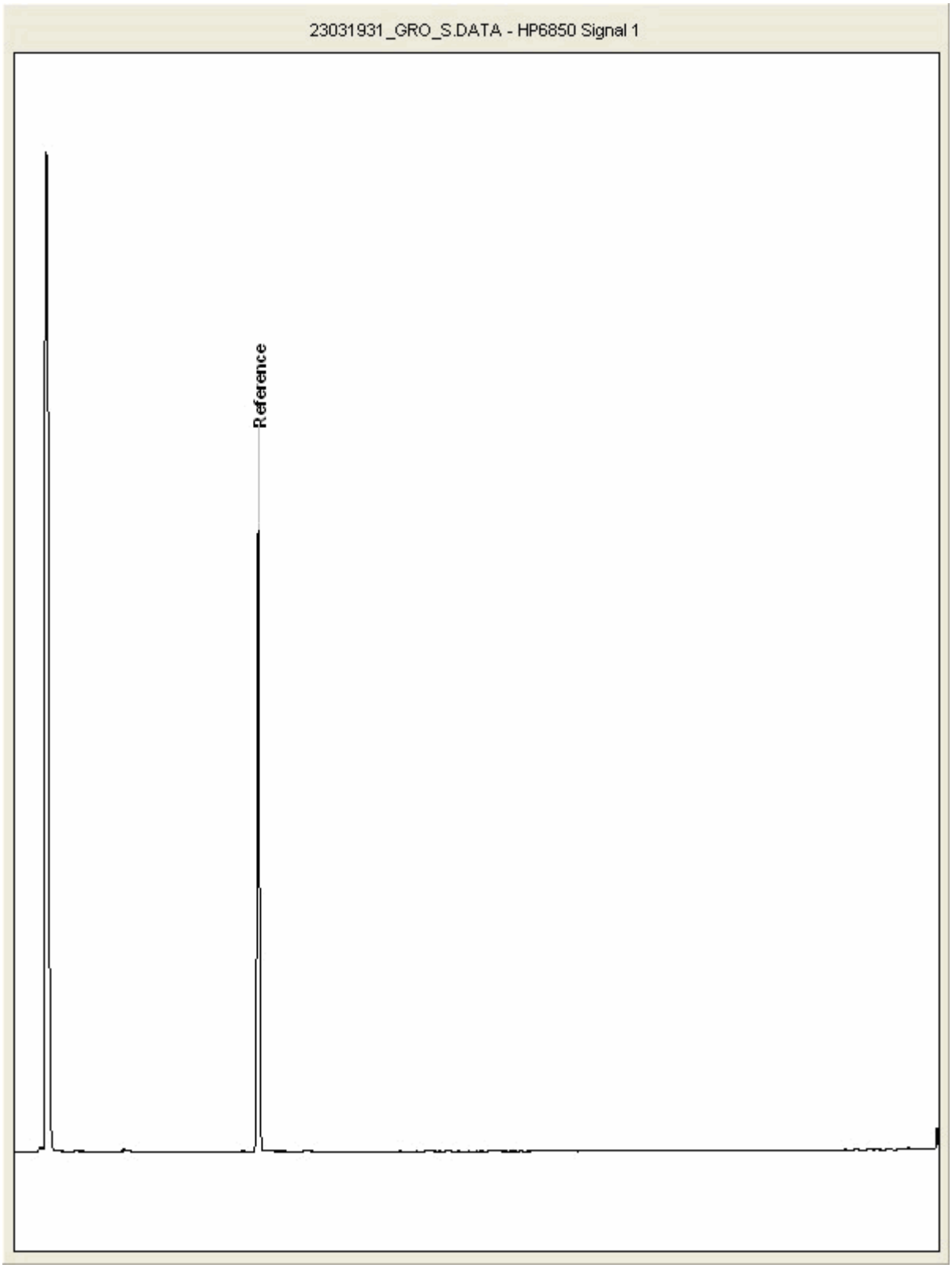
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23031931
Sample ID : TP321

Depth : 0.90 - 1.00

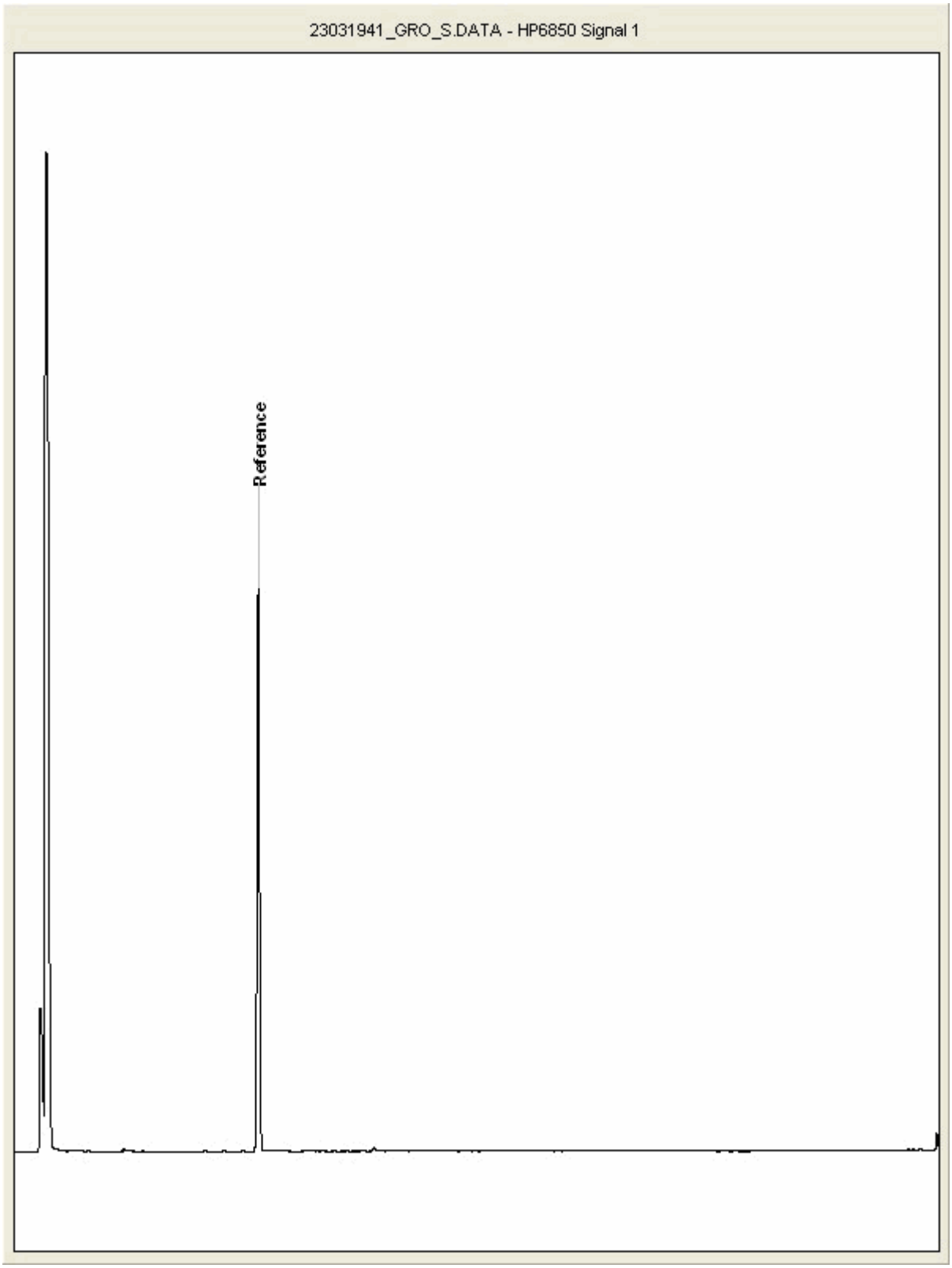


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 23031941 **Sample ID :** TP321 **Depth :** 1.60 - 1.70



CERTIFICATE OF ANALYSIS

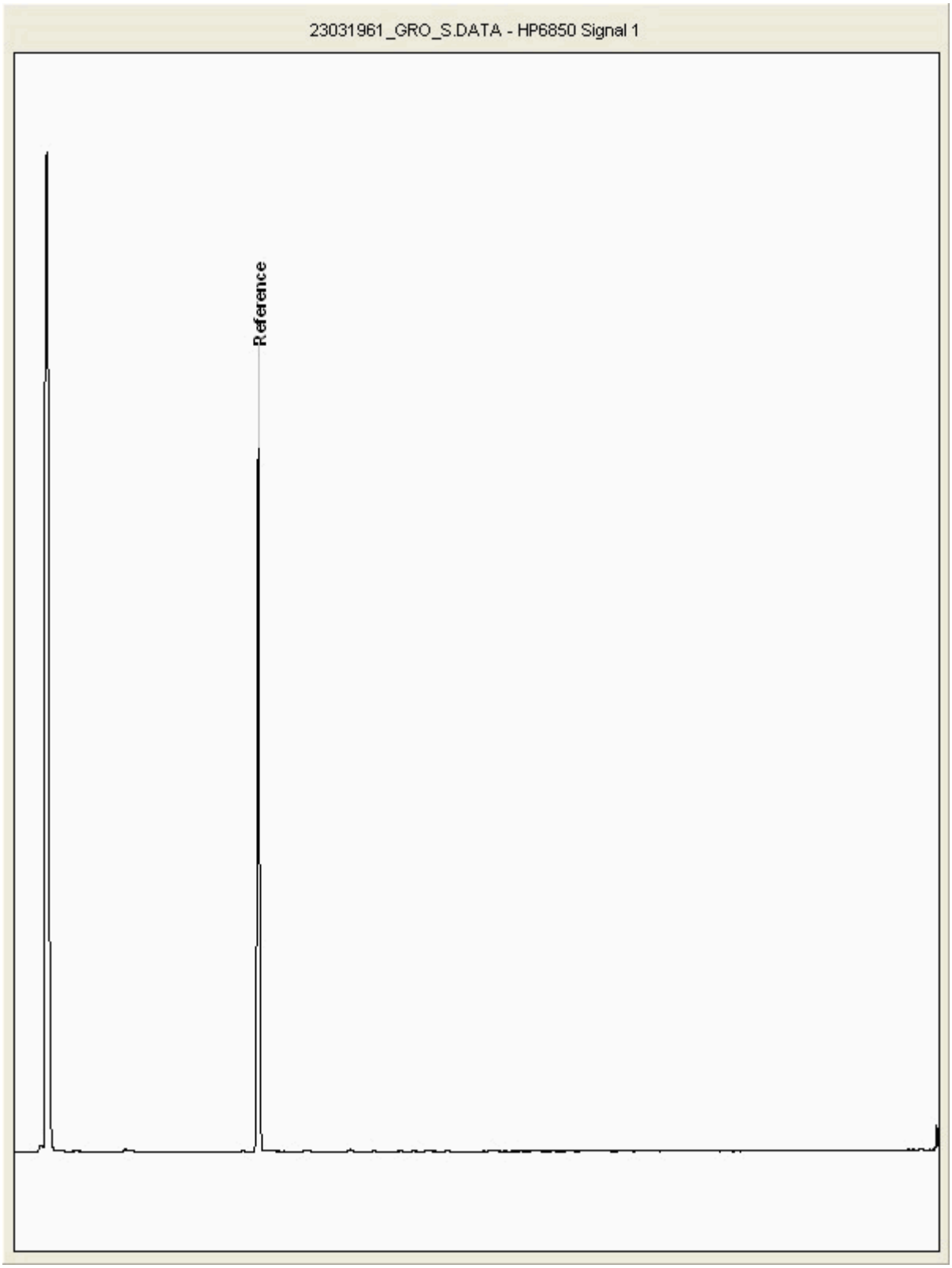
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23031961
Sample ID : TP321

Depth : 3.00 - 3.10



CERTIFICATE OF ANALYSIS

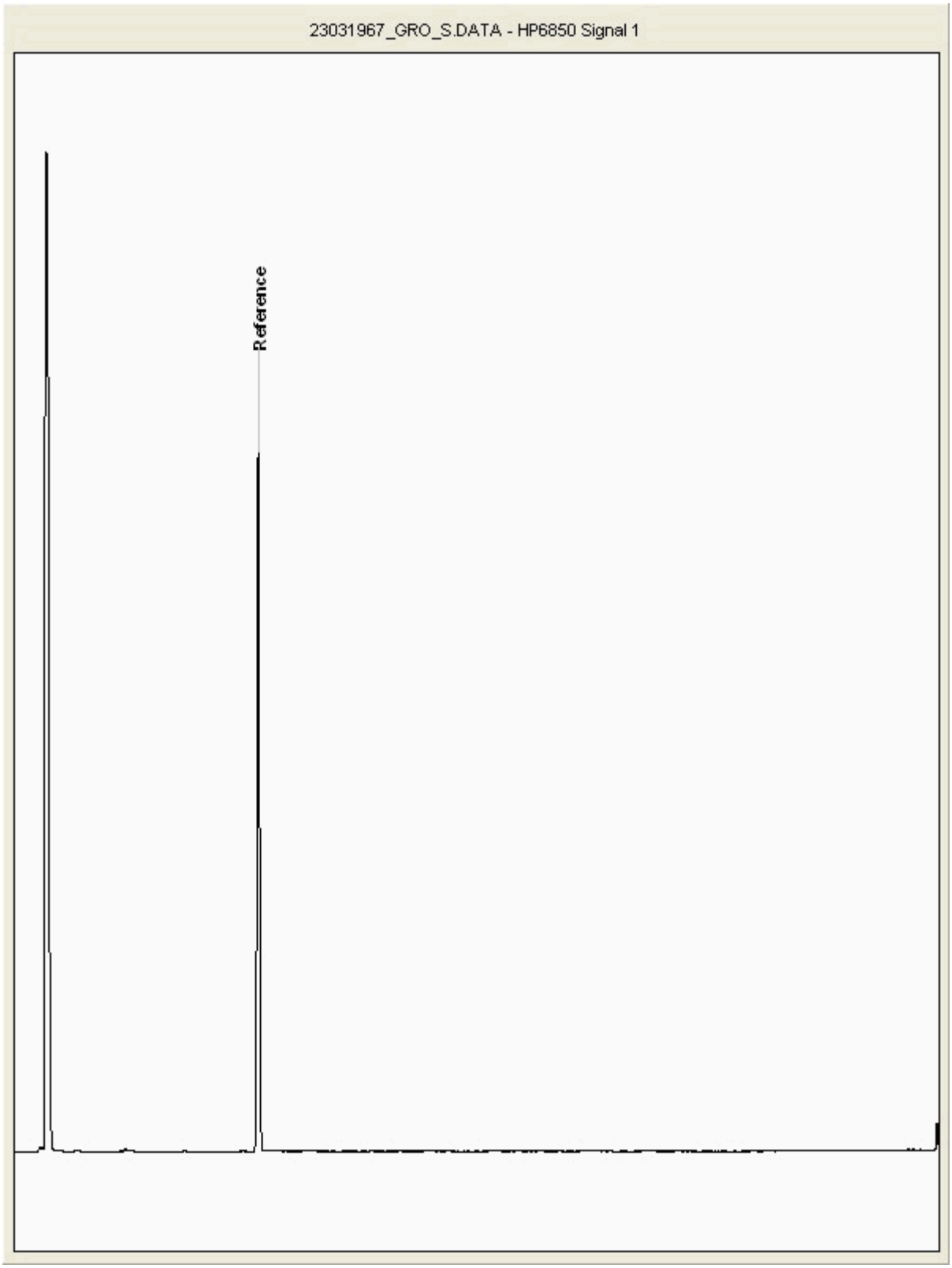
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23031967
Sample ID : TP324

Depth : 1.10 - 1.20



CERTIFICATE OF ANALYSIS

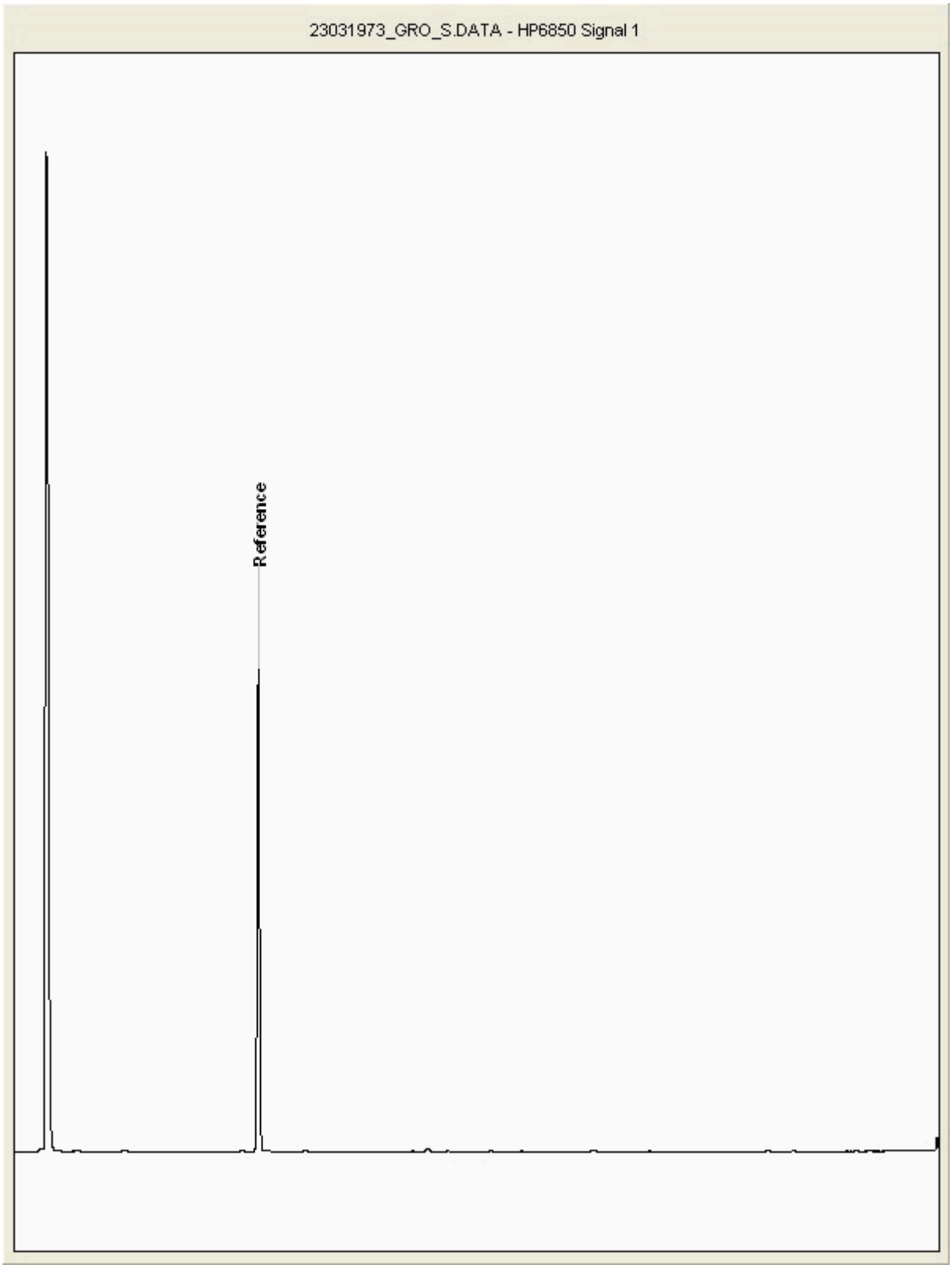
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23031973
Sample ID : TP324

Depth : 2.00 - 2.10



CERTIFICATE OF ANALYSIS

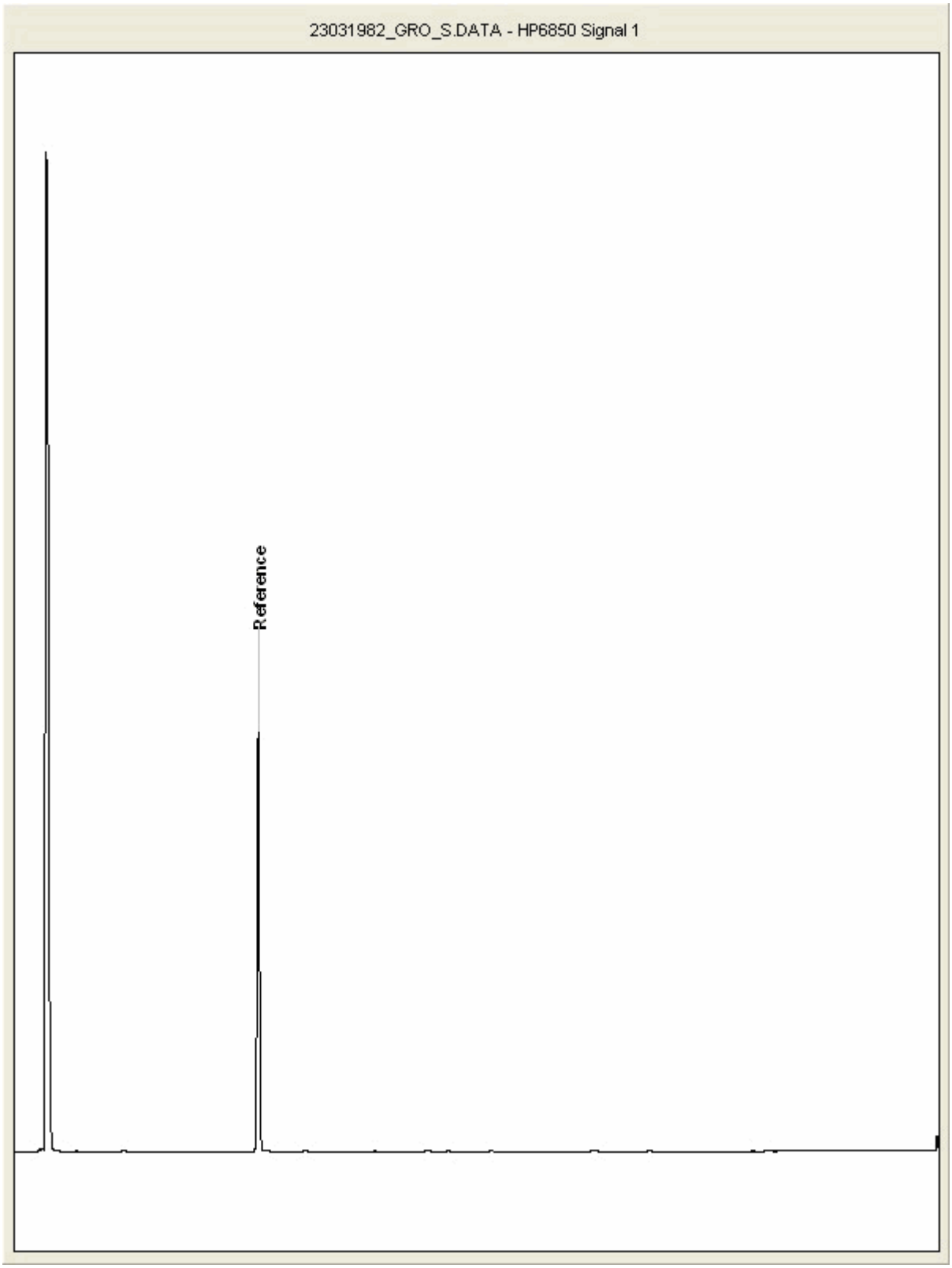
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23031982
Sample ID : TP324

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

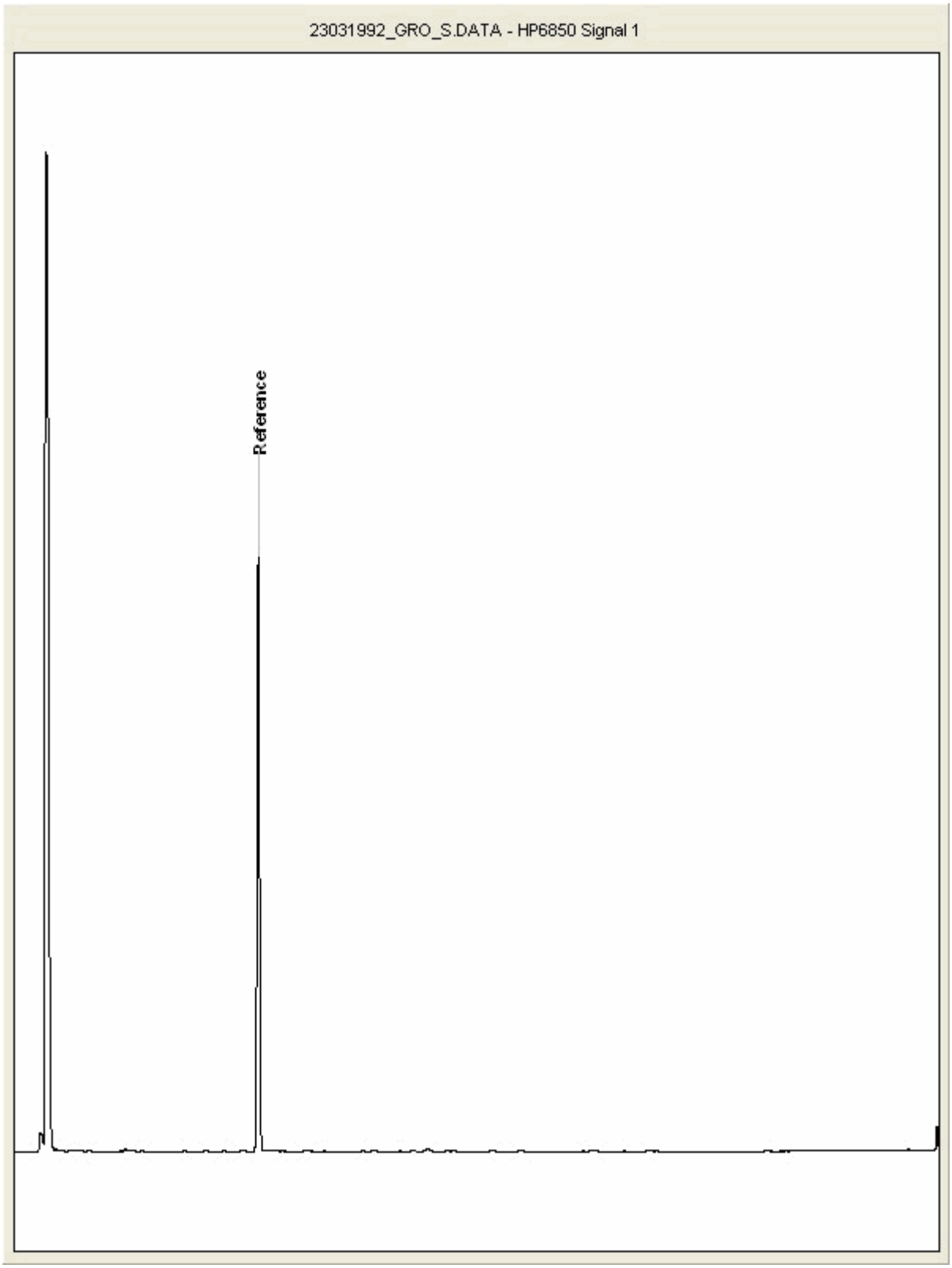
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23031992
Sample ID : TP309

Depth : 1.90 - 2.00



CERTIFICATE OF ANALYSIS

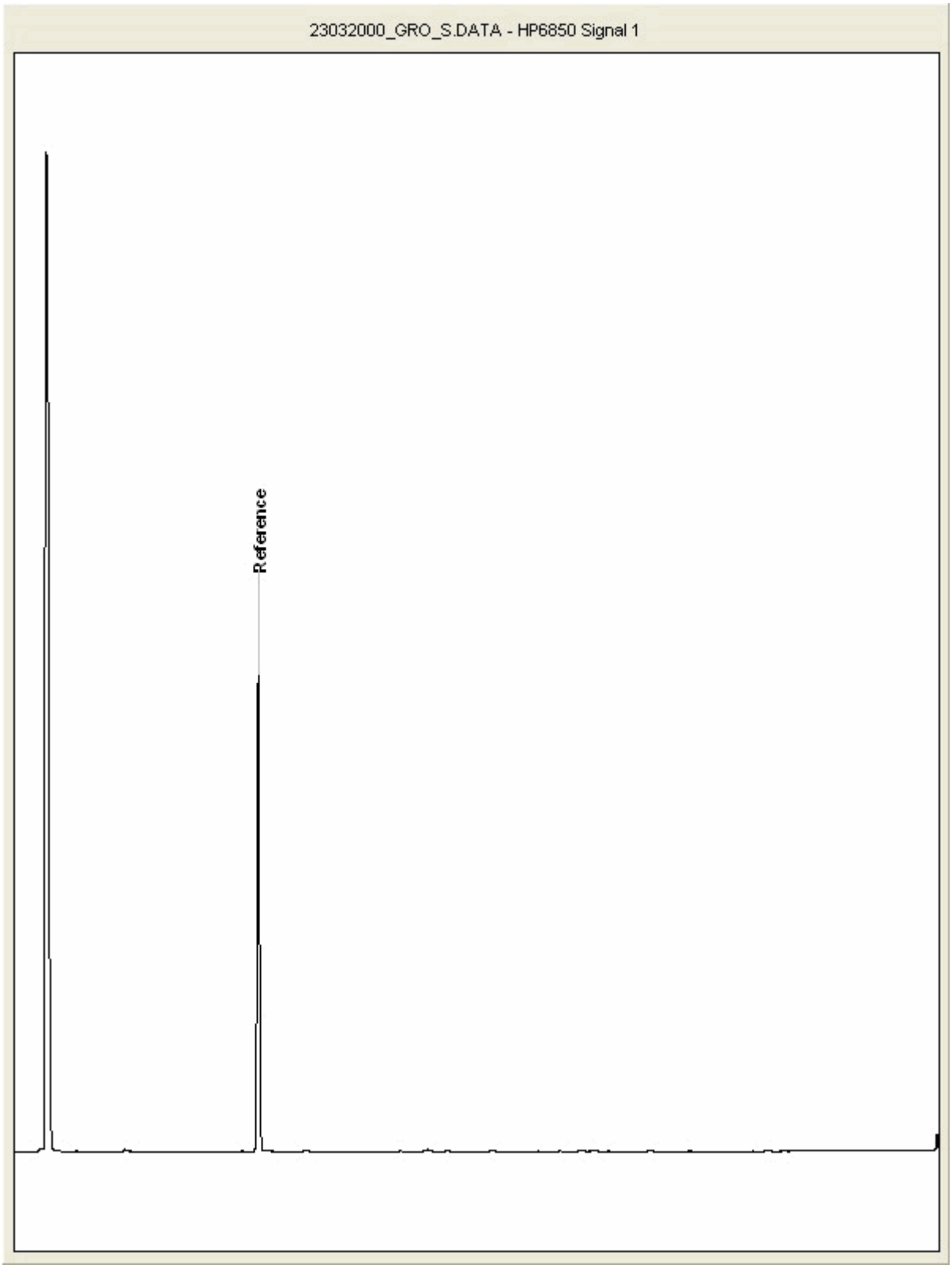
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23032000
Sample ID : TP308

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

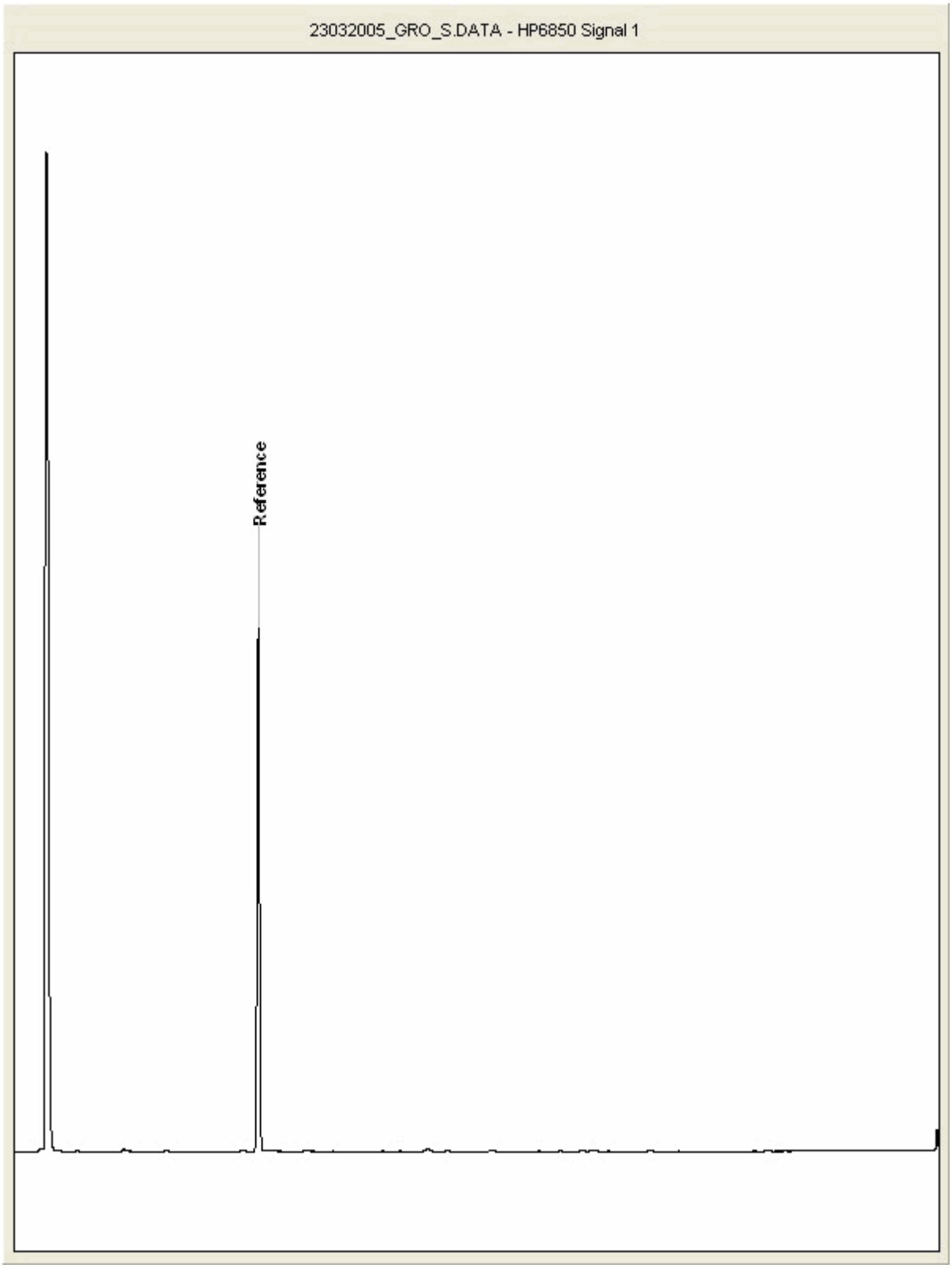
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23032005
Sample ID : TP309

Depth : 0.90 - 1.00



CERTIFICATE OF ANALYSIS

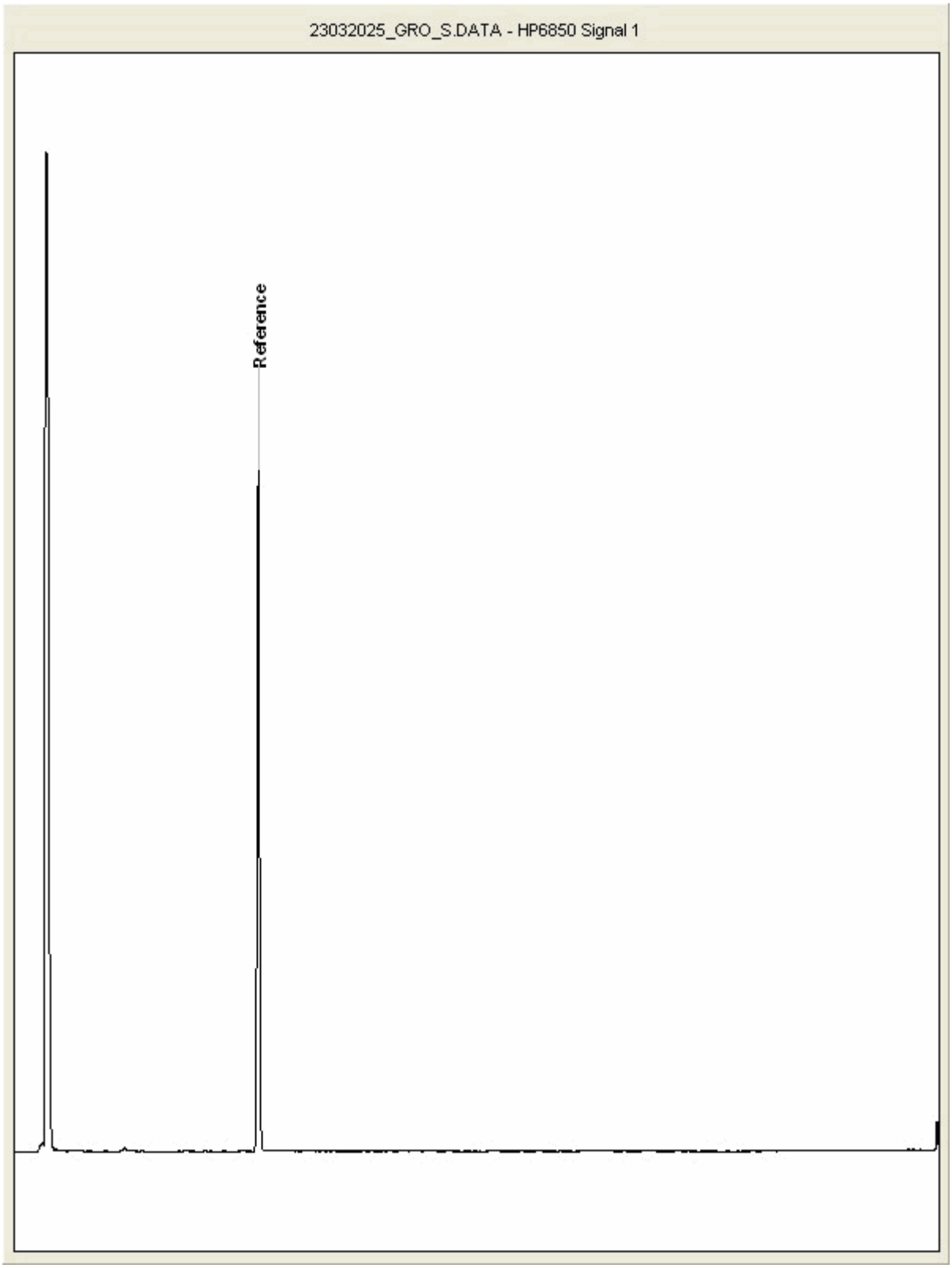
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23032025
Sample ID : TP308

Depth : 2.80 - 2.90



CERTIFICATE OF ANALYSIS

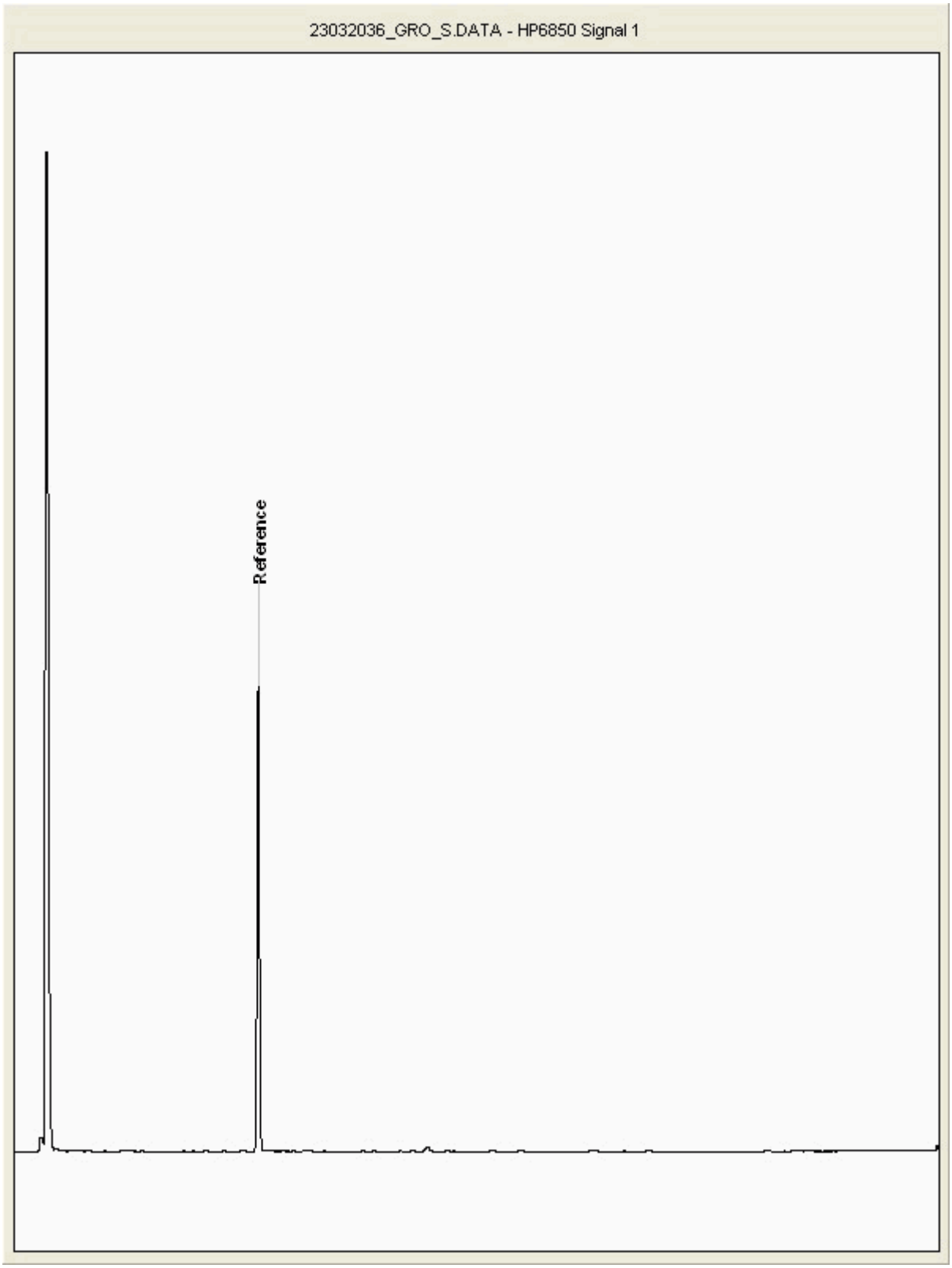
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23032036
Sample ID : TP308

Depth : 1.90 - 2.00



CERTIFICATE OF ANALYSIS

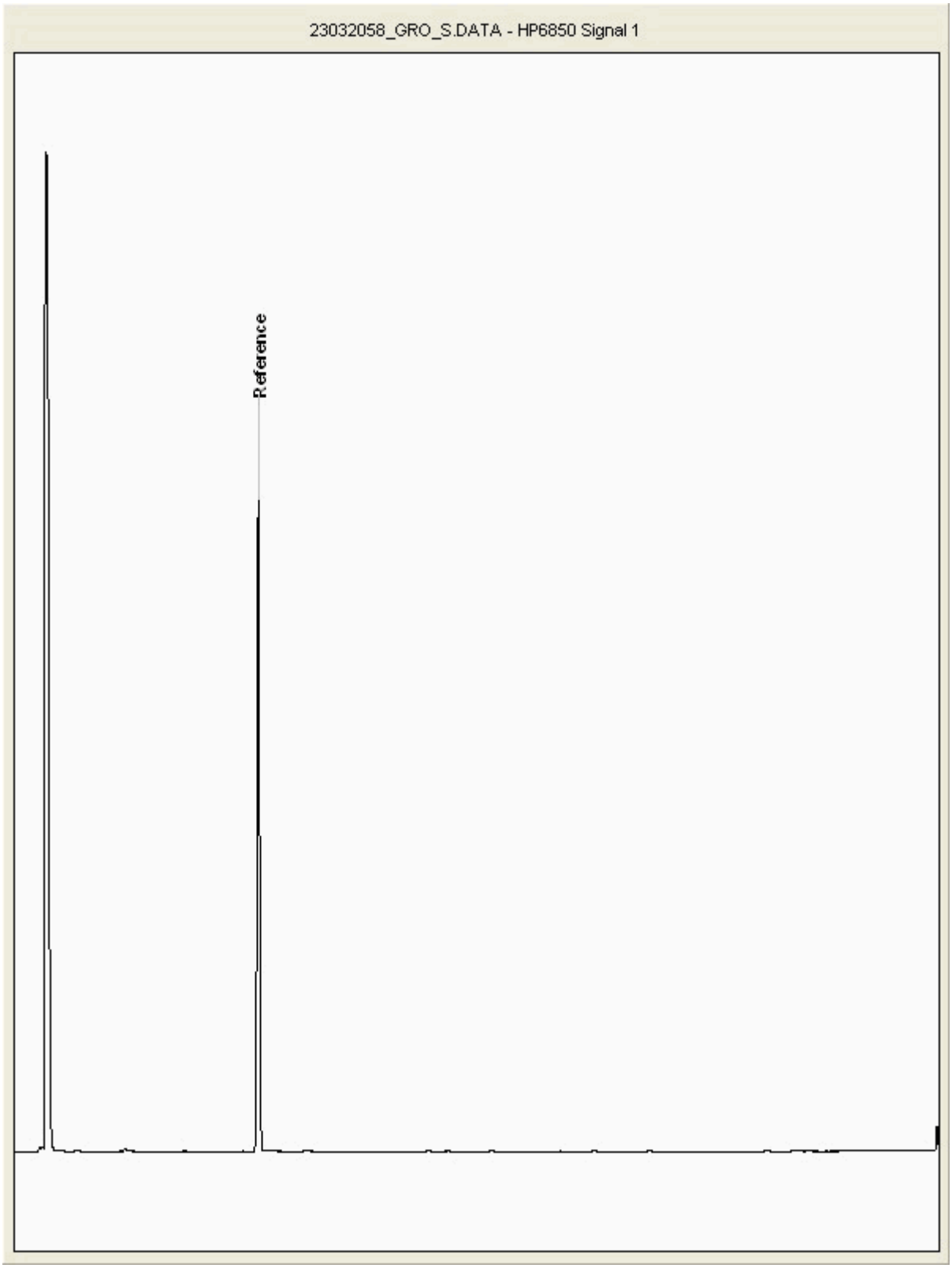
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23032058
Sample ID : TP308

Depth : 0.50 - 0.60

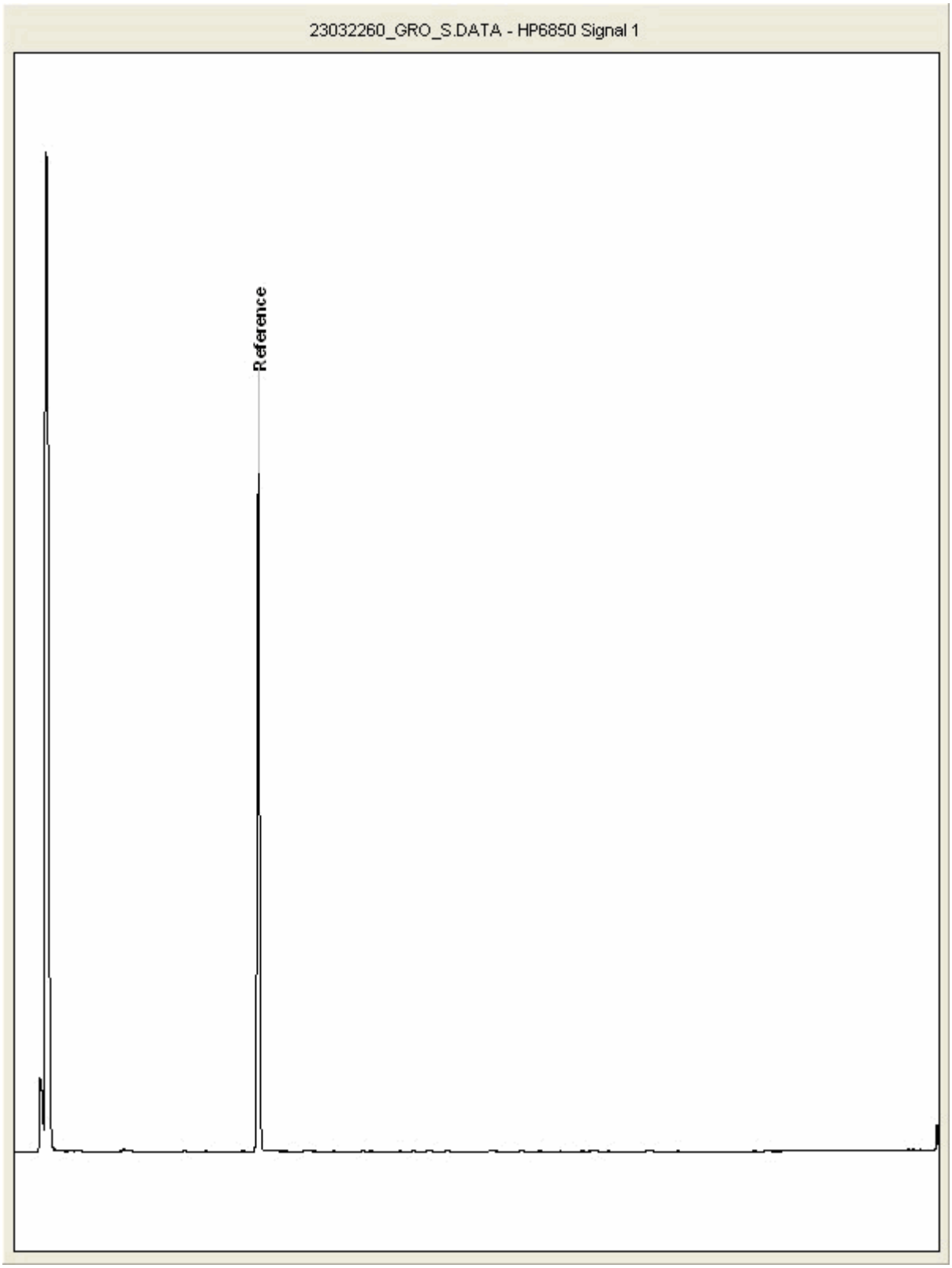


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 23032260 **Sample ID :** TP307 **Depth :** 2.50 - 2.60

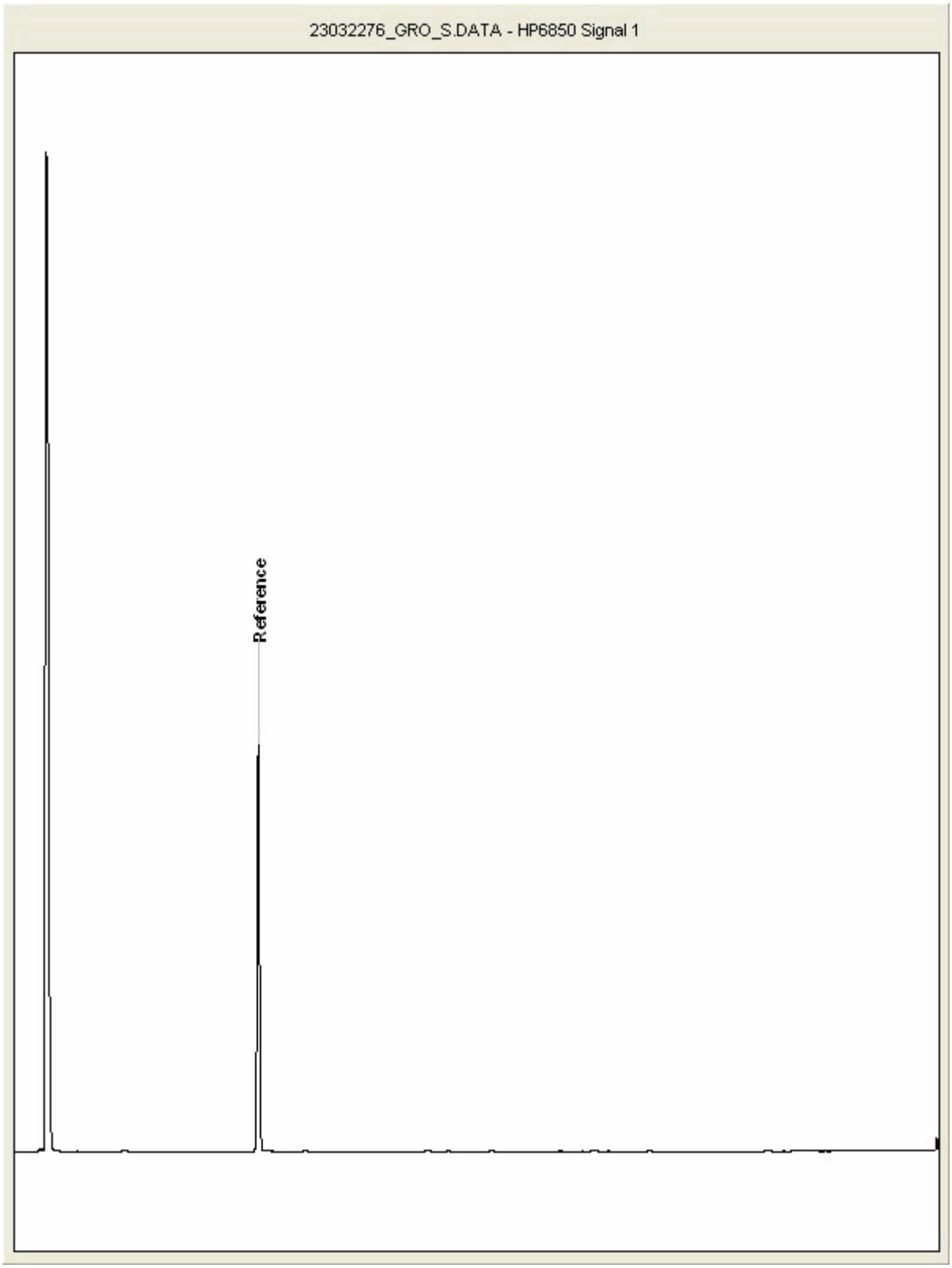


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 23032276 **Sample ID :** TP309 **Depth :** 0.50 - 0.60



CERTIFICATE OF ANALYSIS

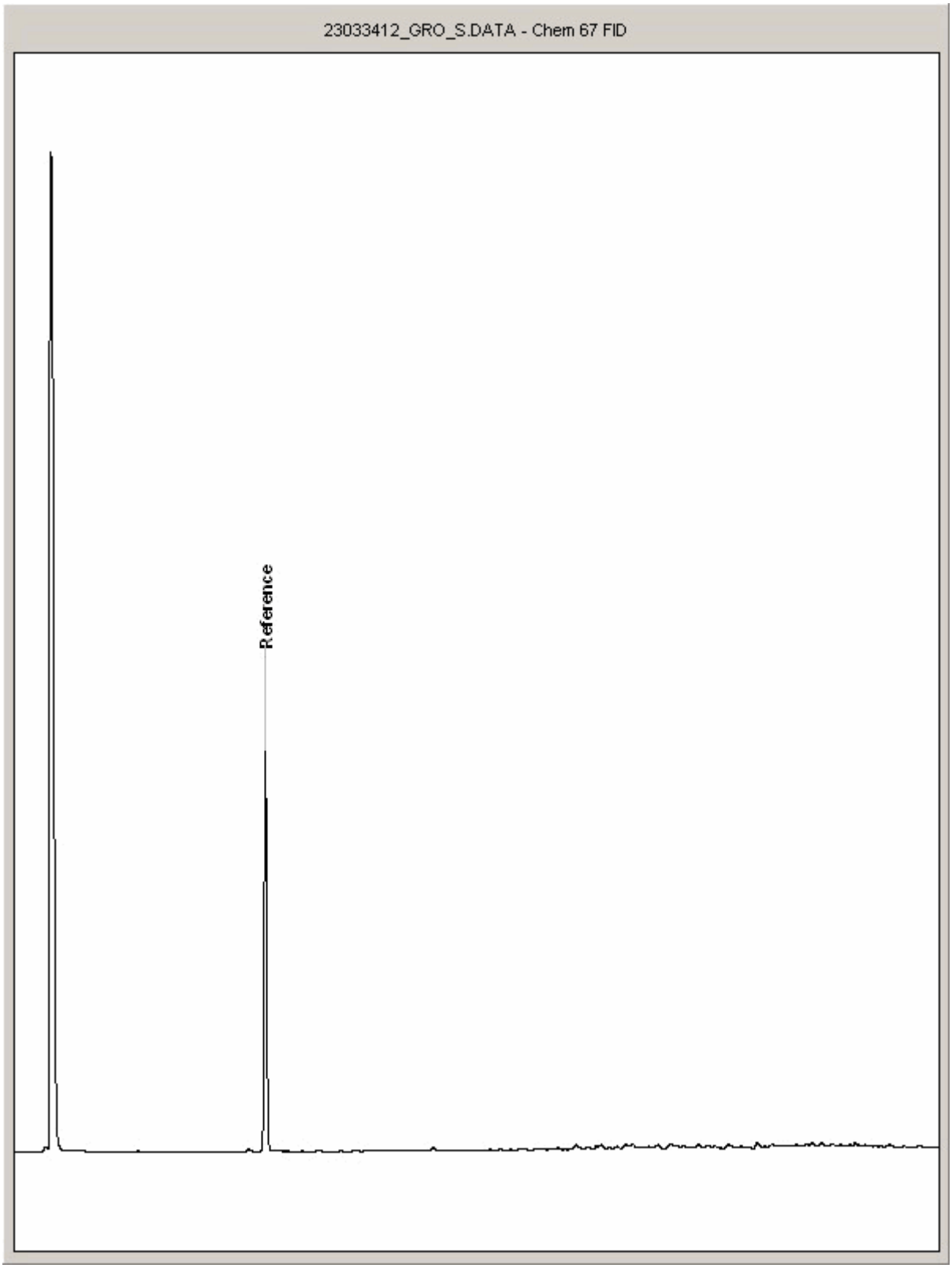
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23033412
Sample ID : TP307

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

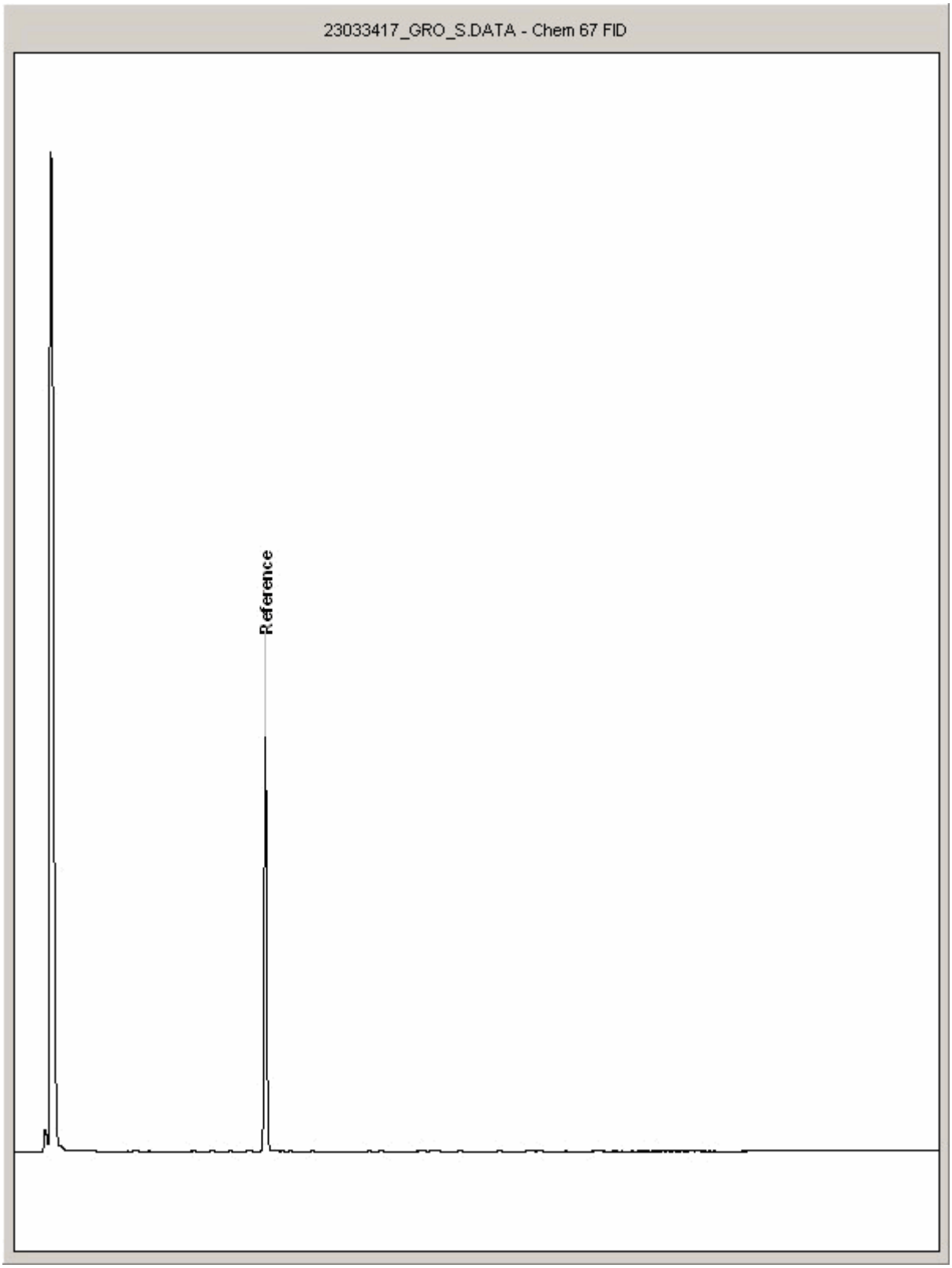
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23033417
Sample ID : TP316

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

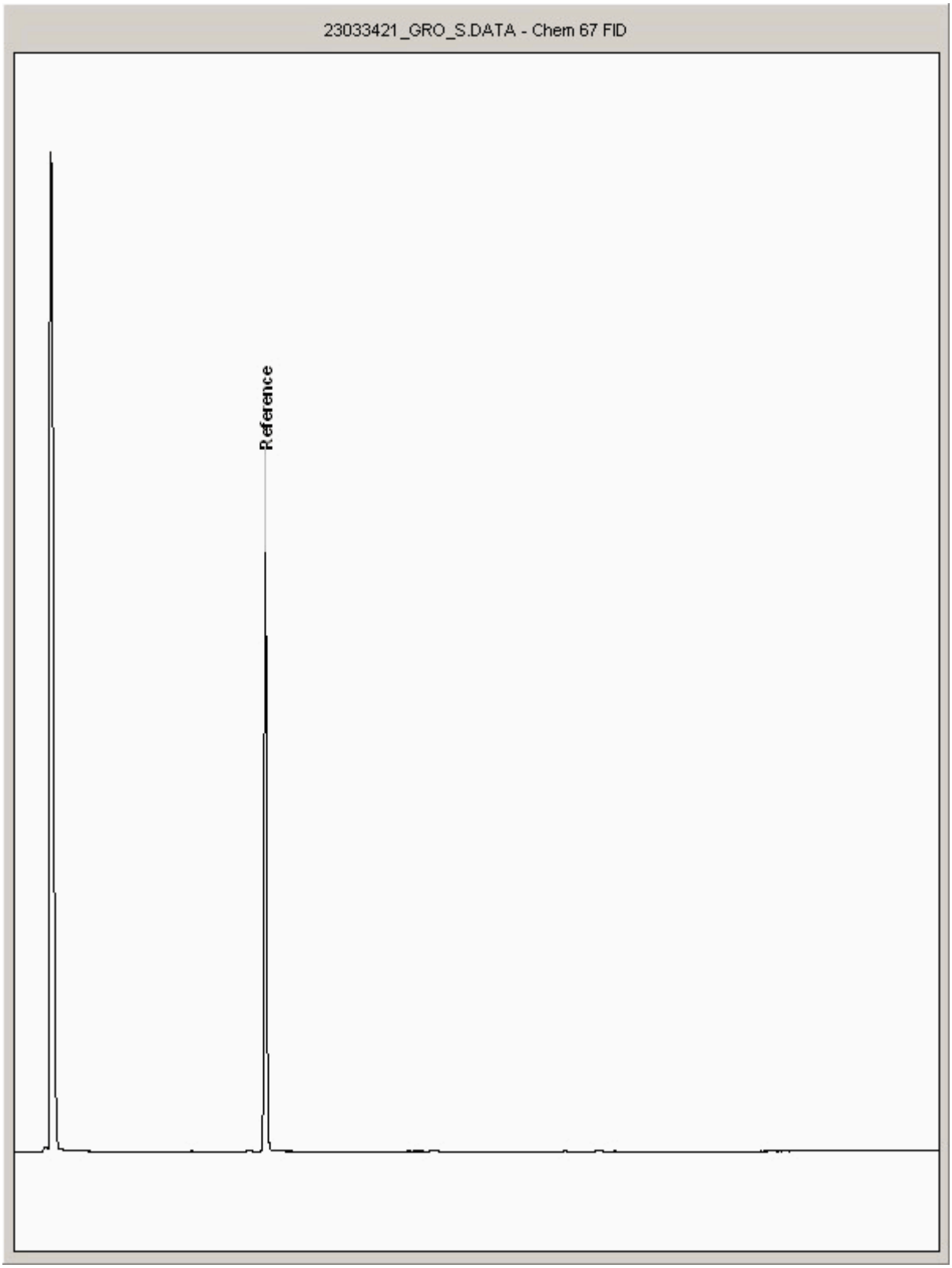
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23033421
Sample ID : TP322

Depth : 2.70 - 2.80



CERTIFICATE OF ANALYSIS

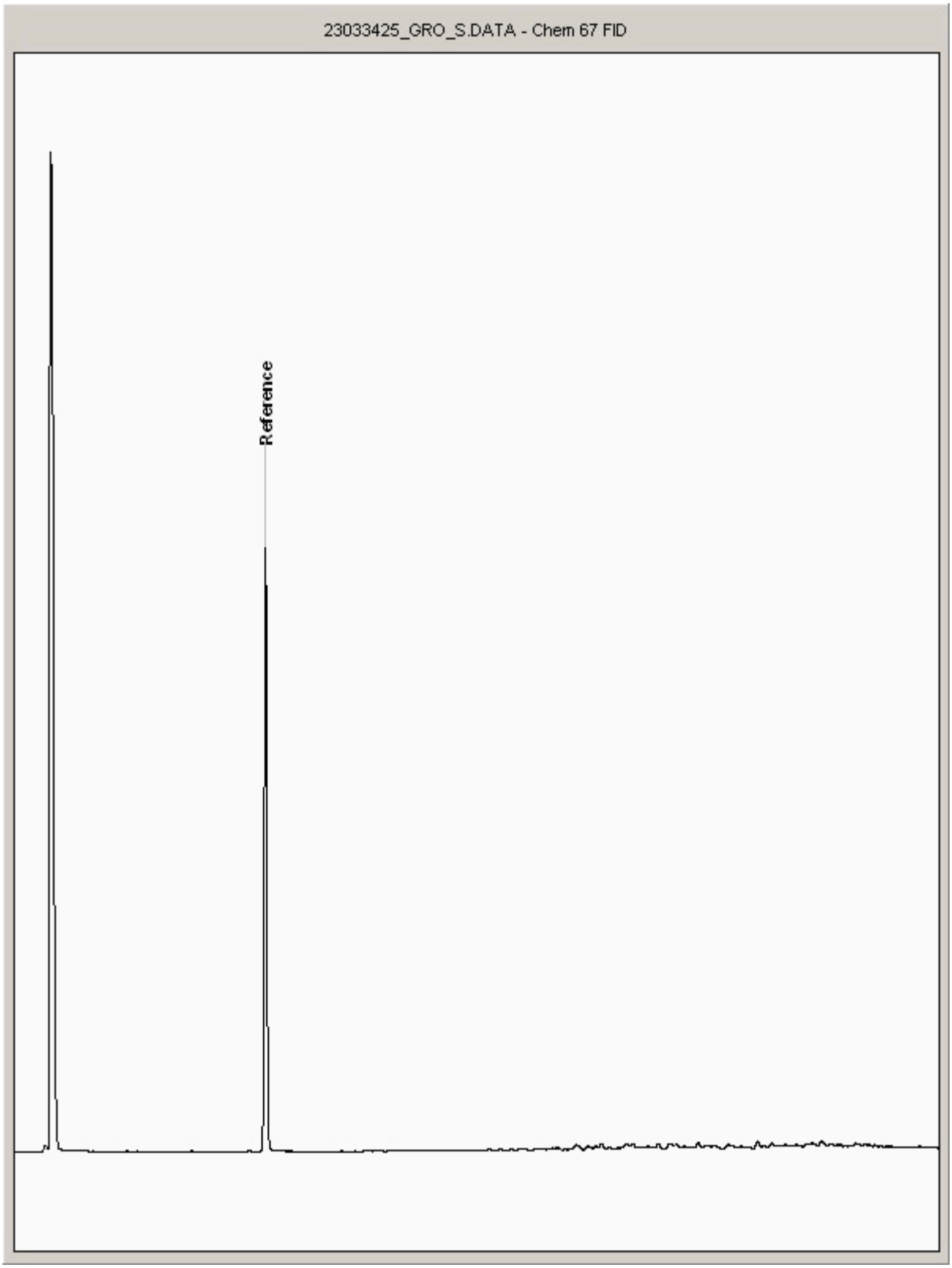
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23033425
Sample ID : TP307

Depth : 0.90 - 1.00

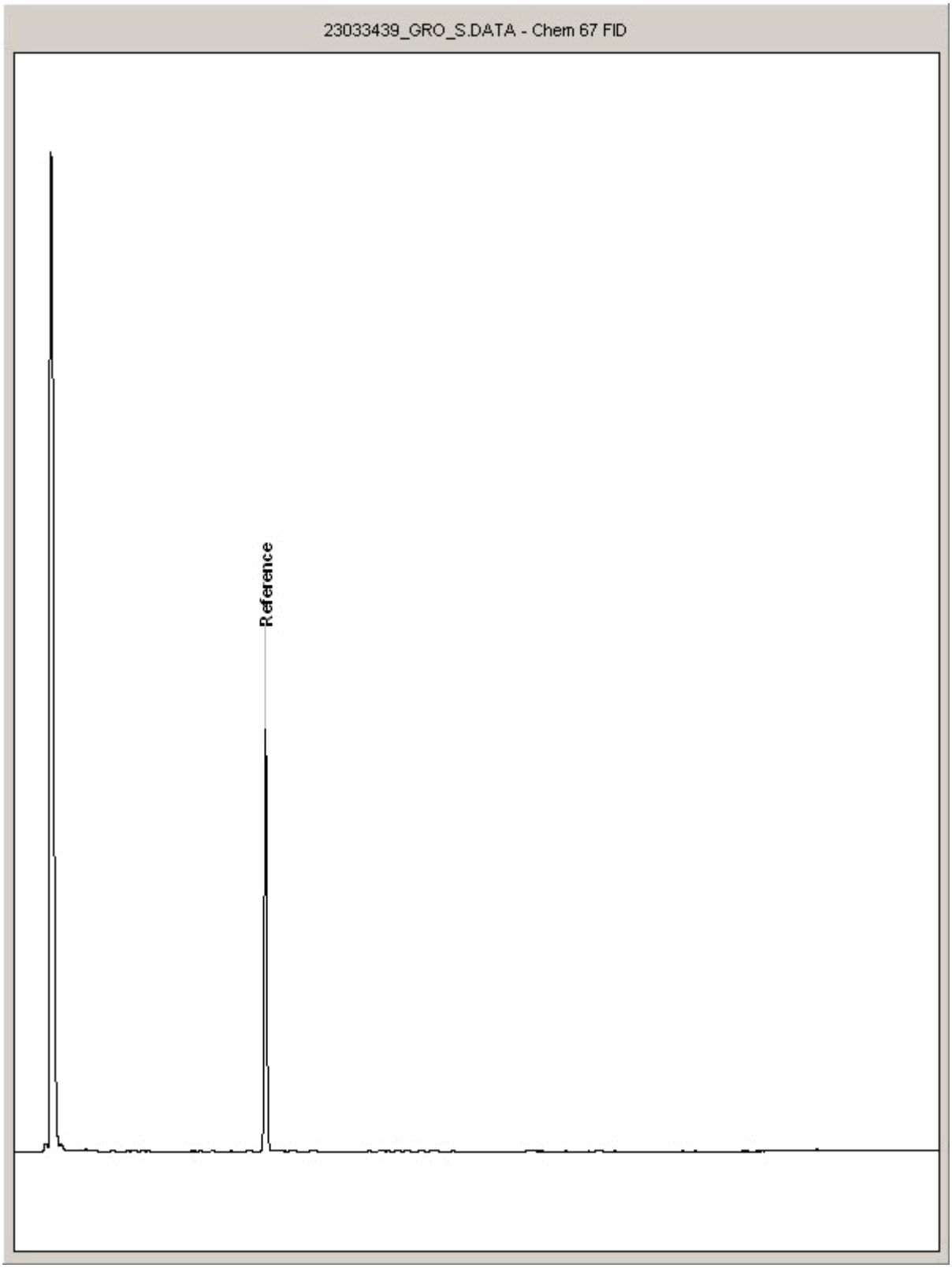


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 23033439 **Sample ID :** TP322 **Depth :** 0.60 - 0.70



CERTIFICATE OF ANALYSIS

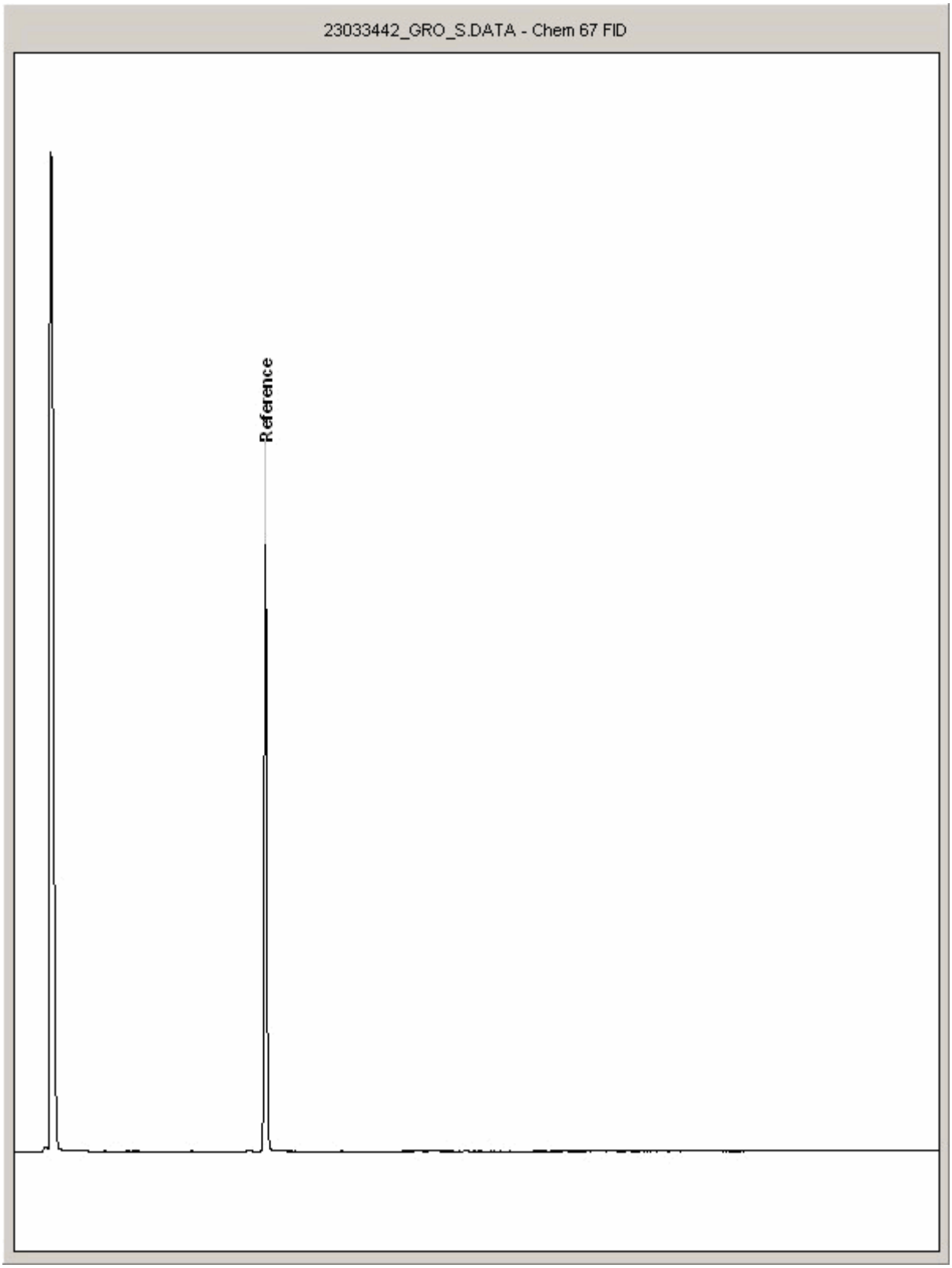
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23033442
Sample ID : BH304

Depth : 1.50 - 1.50



CERTIFICATE OF ANALYSIS

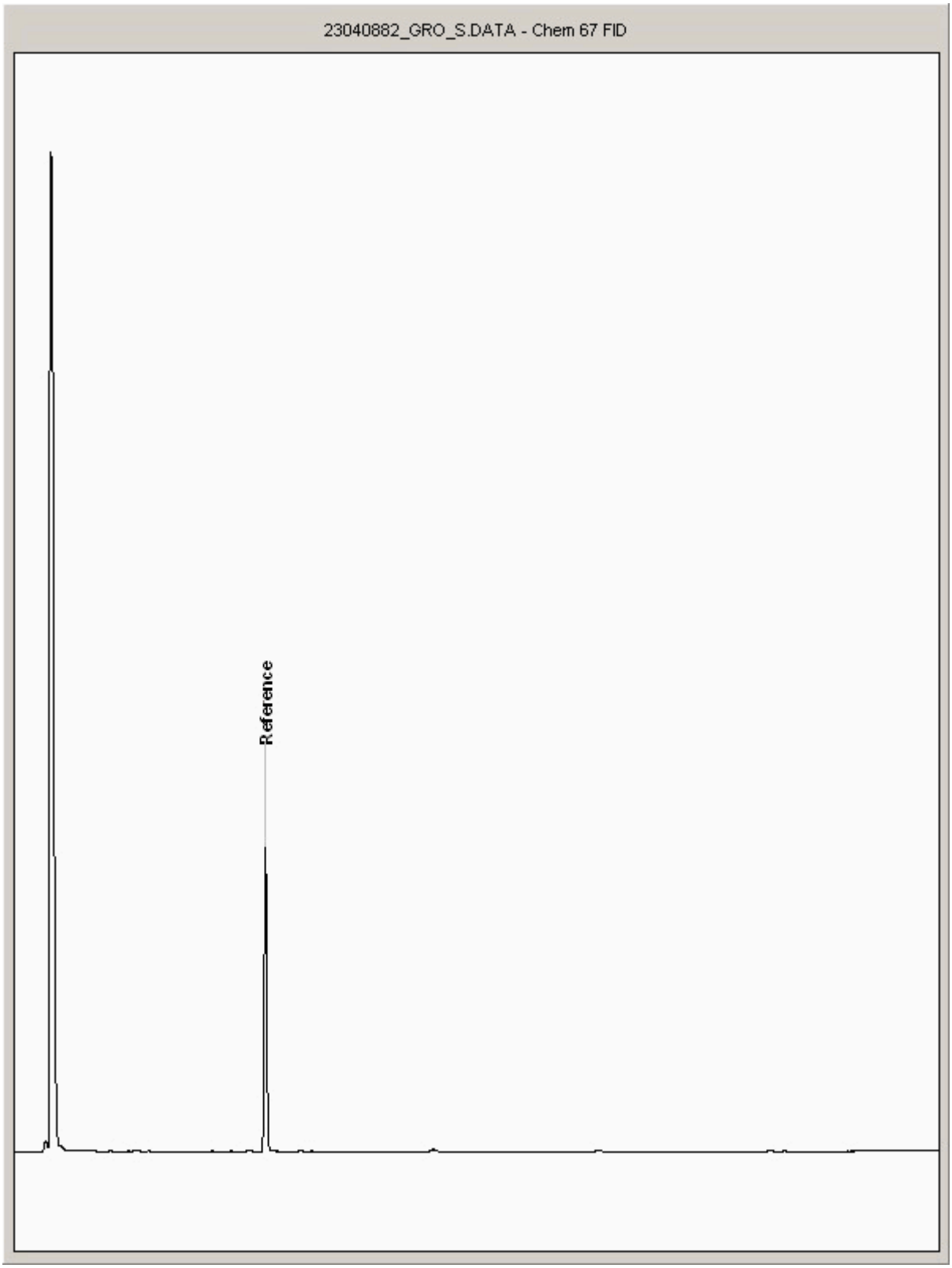
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040882
Sample ID : TP323

Depth : 2.00 - 2.10



CERTIFICATE OF ANALYSIS

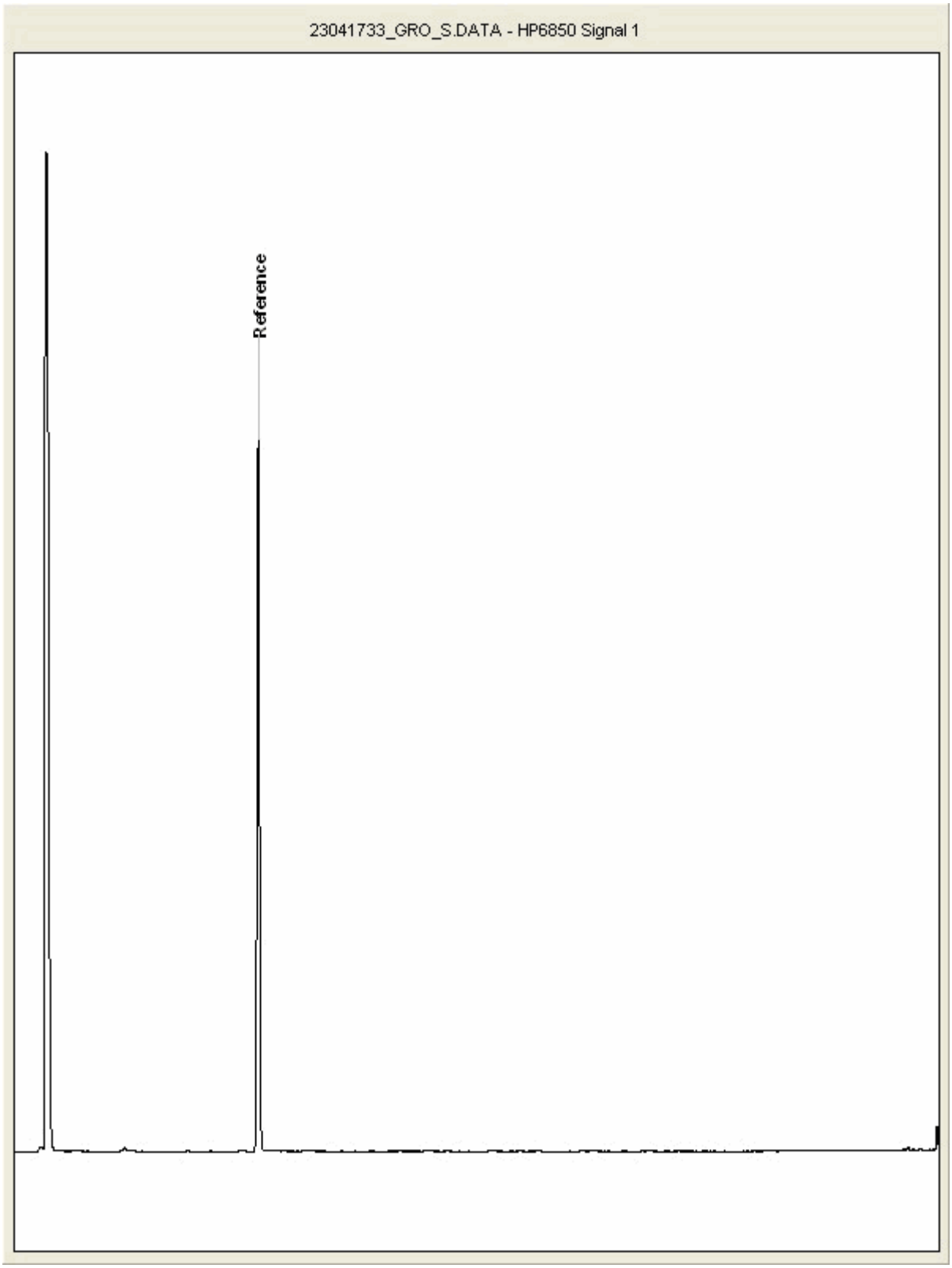
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041733
Sample ID : TP323

Depth : 1.40 - 1.50



CERTIFICATE OF ANALYSIS

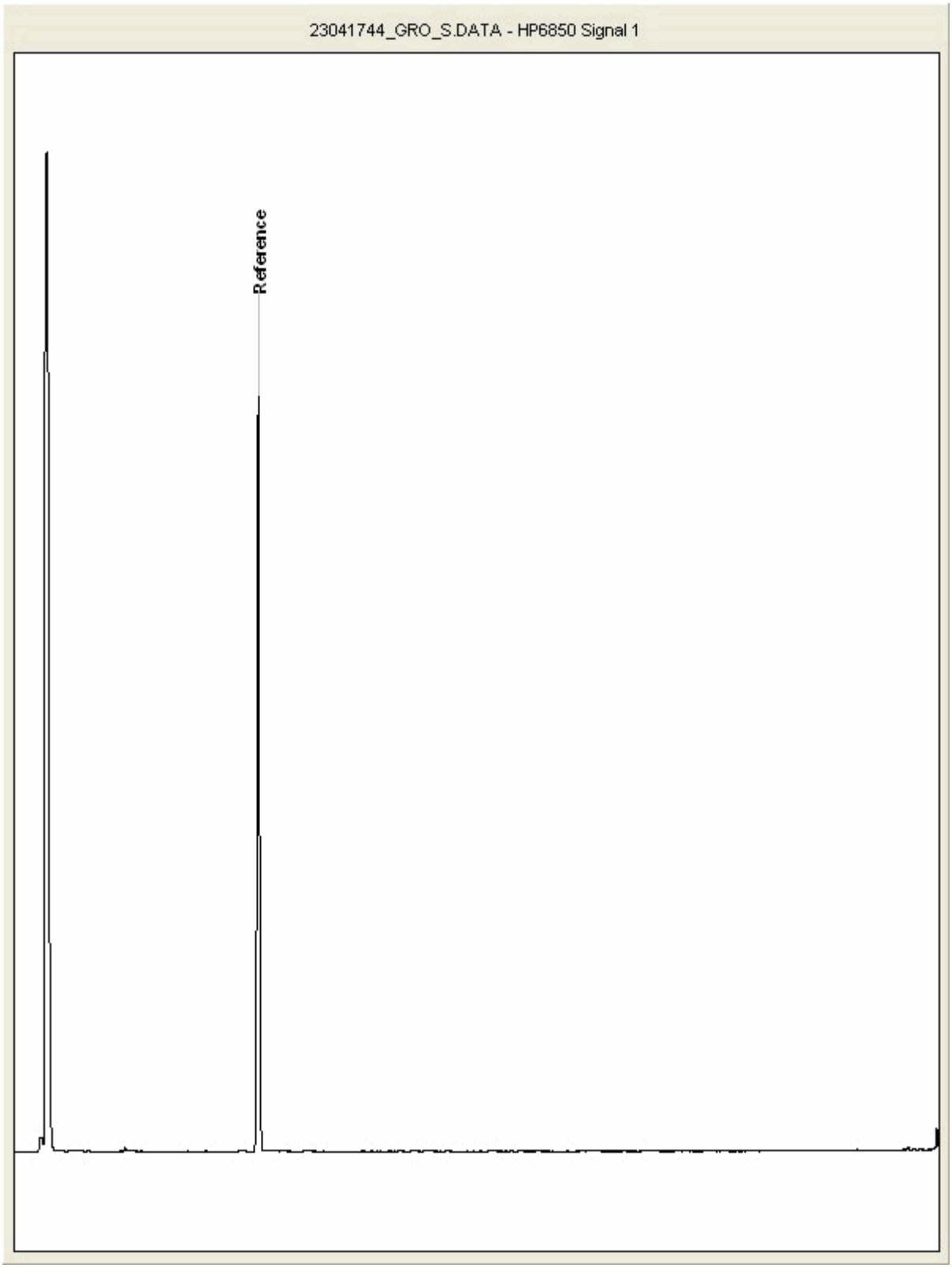
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041744
Sample ID : TP317

Depth : 3.10 - 3.20



CERTIFICATE OF ANALYSIS

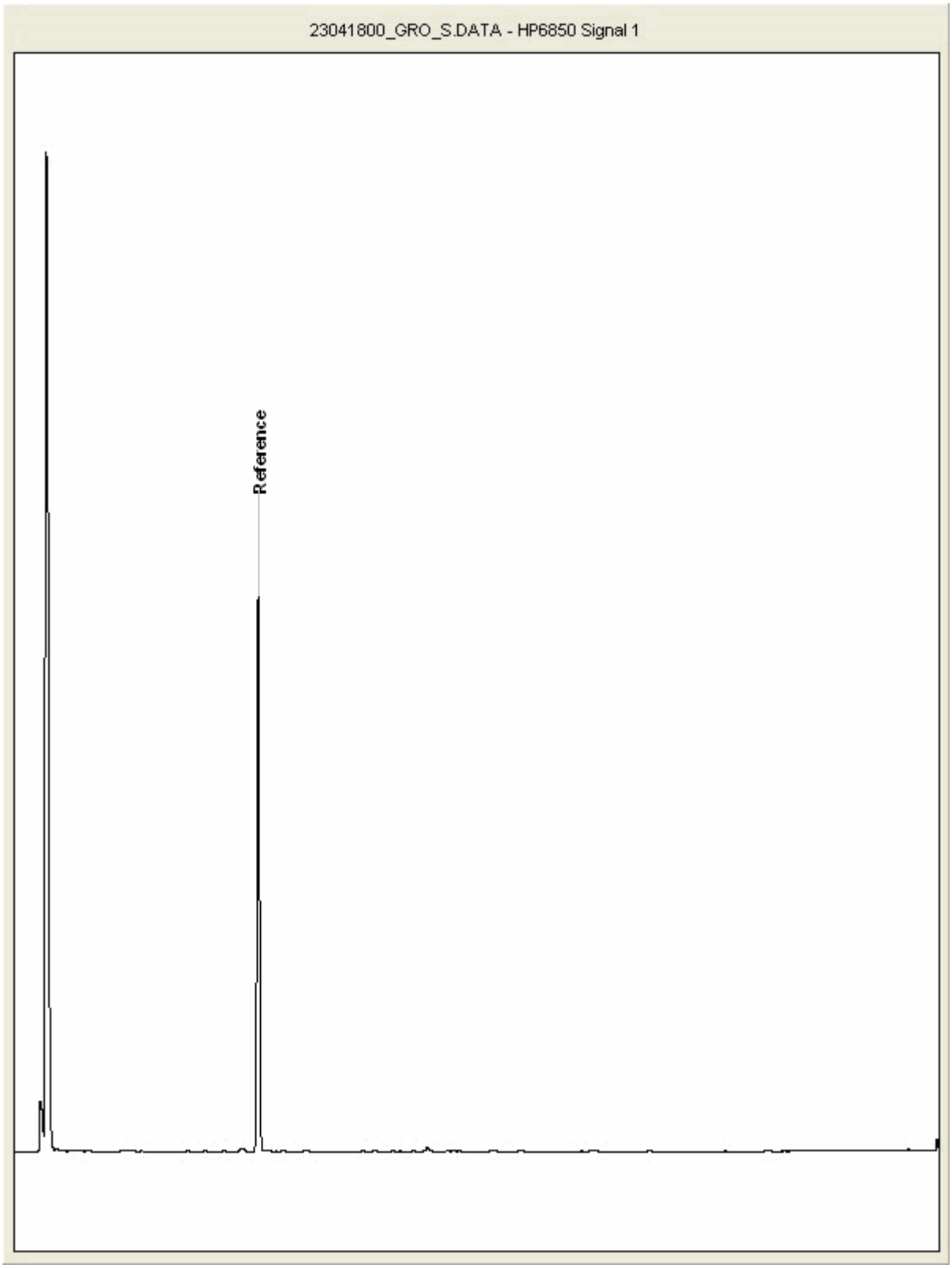
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041800
Sample ID : TP317

Depth : 1.90 - 2.00



CERTIFICATE OF ANALYSIS

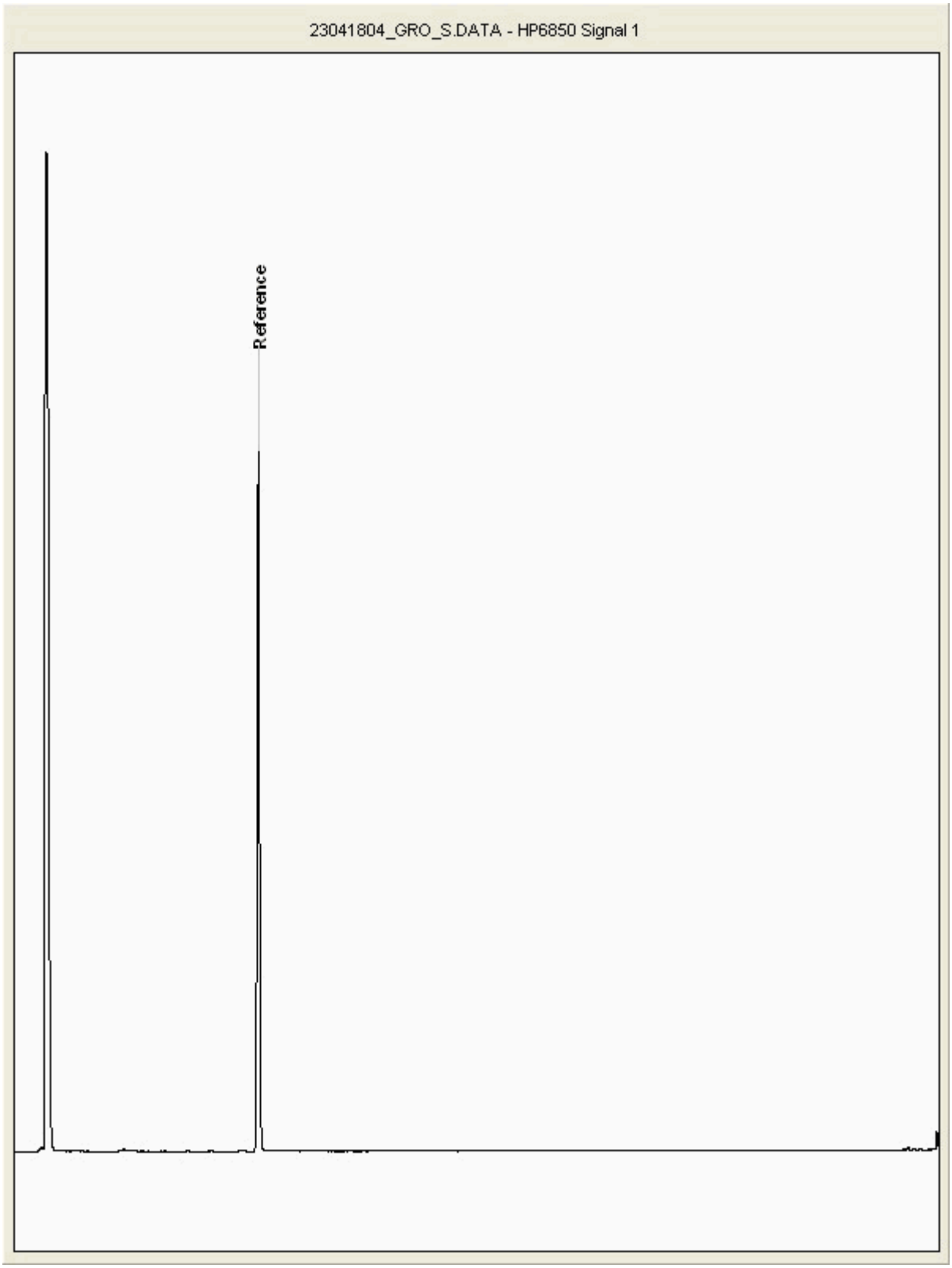
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041804
Sample ID : TP317

Depth : 0.40 - 0.50

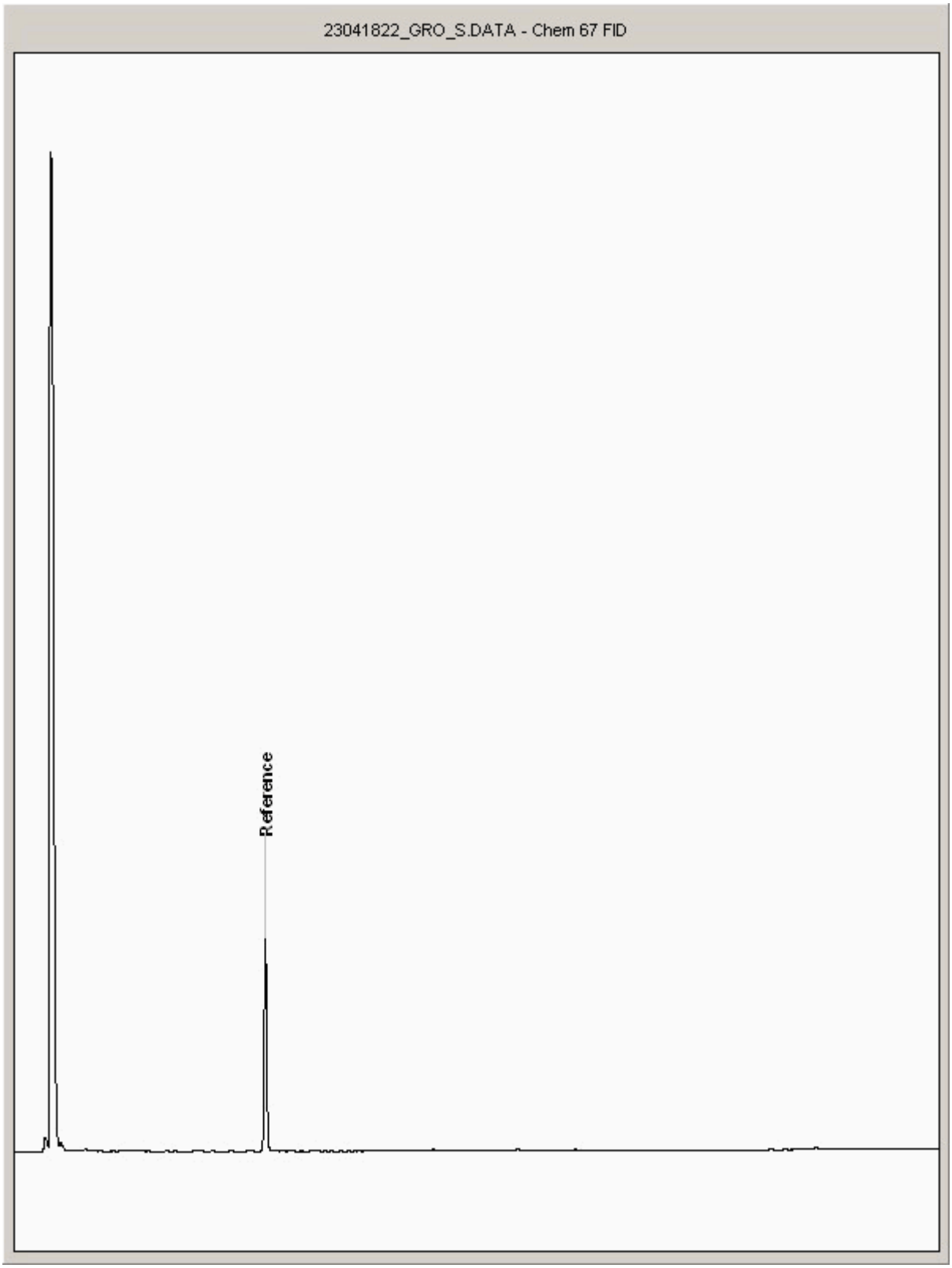


CERTIFICATE OF ANALYSIS

SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 23041822 **Sample ID :** TP322 **Depth :** 1.00 - 1.10



CERTIFICATE OF ANALYSIS

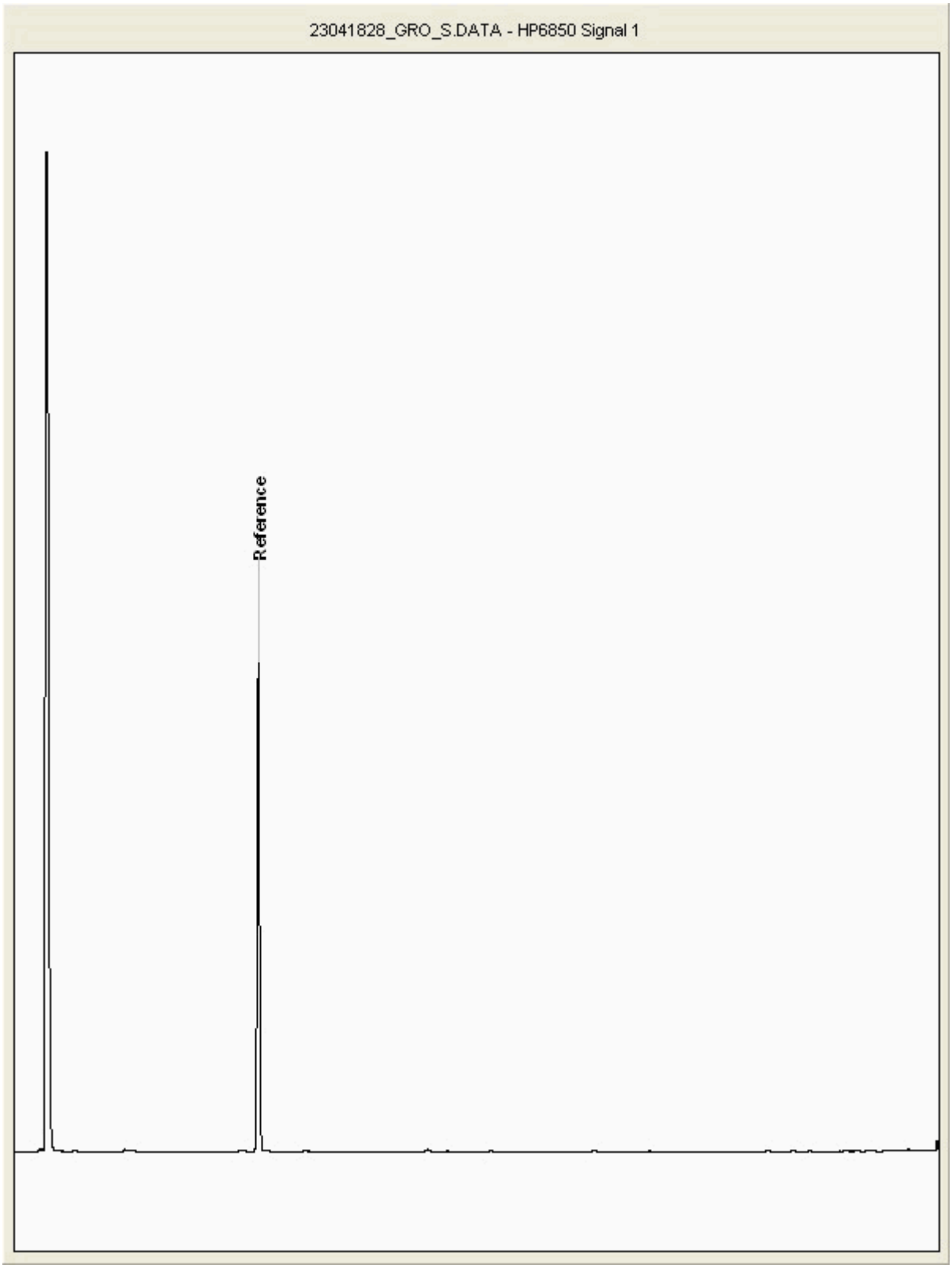
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041828
Sample ID : TP321

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

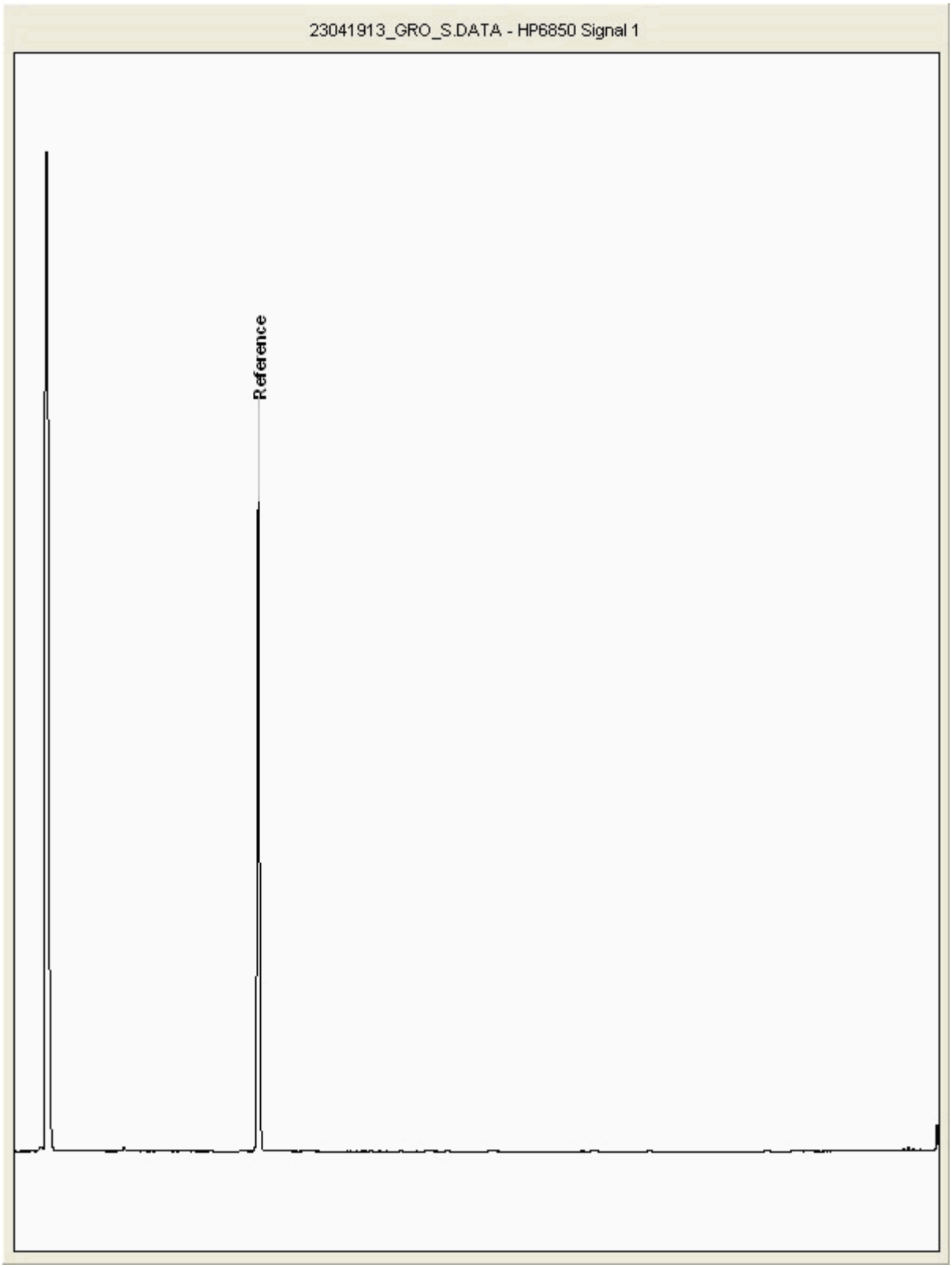
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041913
Sample ID : TP316

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

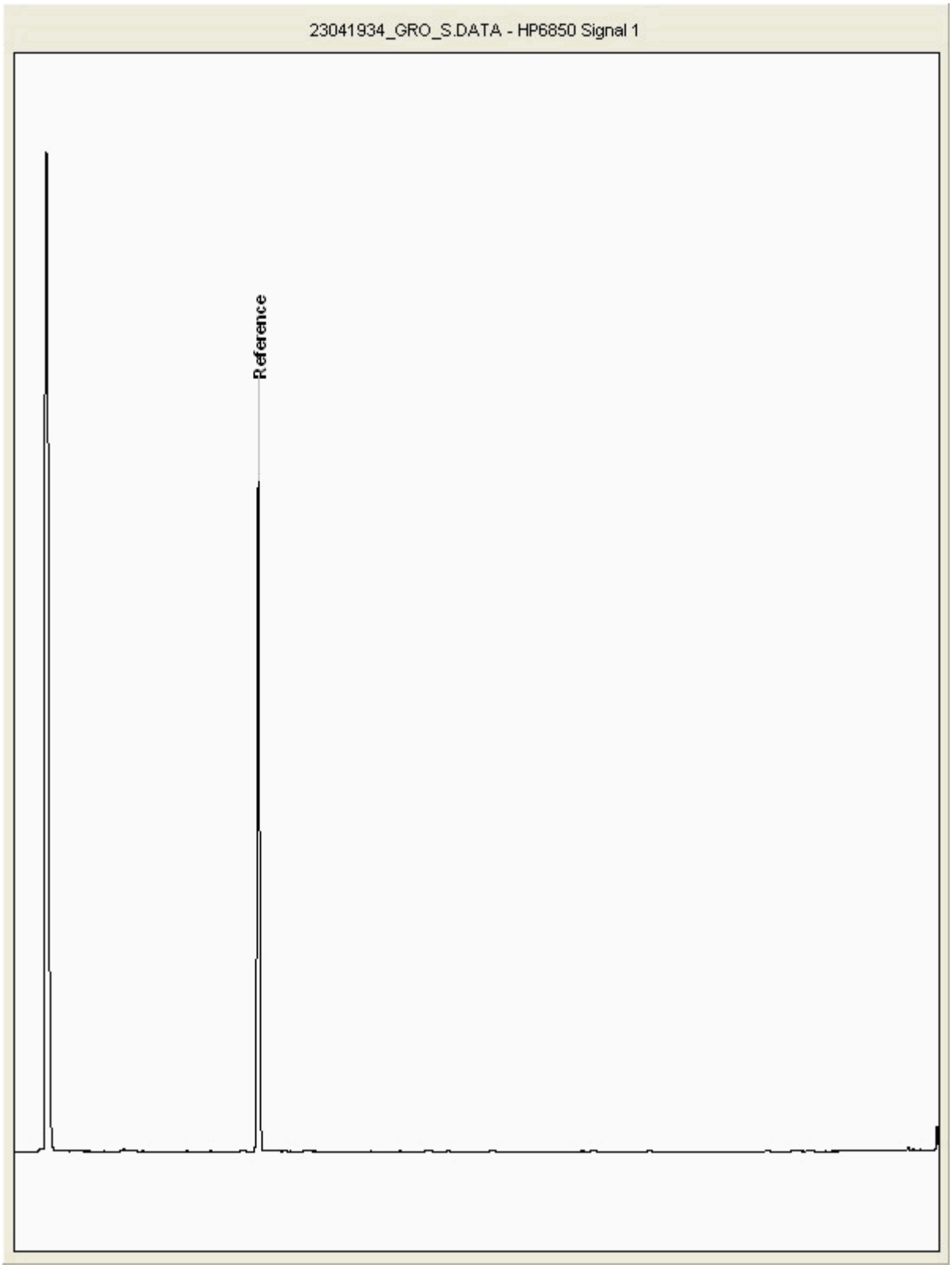
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041934
Sample ID : TP323

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

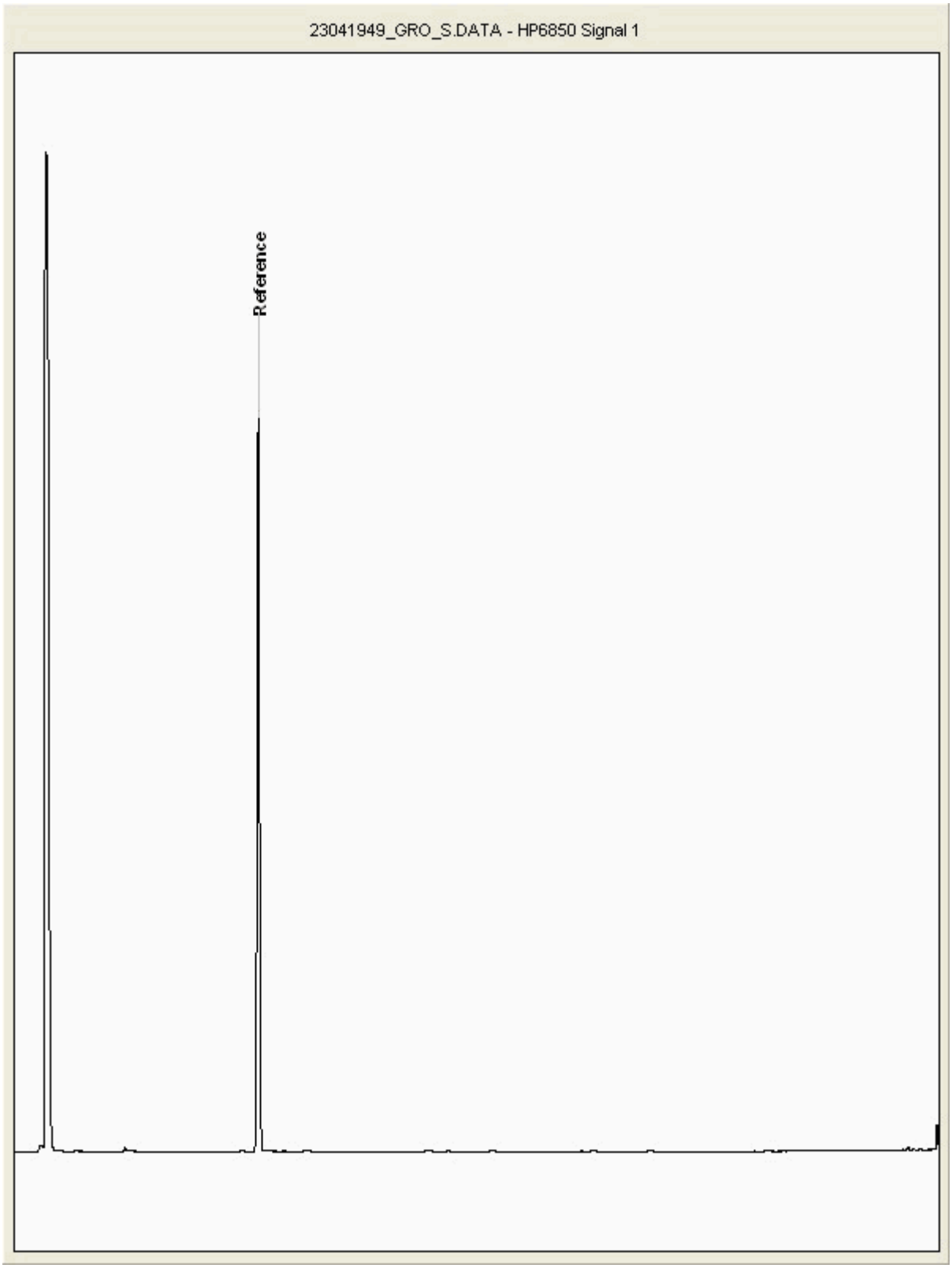
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041949
Sample ID : TP316

Depth : 0.80 - 1.00



CERTIFICATE OF ANALYSIS

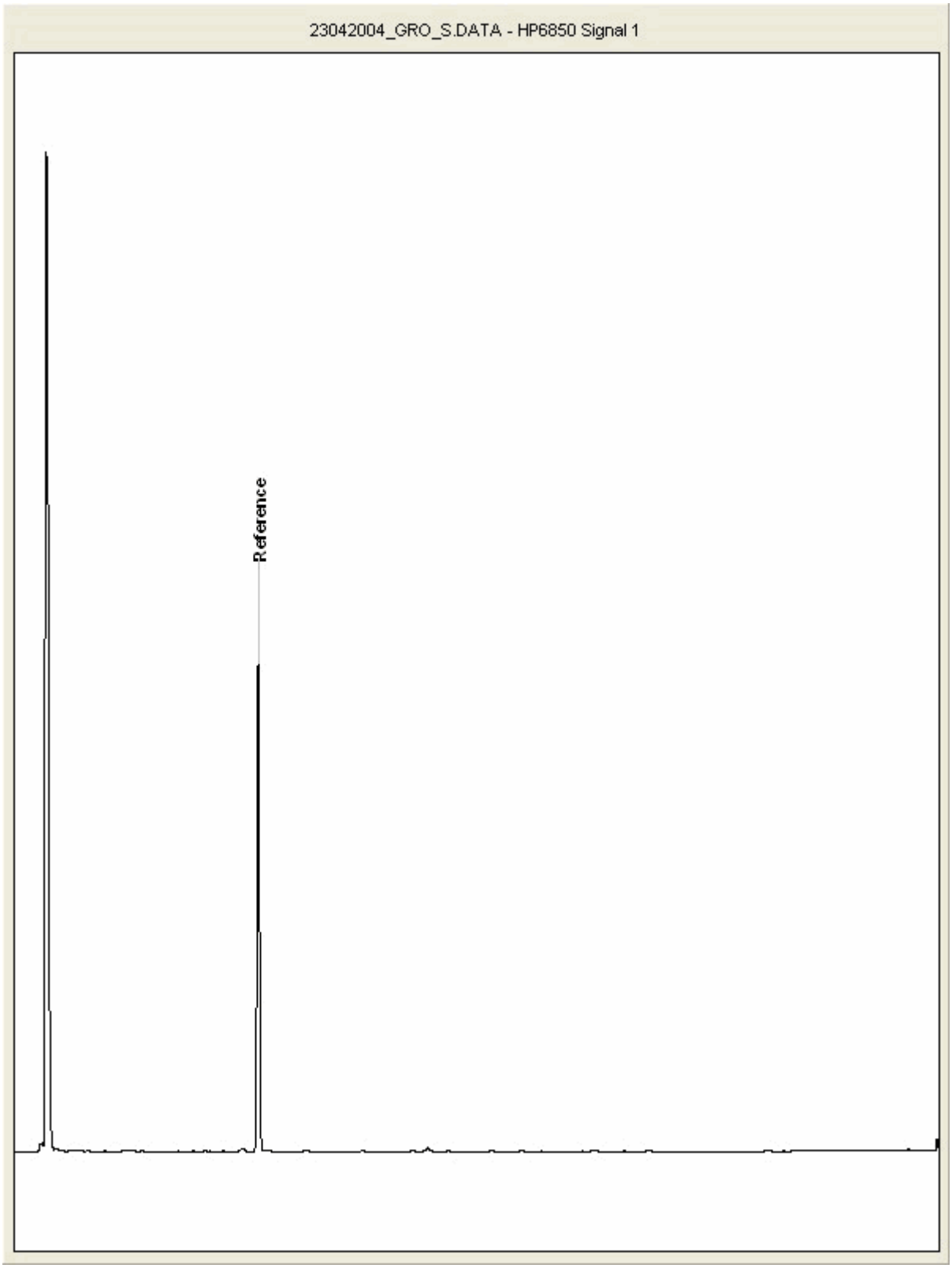
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23042004
Sample ID : TP307

Depth : 3.40 - 3.50



CERTIFICATE OF ANALYSIS

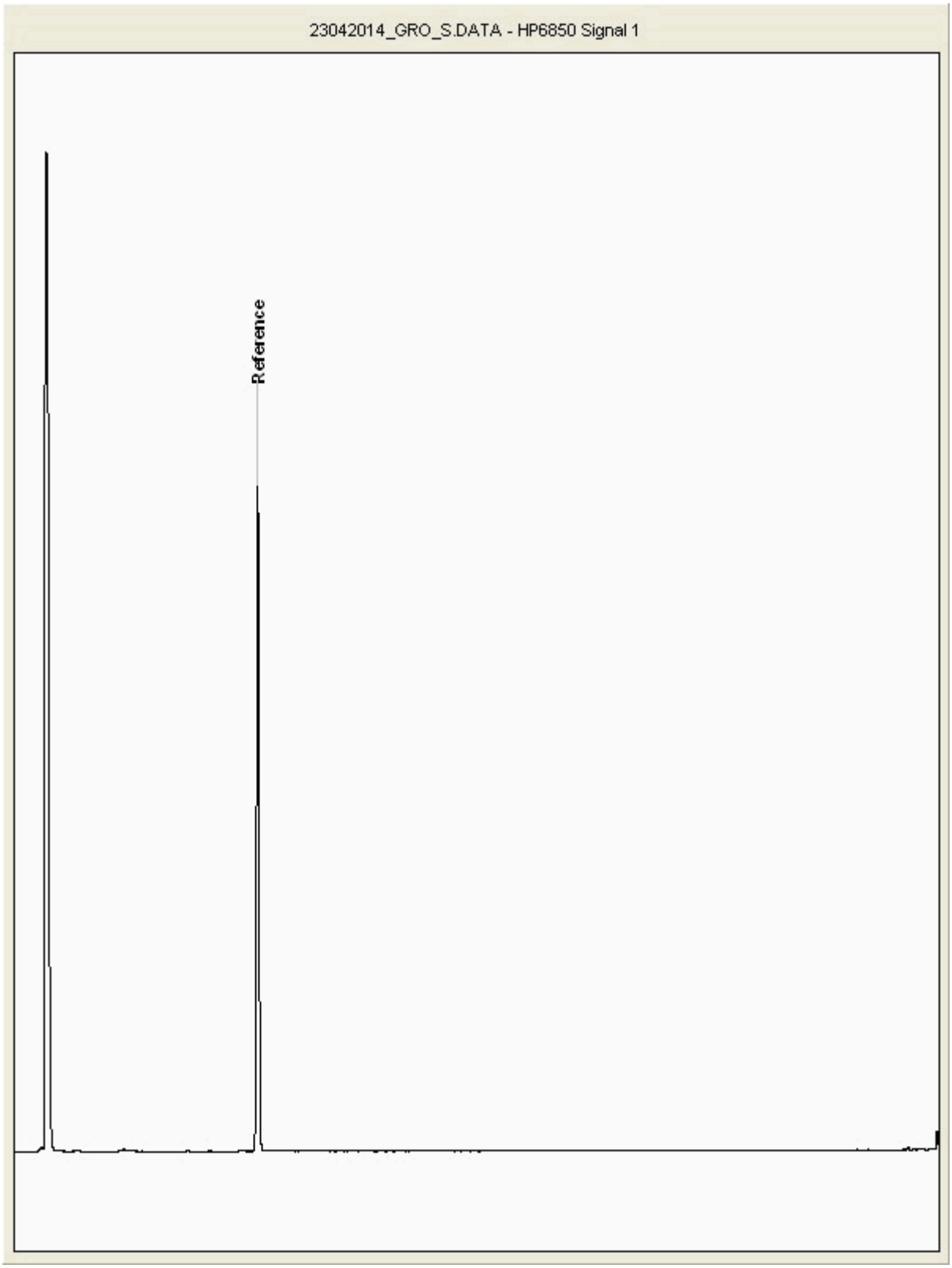
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23042014
Sample ID : TP317

Depth : 1.40 - 1.50



CERTIFICATE OF ANALYSIS

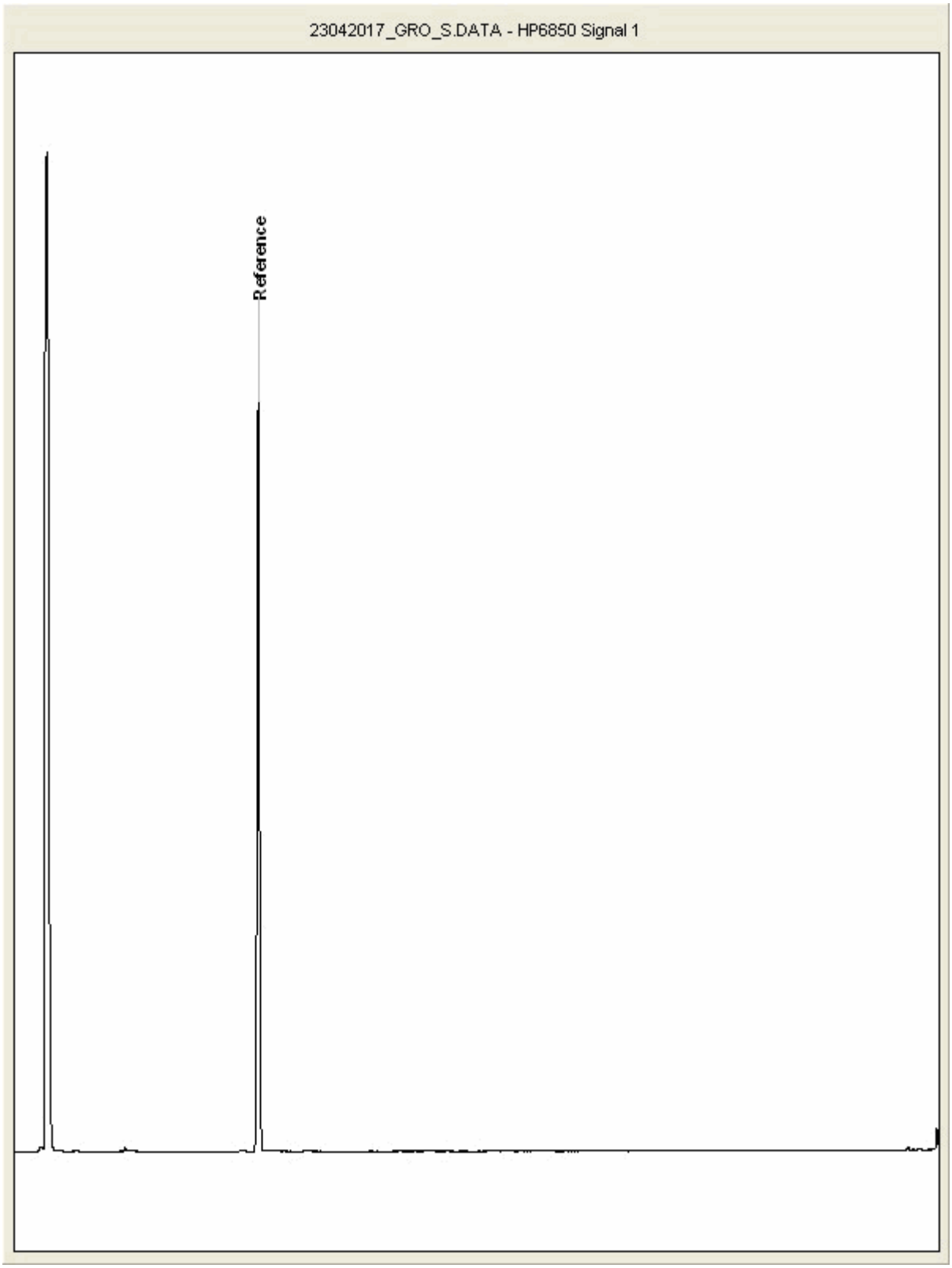
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23042017
Sample ID : TP323

Depth : 2.50 - 2.60



CERTIFICATE OF ANALYSIS

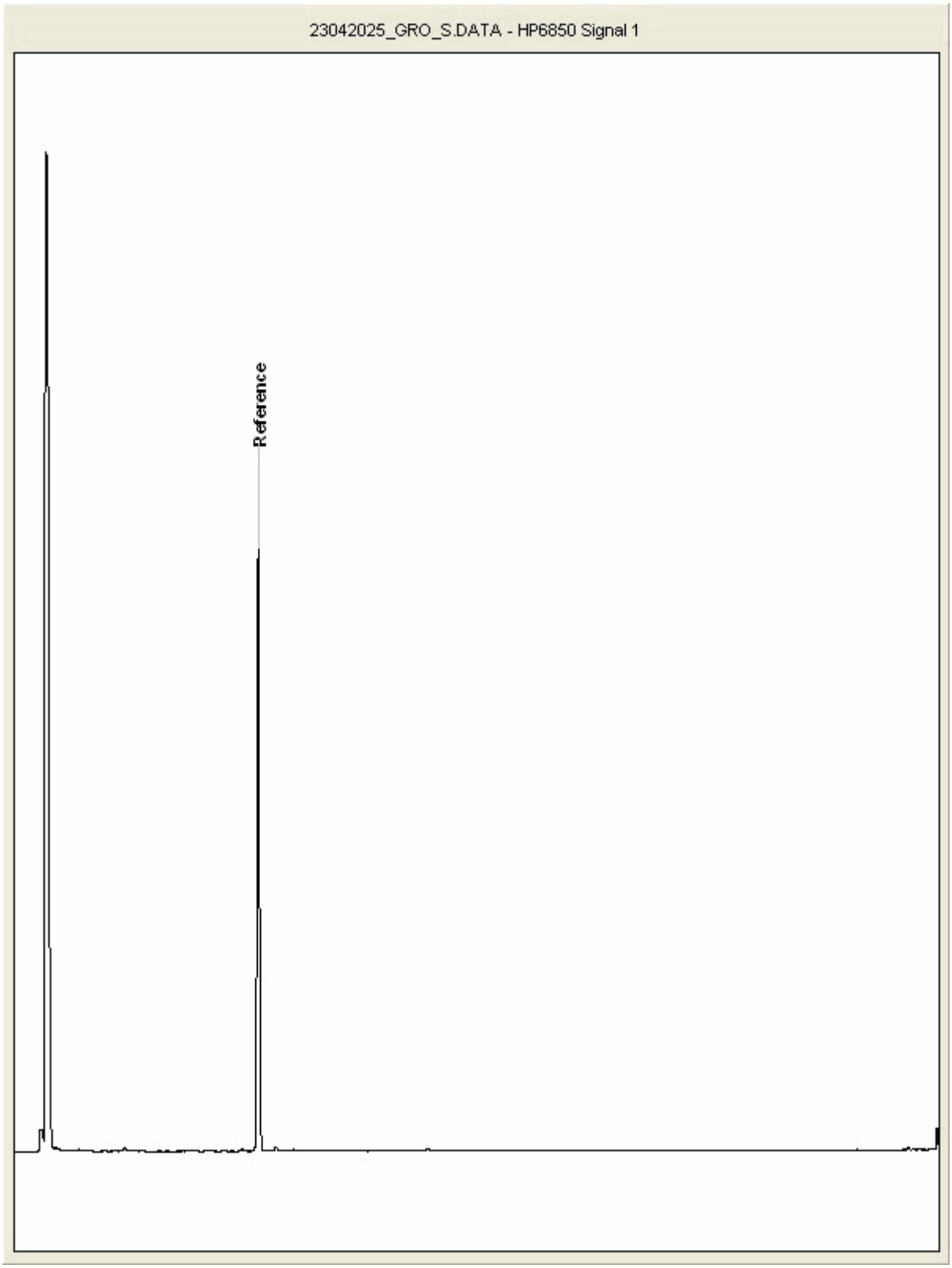
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23042025
Sample ID : TP322

Depth : 1.60 - 1.70



CERTIFICATE OF ANALYSIS

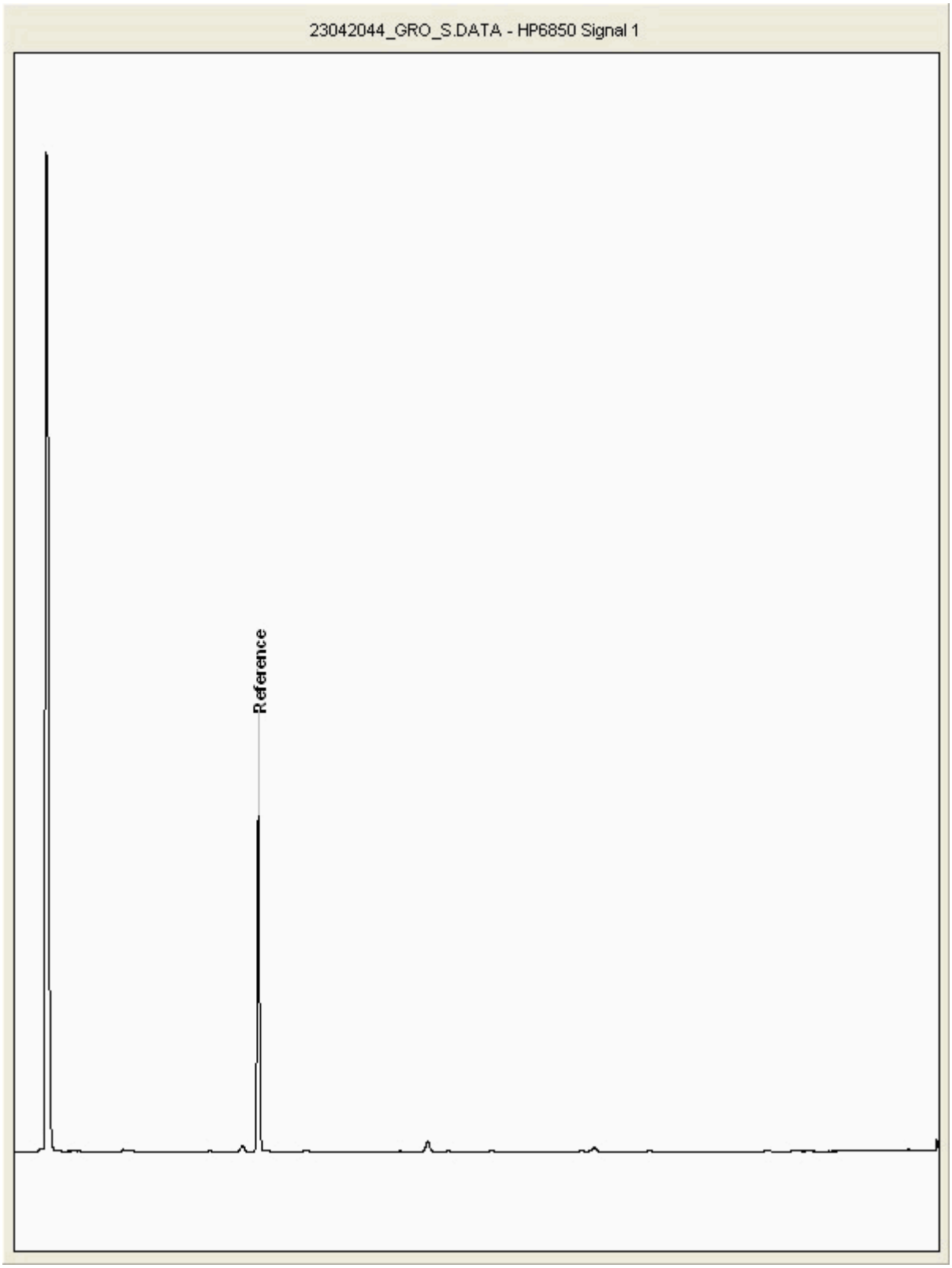
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23042044
Sample ID : TP321

Depth : 2.00 - 2.10



CERTIFICATE OF ANALYSIS

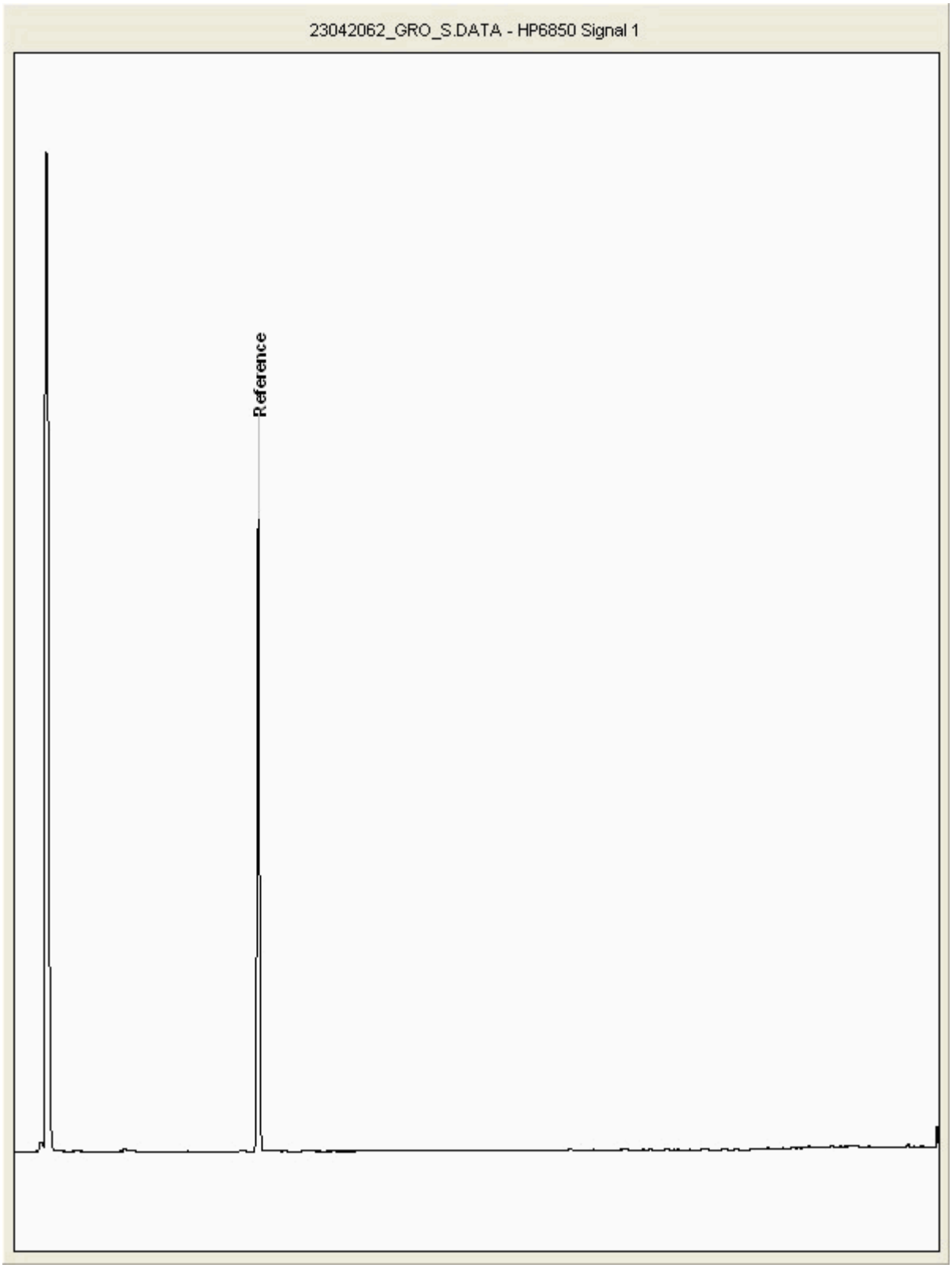
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23042062
Sample ID : TP307

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

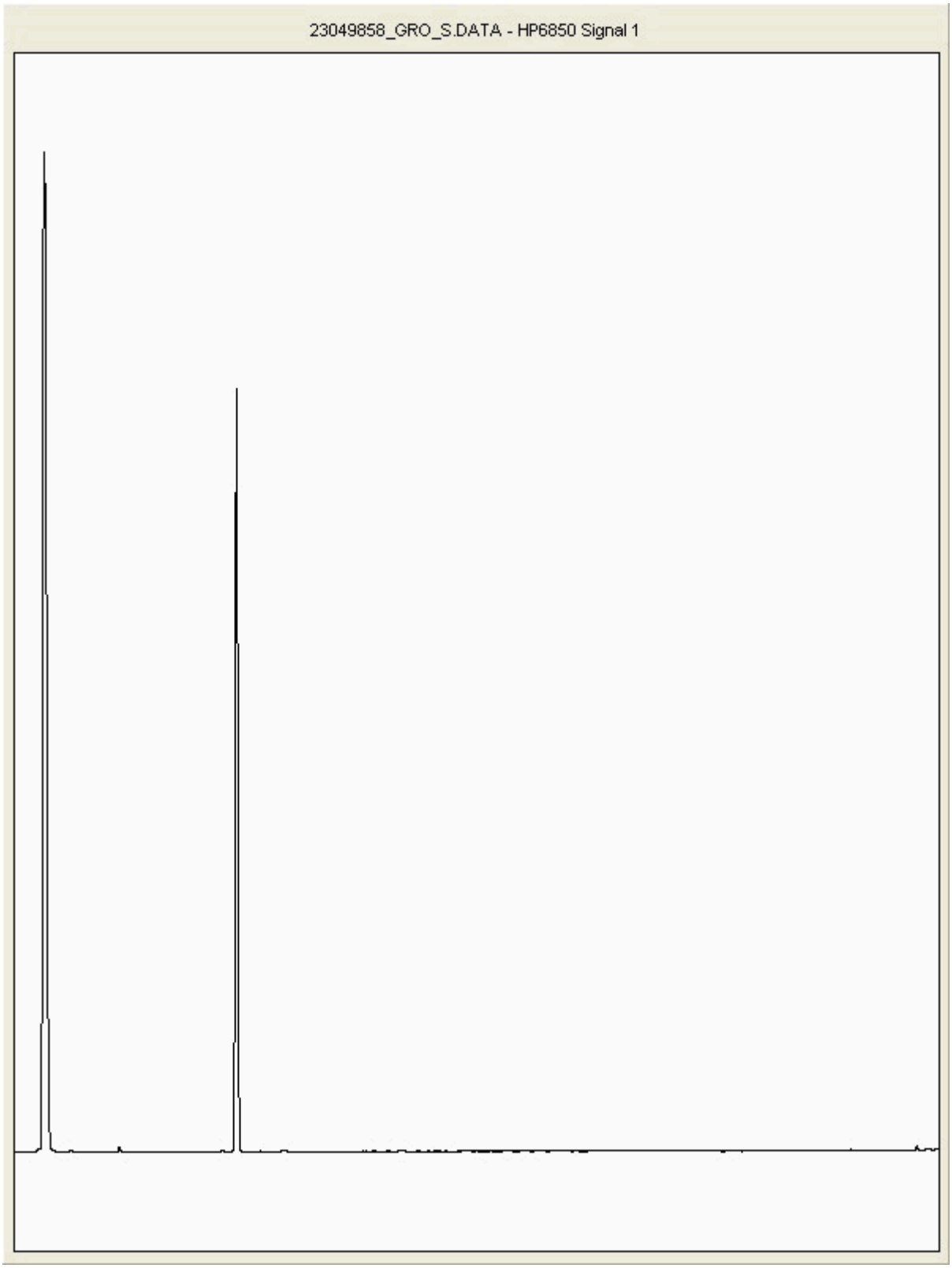
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23049858
Sample ID : BH304

Depth : 0.50 - 0.50



CERTIFICATE OF ANALYSIS

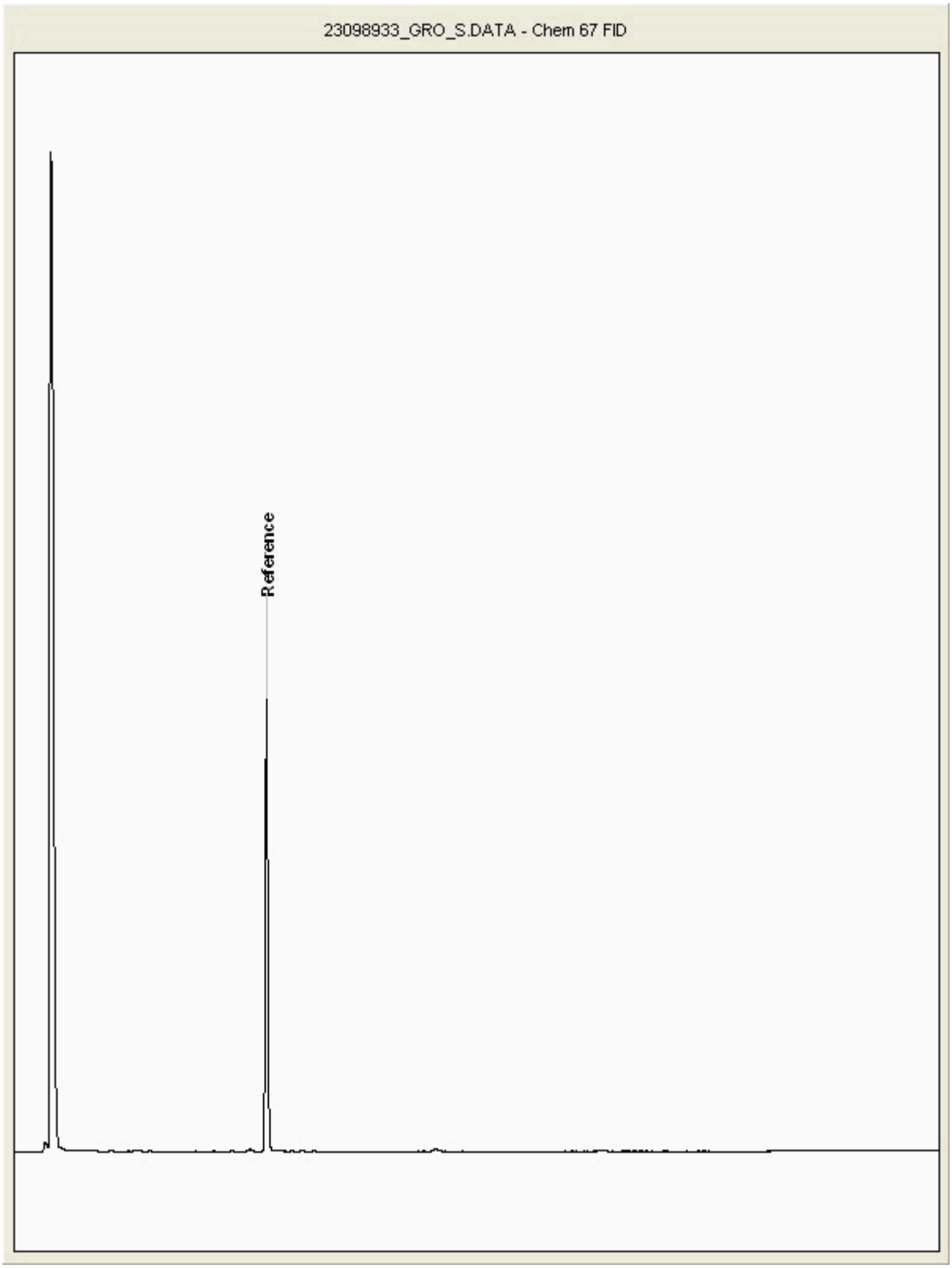
SDG:	201009-71	**Client Reference:**	2020WW102	**Report Number:**	579785
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23098933
Sample ID : TP323

Depth : 2.00 - 2.10



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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. 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 (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.

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. **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.

18. **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**

19. **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, based on HSG 248 (2005).

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.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

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.

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

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	14 December 2020
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	201013-75
Your Reference:	2020WW102
Location:	Arklow Bank
Report No:	579784

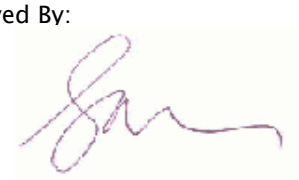
We received 31 samples on Saturday October 10, 2020 and 31 of these samples were scheduled for analysis which was completed on Monday December 14, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of 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).

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

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23022374	BH301	ES1	1.00 - 1.50	08/10/2020
23022381	BH301	ES2	2.00 - 2.50	08/10/2020
23022392	BH301	ES3	3.00 - 3.50	08/10/2020
23022467	TP303	ES1	0.40 - 0.50	09/10/2020
23022478	TP303	ES2	0.90 - 1.00	09/10/2020
23022487	TP303	ES3	1.40 - 1.50	09/10/2020
23022493	TP303	ES4	2.90 - 3.00	09/10/2020
23022427	TP305	ES1	0.50 - 0.60	08/10/2020
23022438	TP305	ES2	0.90 - 1.00	08/10/2020
23022447	TP305	ES3	1.90 - 2.00	08/10/2020
23022457	TP305	ES4	2.80 - 2.90	08/10/2020
23022399	TP306	ES1	0.50 - 0.60	08/10/2020
23022405	TP306	ES2	1.00 - 1.10	08/10/2020
23022410	TP306	ES4	1.80 - 1.90	08/10/2020
23022418	TP306	ES6	2.80	08/10/2020
23055417	TP313		0.40 - 0.50	07/10/2020
23055415	TP313		1.10 - 1.20	07/10/2020
23055418	TP313		1.60 - 1.70	07/10/2020
23055416	TP313		2.70 - 2.80	07/10/2020
23055420	TP318		0.50 - 0.60	07/10/2020
23055421	TP318		0.90 - 1.00	07/10/2020
23055426	TP318		2.00 - 2.10	07/10/2020
23055423	TP318		3.50 - 3.60	07/10/2020
23022348	TP320	ES1	0.50 - 0.60	08/10/2020
23022354	TP320	ES2	1.00 - 1.10	08/10/2020
23022363	TP320	ES3	1.50 - 1.60	08/10/2020
23022369	TP320	ES5	2.50 - 2.60	08/10/2020
23022499	TP325	ES1	0.40 - 0.50	08/10/2020
23022329	TP325	ES2	0.90 - 1.00	08/10/2020
23022336	TP325	ES3	1.70 - 1.80	08/10/2020
23022342	TP325	ES5	2.80 - 2.90	08/10/2020

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

CERTIFICATE OF ANALYSIS

Validated

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23022374			23022381			23022392			23022467			23022478			23022487			23022493	
Customer Sample Reference			BH301			BH301			BH301			TP303			TP303			TP303			TP303	
AGS Reference			ES1			ES2			ES3			ES1			ES2			ES3			ES4	
Depth (m)			1.00 - 1.50			2.00 - 2.50			3.00 - 3.50			0.40 - 0.50			0.90 - 1.00			1.40 - 1.50			2.90 - 3.00	
Container			1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 1 Tests: 31	X			X			X			X			X			X			X	
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
CEN Readings	All	NDPs: 1 Tests: 30	X			X			X			X			X			X			X	
Chromium III	All	NDPs: 1 Tests: 30		X			X			X			X			X			X			X	
Coronene	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
Dissolved Metals by ICP-MS	All	NDPs: 1 Tests: 31	X			X			X			X			X			X			X	
Dissolved Organic/Inorganic Carbon	All	NDPs: 1 Tests: 31	X			X			X			X			X			X			X	
Easily Liberated Sulphide	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
EPH by GCxGC-FID	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
Fluoride	All	NDPs: 1 Tests: 31	X			X			X			X			X			X			X	
GRO by GC-FID (S)	All	NDPs: 0 Tests: 31			X			X			X			X			X			X		
Hexavalent Chromium (s)	All	NDPs: 1 Tests: 30		X			X			X			X			X			X			X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	

23022410	TP306	ES4	1.80 - 1.90	1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X							
23022405	TP306	ES2	1.00 - 1.10	60g VOC (ALE215)	S														X					
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X				X		X			
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X							
23022399	TP306	ES1	0.50 - 0.60	60g VOC (ALE215)	S														X					
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X				X		X			
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X							
23022457	TP305	ES4	2.80 - 2.90	60g VOC (ALE215)	S														X					
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X				X		X			
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X							
23022447	TP305	ES3	1.90 - 2.00	60g VOC (ALE215)	S														X					
				250g Amber Jar (ALE210)	S				N		X	X				X	X	X			N		X		
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X							
23022438	TP305	ES2	0.90 - 1.00	60g VOC (ALE215)	S														X					
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X				X		X			
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X							
23022427	TP305	ES1	0.50 - 0.60	60g VOC (ALE215)	S														X					
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X				X		X			
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X							
23022493	TP303	ES4	2.90 - 3.00	60g VOC (ALE215)	S														X					

CERTIFICATE OF ANALYSIS

Validated

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23022374			23022381			23022392			23022467			23022478			23022487			23022493		
Customer Sample Reference			BH301			BH301			BH301			TP303			TP303			TP303			TP303		
AGS Reference			ES1			ES2			ES3			ES1			ES2			ES3			ES4		
Depth (m)			1.00 - 1.50			2.00 - 2.50			3.00 - 3.50			0.40 - 0.50			0.90 - 1.00			1.40 - 1.50			2.90 - 3.00		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 1 Tests: 31	X			X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
pH	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 1 Tests: 31	X			X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
Total Dissolved Solids	All	NDPs: 1 Tests: 31	X			X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 31			X			X			X			X			X			X			

23022410	TP306	ES4	1.80 - 1.90	1kg TUB with Handle	S		X												X					X							
23022405	TP306	ES2	1.00 - 1.10	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X												X					X							
23022399	TP306	ES1	0.50 - 0.60	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X												X					X							
23022457	TP305	ES4	2.80 - 2.90	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X												X					X							
23022447	TP305	ES3	1.90 - 2.00	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X												X					X							
23022438	TP305	ES2	0.90 - 1.00	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X												X					X							
23022427	TP305	ES1	0.50 - 0.60	60g VOC (ALE215)	S																										X
				250g Amber Jar (ALE210)	S				X		X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X												X					X							
23022493	TP303	ES4	2.90 - 3.00	60g VOC (ALE215)	S																										X

CERTIFICATE OF ANALYSIS

Validated

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23022410		23022418		23055417		23055415		23055418		23055416		23055420						
Customer Sample Reference			TP306		TP306		TP313		TP313		TP313		TP313		TP318						
AGS Reference			ES4		ES6																
Depth (m)			1.80 - 1.90		2.80		0.40 - 0.50		1.10 - 1.20		1.60 - 1.70		2.70 - 2.80		0.50 - 0.60						
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)		
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 1 Tests: 31			X			X		X		X			X			X			
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 31			X			X		X		X			X			X			
CEN Readings	All	NDPs: 1 Tests: 30			X			X		X		X			X			X			
Chromium III	All	NDPs: 1 Tests: 30	X			X			X			X			X			X			
Coronene	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			
Dissolved Metals by ICP-MS	All	NDPs: 1 Tests: 31			X			X		X		X			X			X			
Dissolved Organic/Inorganic Carbon	All	NDPs: 1 Tests: 31			X			X		X		X			X			X			
Easily Liberated Sulphide	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			
EPH by GCxGC-FID	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			
EPH CWG GC (S)	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			
Fluoride	All	NDPs: 1 Tests: 31			X			X		X		X			X			X			
GRO by GC-FID (S)	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 1 Tests: 30	X			X			X			X			X			X			
Loss on Ignition in soils	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			

23022369	TP320	ES5	2.50 - 2.60	1kg TUB with Handle	S		X		X		X								X		X								X						
23022363	TP320	ES3	1.50 - 1.60	60g VOC (ALE215)	S																										X				
				250g Amber Jar (ALE210)	S								X		X		X						X		X		X						X		X
				1kg TUB with Handle	S		X		X		X								X		X								X						
23022354	TP320	ES2	1.00 - 1.10	60g VOC (ALE215)	S																										X				
				250g Amber Jar (ALE210)	S								X		X		X						X		X		X						X		X
				1kg TUB with Handle	S		X		X		X								X		X								X						
23022348	TP320	ES1	0.50 - 0.60	60g VOC (ALE215)	S																										X				
				250g Amber Jar (ALE210)	S								X		X		X						X		X		X						X		X
				1kg TUB with Handle	S		X		X		X								X		X								X						
23055423	TP318		3.50 - 3.60	Kone Cup	S	N				N								N		N								N							
				60g VOC (ALE215)	S																										X				
				250g Amber Jar (ALE210)	S								X		X		X						X		X		X						X		X
				1kg TUB with Handle	S		X		X										X		X								X						
23055426	TP318		2.00 - 2.10	60g VOC (ALE215)	S																										X				
				250g Amber Jar (ALE210)	S								X		X		X						X		X		X						X		X
				1kg TUB with Handle	S		X		X		X								X		X								X						
23055421	TP318		0.90 - 1.00	60g VOC (ALE215)	S																										X				
				250g Amber Jar (ALE210)	S								X		X		X						X		X		X						X		X
				1kg TUB with Handle	S		X		X		X								X		X								X						

CERTIFICATE OF ANALYSIS

Validated

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23022410		23022418		23055417		23055415		23055418		23055416		23055420						
Customer Sample Reference			TP306		TP306		TP313		TP313		TP313		TP313		TP318						
AGS Reference			ES4		ES6																
Depth (m)			1.80 - 1.90		2.80		0.40 - 0.50		1.10 - 1.20		1.60 - 1.70		2.70 - 2.80		0.50 - 0.60						
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)		
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 1 Tests: 31			X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
NRA Leachate	All	NDPs: 0 Tests: 1																				
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
pH	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 1 Tests: 31			X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
Total Dissolved Solids	All	NDPs: 1 Tests: 31			X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 31	X			X			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 31		X			X			X			X			X			X			X

23022369	TP320	ES5	2.50 - 2.60	1kg TUB with Handle	S		X														X						X						
23022363	TP320	ES3	1.50 - 1.60	60g VOC (ALE215)	S																												X
				250g Amber Jar (ALE210)	S				X				X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X														X						X						
23022354	TP320	ES2	1.00 - 1.10	60g VOC (ALE215)	S																												X
				250g Amber Jar (ALE210)	S				X				X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X														X						X						
23022348	TP320	ES1	0.50 - 0.60	60g VOC (ALE215)	S																												X
				250g Amber Jar (ALE210)	S				X				X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X														X						X						
23055423	TP318		3.50 - 3.60	Kone Cup	S	N														N						N							
				60g VOC (ALE215)	S																												X
				250g Amber Jar (ALE210)	S				X				X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X				X										X						X						
23055426	TP318		2.00 - 2.10	60g VOC (ALE215)	S																												X
				250g Amber Jar (ALE210)	S				X				X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X														X						X						
23055421	TP318		0.90 - 1.00	60g VOC (ALE215)	S																												X
				250g Amber Jar (ALE210)	S				X				X		X		X		X				X		X				X		X		
				1kg TUB with Handle	S		X														X						X						

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

- X — Test
- N — No Determination Possible

Sample Types -
S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
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LE - Land Leachate
PL - Prepared Leachate
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TS - Treated Sewage
US - Untreated Sewage
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UNL - Unspecified Liquid
SL - Sludge
G - Gas
OTH - Other

Lab Sample No(s)			23022369		23022499			23022329			23022336			23022342		
Customer Sample Reference			TP320		TP325			TP325			TP325			TP325		
AGS Reference			ES5		ES1			ES2			ES3			ES5		
Depth (m)			2.50 - 2.60		0.40 - 0.50			0.90 - 1.00			1.70 - 1.80			2.80 - 2.90		
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 1 Tests: 31			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 31			X			X			X			X		
CEN Readings	All	NDPs: 1 Tests: 30			X			X			X			X		
Chromium III	All	NDPs: 1 Tests: 30	X			X			X			X			X	
Coronene	All	NDPs: 0 Tests: 31	X			X			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 31	X			X			X			X			X	
Dissolved Metals by ICP-MS	All	NDPs: 1 Tests: 31			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 1 Tests: 31			X			X			X			X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 31	X			X			X			X			X	
EPH by GCxGC-FID	All	NDPs: 0 Tests: 31	X			X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 31	X			X			X			X			X	
Fluoride	All	NDPs: 1 Tests: 31			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 31		X			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 1 Tests: 30	X			X			X			X			X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 31	X			X			X			X			X	

CERTIFICATE OF ANALYSIS

SDG:	201013-75	Client Reference:	2020WW102	Report Number:	579784
Location:	Arklow Bank	Order Number:	8984	Superseded Report:	

Results Legend

- X Test
- N No Determination Possible

Sample Types -
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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)			23022369		23022499			23022329			23022336			23022342		
Customer Sample Reference			TP320		TP325			TP325			TP325			TP325		
AGS Reference			ES5		ES1			ES2			ES3			ES5		
Depth (m)			2.50 - 2.60		0.40 - 0.50			0.90 - 1.00			1.70 - 1.80			2.80 - 2.90		
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 1 Tests: 31			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 31	X			X			X			X			X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 31	X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 31	X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 31	X			X			X			X			X	
pH	All	NDPs: 0 Tests: 31	X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 1 Tests: 31			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 31	X			X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 31	X			X			X			X			X	
Total Dissolved Solids	All	NDPs: 1 Tests: 31			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 31	X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 31	X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 31		X			X			X			X			X

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
23022374	BH301	1.00 - 1.50	Light Brown	Silty Clay Loam	Stones	None
23022381	BH301	2.00 - 2.50	Light Brown	Sandy Clay	None	None
23022392	BH301	3.00 - 3.50	Dark Brown	Loamy Sand	Vegetation	None
23022467	TP303	0.40 - 0.50	Dark Brown	Loamy Sand	Stones	None
23022478	TP303	0.90 - 1.00	Red	Sand	None	None
23022487	TP303	1.40 - 1.50	Cream	Sand	Vegetation	None
23022493	TP303	2.90 - 3.00	Dark Brown	Silt Loam	None	None
23022427	TP305	0.50 - 0.60	Dark Brown	Loamy Sand	Stones	None
23022438	TP305	0.90 - 1.00	Grey	N/A	Stones	None
23022447	TP305	1.90 - 2.00	Dark Brown	Silt Loam	Vegetation	None
23022457	TP305	2.80 - 2.90	Light Brown	Gravel	Stones	None
23022399	TP306	0.50 - 0.60	Grey	N/A	Stones	None
23022405	TP306	1.00 - 1.10	Light Brown	N/A	Stones	None
23022410	TP306	1.80 - 1.90	Dark Brown	Silty Clay Loam	Vegetation	None
23022418	TP306	2.80	Light Brown	Silty Clay Loam	None	None
23055415	TP313	1.10 - 1.20	Grey	Sand	Vegetation	Stones
23055416	TP313	2.70 - 2.80	Dark Brown	Sand	Stones	None
23055417	TP313	0.40 - 0.50	Light Brown	Sandy Clay Loam	Stones	None
23055418	TP313	1.60 - 1.70	Light Brown	Clay Loam	Stones	None
23055420	TP318	0.50 - 0.60	Dark Brown	Sand	Vegetation	Stones
23055421	TP318	0.90 - 1.00	Red	Loamy Sand	None	None
23055423	TP318	3.50 - 3.60	Dark Brown	Loamy Sand	Vegetation	Stones
23055426	TP318	2.00 - 2.10	Grey	Loamy Sand	N/A	Stones
23022348	TP320	0.50 - 0.60	Light Brown	Sand	Stones	None
23022354	TP320	1.00 - 1.10	Dark Brown	Loamy Sand	None	None
23022363	TP320	1.50 - 1.60	Dark Brown	Silt Loam	None	None
23022369	TP320	2.50 - 2.60	Dark Brown	Sandy Silt Loam	Stones	None
23022329	TP325	0.90 - 1.00	Dark Brown	Silty Sand	None	None
23022336	TP325	1.70 - 1.80	Dark Brown	Silt Loam	None	None
23022342	TP325	2.80 - 2.90	Dark Brown	Gravel	Stones	None
23022499	TP325	0.40 - 0.50	Light 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 ocurring 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

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
			Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
			AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3
Moisture Content Ratio (% of as received sample)	%	PM024		29	26	41	8.8	30	25
Loss on ignition	<0.7 %	TM018		13.5 M	3.58 M	11 M	2.47 M	1.39 M	20.4 M
Organic Carbon, Total	<0.2 %	TM132		1.04 M	0.335 M	3.46 M	<0.2 M	<0.2 M	<0.2 M
pH	1 pH Units	TM133		5.35 M	6.43 M	5.24 M	9.04 M	6.43 M	7.63 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	0.809 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		84.4	13.7	16.6	<0.9	<0.9	1.39
Antimony	<0.6 mg/kg	TM181		<0.6 #	<6 #	<0.6 #	<0.6 #	<60 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		34.9 M	48.2 M	22.3 M	4.06 M	2010 M	275 M
Barium	<0.6 mg/kg	TM181		165 #	45.9 #	37.9 #	14.5 #	<60 #	31.4 #
Cadmium	<0.02 mg/kg	TM181		2.46 M	<0.2 M	0.278 M	0.395 M	6.25 M	1.17 M
Chromium	<0.9 mg/kg	TM181		84.4 M	13.7 M	16.6 M	<0.9 M	<90 M	2.2 M
Copper	<1.4 mg/kg	TM181		104 M	24 M	21.9 M	18.4 M	4050 M	124 M
Lead	<0.7 mg/kg	TM181		84.9 M	35.8 M	25.6 M	5.49 M	1880 M	17.7 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<1.4 M	<0.14 M	<0.14 M	<14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181		3.95 #	<1 #	0.72 #	0.495 #	99.9 #	1.14 #
Nickel	<0.2 mg/kg	TM181		12.4 M	21.4 M	20.8 M	4.43 M	<20 M	0.376 M
Selenium	<1 mg/kg	TM181		2.4 #	<10 #	<1 #	<1 #	<100 #	<1 #
Zinc	<1.9 mg/kg	TM181		286 M	84.9 M	113 M	130 M	2320 M	36.2 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		1440	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
			Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
			AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3
EPH >C8-C40	<35 mg/kg	TM415		143	<35	<35	148	<35	<35

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
Moisture Content Ratio (% of as received sample)	%	PM024		36	1.7	11	52	11	3.3
Loss on ignition	<0.7 %	TM018		5.9 M	0.891 M	2.42	16.5 M	1.07 #	0.714
Organic Carbon, Total	<0.2 %	TM132		0.536 M	<0.2 M	<0.2	6.68 M	0.376 #	<0.2
pH	1 pH Units	TM133		5.65 M	7.97 M	6.31	5.91 M	6.04 #	8.59
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6		<0.6 #	<0.6
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1	<1 M	<1 #	<1
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1	<1 M	<1 #	<1
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<15	<3 M	<3 #	<3
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<15	<3 M	<3 #	<3
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<15	<3 M	<3 #	<3
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<15	<3 M	<3 #	<3
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<15	<3 M	<3 #	<3
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<15	<3 M	<3 #	<3
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<15	<3 M	<3 #	<3
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<105	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	28.1 @ M	<15 @	208 @ M	<15 @ #	<15 @
Chromium, Trivalent	<0.9 mg/kg	TM181		<0.9	<0.9	28.9		16	7.97
Antimony	<0.6 mg/kg	TM181		<6 #	<6 #	<0.6	<0.6 #	<0.6 #	<0.6
Arsenic	<0.6 mg/kg	TM181		349 M	8.95 M	19.2	31.4 M	13.4 #	19.5
Barium	<0.6 mg/kg	TM181		89.5 #	23.8 #	36.4	87.5 #	38.6 #	14.5
Cadmium	<0.02 mg/kg	TM181		<0.2 M	<0.2 M	<0.02	0.382 M	0.0364 #	<0.02
Chromium	<0.9 mg/kg	TM181		<9 M	<9 M	28.9	23.7 M	16 #	7.97
Copper	<1.4 mg/kg	TM181		42.9 M	86.6 M	47.5	34.8 M	25.7 #	53.8
Lead	<0.7 mg/kg	TM181		55.5 M	33.4 M	19.4	34.9 M	17.2 #	13.7
Mercury	<0.14 mg/kg	TM181		<1.4 M	<1.4 M	0.232	0.154 M	<0.14 #	<0.14
Molybdenum	<0.1 mg/kg	TM181		1.1 #	<1 #	<0.1	0.232 #	0.342 #	0.747
Nickel	<0.2 mg/kg	TM181		27.5 M	19.9 M	45.5	22.4 M	22.8 #	11.5
Selenium	<1 mg/kg	TM181		<10 #	<10 #	<1	<1 #	<1 #	<1
Zinc	<1.9 mg/kg	TM181		126 M	360 M	263	73.5 M	211 #	108
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sampled Time	.	.	.	.	.	.
Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1

Component	LOD/Units	Method						
EPH >C8-C40	<35 mg/kg	TM415	<35	144	<35	57.7	<35	330

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
Moisture Content Ratio (% of as received sample)	%	PM024		9	38	28	4.8	8.5	29
Loss on ignition	<0.7 % M	TM018		2.79	8.99	3.2	1.76	2.42	6.79
Organic Carbon, Total	<0.2 % M	TM132		<0.2	2.5	0.417	<0.2	<0.2	1.42
pH	1 pH Units M	TM133		7.03	6.6	5.94	7.33	6.97	6.56
Chromium, Hexavalent	<0.6 mg/kg #	TM151		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Cyanide, Total	<1 mg/kg M	TM153		<1	<1	<1	<1 @ M	<1 @ M	<1 @ M
Cyanide, Free	<1 mg/kg M	TM153		<1	<1	<1	<1 @ M	<1 @ M	<1 @ M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 52	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 101	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 118	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 138	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 153	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 180	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg @	TM180		<15	137 @ M	50.4 @ M	<15 @ M	<15 @ M	34 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		21	27.9	18.3	8.63	17.9	18.7
Antimony	<0.6 mg/kg #	TM181		<6	<0.6	<0.6	<0.6	<0.6	<0.6
Arsenic	<0.6 mg/kg M	TM181		21.5	39.8	30.7	31.9	27.5	45.3
Barium	<0.6 mg/kg #	TM181		57.5	65.2	46.7	22.8	39.3	72.1
Cadmium	<0.02 mg/kg M	TM181		<0.2	<0.02	<0.02	<0.02	<0.02	0.389
Chromium	<0.9 mg/kg M	TM181		21	27.9	18.3	8.63	17.9	18.7
Copper	<1.4 mg/kg M	TM181		48.3	45.4	23.6	27.6	68.5	56.3
Lead	<0.7 mg/kg M	TM181		29.9	41.5	40.8	33.8	21.8	78.1
Mercury	<0.14 mg/kg M	TM181		<1.4	<0.14	0.155	0.189	0.192	<0.14
Molybdenum	<0.1 mg/kg #	TM181		<1	0.216	1.34	<0.1	<0.1	0.967
Nickel	<0.2 mg/kg M	TM181		58.2	22.4	21.4	42.3	38.7	24.8
Selenium	<1 mg/kg #	TM181		<10	<1	2.08	<1	<1	<1
Zinc	<1.9 mg/kg M	TM181		131	102	94.2	110	123	130
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
Moisture Content Ratio (% of as received sample)	%	PM024		26	6.4	27	30	59	10
Loss on ignition	<0.7 %	TM018		2.9 M	2.48 M	0.731 M	5.69 M	30.5 M	2.21 M
Carbon, Organic (diss.filt) NRA leach	<3 mg/l	TM090						6.52	
Fluoride NRA leach	<0.5 mg/l	TM104						<0.5	
Dissolved solids, Total (meter) NRA leach	<5 mg/l	TM123						44.3	
Organic Carbon, Total	<0.2 %	TM132		1.1 M	<0.2 M	<0.2 M	0.496 M	16.4 M	0.238 M
pH	1 pH Units	TM133		5.24 M	7.77 M	6.43 M	6.82 M	5.65 M	7.58 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic (diss.filt) NRA leach	<0.5 µg/l	TM152						38.6	
Cadmium (diss.filt) NRA leach	<0.08 µg/l	TM152						<0.08	
Chromium (diss.filt) NRA leach	<1 µg/l	TM152						<1	
Copper (diss.filt) NRA leach	<0.3 µg/l	TM152						4.11	
Lead (diss.filt) NRA leach	<0.2 µg/l	TM152						<0.2	
Nickel (diss.filt) NRA leach	<0.4 µg/l	TM152						0.772	
Selenium (diss.filt) NRA leach	<1 µg/l	TM152						<1	
Zinc (diss.filt) NRA leach	<1 µg/l	TM152						11.9	
Cyanide, Total	<1 mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 @ M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		67.5 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	22.9 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		15.6	13.4	<0.9	16	20.4	<0.9
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	23.7 #	<0.6 #	<0.6 #	<6 #
Arsenic	<0.6 mg/kg	TM181		24.3 M	31.4 M	2620 M	56.4 M	36.6 M	78.8 M
Barium	<0.6 mg/kg	TM181		24.5 #	75.5 #	19.5 #	58.6 #	92.5 #	31.6 #

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
Cadmium	<0.02 mg/kg	TM181		<0.02 M	<0.02 M	16 M	0.157 M	4.01 M	0.259 M
Chromium	<0.9 mg/kg	TM181		15.6 M	13.4 M	<9 M	16 M	20.4 M	<9 M
Copper	<1.4 mg/kg	TM181		18 M	80.5 M	6080 M	104 M	36.7 M	162 M
Lead	<0.7 mg/kg	TM181		20 M	43 M	2490 M	46.6 M	46 M	107 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	0.243 M	3.01 M	<0.14 M	<0.14 M	<1.4 M
Molybdenum	<0.1 mg/kg	TM181		0.233 #	0.54 #	97.4 #	1.1 #	1.33 #	2.4 #
Nickel	<0.2 mg/kg	TM181		23.6 M	48.3 M	9.28 M	22.7 M	23.1 M	30.7 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<10 #	1.39 #	1.9 #	<10 #
Zinc	<1.9 mg/kg	TM181		689 M	512 M	4890 M	502 M	211 M	241 M
Mercury (diss.filt) NRA leach	<0.01 µg/l	TM183						<0.01	
Sulphate NRA leach	<2 mg/l	TM184						11.2	
Chloride NRA leach	<2 mg/l	TM184						5.3	
Phenol NRA leach	<0.002 mg/l	TM259						<0.002	
Cresols NRA leach	<0.006 mg/l	TM259						<0.006	
Xylenols NRA leach	<0.008 mg/l	TM259						<0.008	
Phenols, Total Detected monohydric NRA leach	<0.016 mg/l	TM259						<0.016	
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	<35	102	<35

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
Moisture Content Ratio (% of as received sample)	%	PM024		30	34	38	5	28	39
Loss on ignition	<0.7 %	TM018		<0.7 M	5.83 M	4.12 M	2.97 M	0.999 M	7.91 M
Organic Carbon, Total	<0.2 %	TM132		<0.2 M	0.686 M	0.389 M	0.22 M	<0.2 M	1.91 M
pH	1 pH Units	TM133		7.53 M	7.15 M	6.14 M	6.86 M	6.4 M	6.54 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	26 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		<0.9	19.3	20.6	18	<0.9	28.6
Antimony	<0.6 mg/kg	TM181		<60 #	<6 #	<6 #	<6 #	<60 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		1430 M	66.2 M	66.4 M	51.5 M	2330 M	96.6 M
Barium	<0.6 mg/kg	TM181		<60 #	68.7 #	47.3 #	38.3 #	<60 #	69.9 #
Cadmium	<0.02 mg/kg	TM181		16.2 M	<0.2 M	0.937 M	0.324 M	21.3 M	1.09 M
Chromium	<0.9 mg/kg	TM181		<90 M	19.3 M	20.6 M	18 M	<90 M	28.6 M
Copper	<1.4 mg/kg	TM181		5400 M	75.8 M	25.1 M	187 M	6120 M	7100 M
Lead	<0.7 mg/kg	TM181		2500 M	48 M	52.2 M	62 M	3170 M	68.3 M
Mercury	<0.14 mg/kg	TM181		<14 M	<1.4 M	<1.4 M	<1.4 M	<14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181		67 #	<1 #	<1 #	<1 #	85.9 #	0.676 #
Nickel	<0.2 mg/kg	TM181		20 M	25.2 M	25.2 M	52.1 M	<20 M	22.4 M
Selenium	<1 mg/kg	TM181		<100 #	<10 #	<10 #	<10 #	<100 #	<1 #
Zinc	<1.9 mg/kg	TM181		3340 M	142 M	677 M	250 M	6390 M	634 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	<35	<35	38.8

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref. TP325				
			Depth (m) 2.80 - 2.90				
			Sample Type Soil/Solid (S)				
			Date Sampled 08/10/2020				
			Sampled Time -				
			Date Received 10/10/2020				
			SDG Ref 201013-75				
			Lab Sample No.(s) 23022342				
			AGS Reference ES5				
Moisture Content Ratio (% of as received sample)	%	PM024	6.9				
Loss on ignition	<0.7 %	TM018	<0.7 #				
Organic Carbon, Total	<0.2 %	TM132	<0.2 #				
pH	1 pH Units	TM133	5.73 #				
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6 #				
Cyanide, Total	<1 mg/kg	TM153	<1 #				
Cyanide, Free	<1 mg/kg	TM153	<1 #				
Cyanide, Complex	<1 mg/kg	TM153	<1				
PCB congener 28	<3 µg/kg	TM168	<3 #				
PCB congener 52	<3 µg/kg	TM168	<3 #				
PCB congener 101	<3 µg/kg	TM168	<3 #				
PCB congener 118	<3 µg/kg	TM168	<3 #				
PCB congener 138	<3 µg/kg	TM168	<3 #				
PCB congener 153	<3 µg/kg	TM168	<3 #				
PCB congener 180	<3 µg/kg	TM168	<3 #				
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21				
Sulphide, Easily liberated	<15 mg/kg	TM180	32.3 @ #				
Chromium, Trivalent	<0.9 mg/kg	TM181	9.67				
Antimony	<0.6 mg/kg	TM181	<0.6 #				
Arsenic	<0.6 mg/kg	TM181	10.7 #				
Barium	<0.6 mg/kg	TM181	12.7 #				
Cadmium	<0.02 mg/kg	TM181	<0.02 #				
Chromium	<0.9 mg/kg	TM181	9.67 #				
Copper	<1.4 mg/kg	TM181	20.9 #				
Lead	<0.7 mg/kg	TM181	14.8 #				
Mercury	<0.14 mg/kg	TM181	<0.14 #				
Molybdenum	<0.1 mg/kg	TM181	0.508 #				
Nickel	<0.2 mg/kg	TM181	17.3 #				
Selenium	<1 mg/kg	TM181	<1 #				
Zinc	<1.9 mg/kg	TM181	196 #				
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318				
Coronene	<200 µg/kg	TM410	<200				

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP325
Depth (m)	2.80 - 2.90
Sample Type	Soil/Solid (S)
Date Sampled	08/10/2020
Sampled Time	.
Date Received	10/10/2020
SDG Ref	201013-75
Lab Sample No.(s)	23022342
AGS Reference	ES5

Component	LOD/Units	Method	
EPH >C8-C40	<35 mg/kg	TM415	<35

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
Sampled Time	.	.	.	.	.	.
Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3

Component	LOD/Units	Method											
Naphthalene-d8 % recovery**	%	TM218	85.3		82.7		96.6		124		86.6		91.8	
Acenaphthene-d10 % recovery**	%	TM218	85.5		80.5		103		119		88.5		99.1	
Phenanthrene-d10 % recovery**	%	TM218	81.3		76.5		96.7		110		82.1		96	
Chrysene-d12 % recovery**	%	TM218	95.7		77.5		97.3		113		83.4		97.2	
Perylene-d12 % recovery**	%	TM218	92.4		73.7		105		102		76.5		104	
Naphthalene	<9 µg/kg	TM218	<9	M	<9	M	<9	M	<9	M	<9	M	<9	M
Acenaphthylene	<12 µg/kg	TM218	<12	M	<12	M	<12	M	<12	M	<12	M	<12	M
Acenaphthene	<8 µg/kg	TM218	<8	M	<8	M	<8	M	<8	M	<8	M	<8	M
Fluorene	<10 µg/kg	TM218	<10	M	<10	M	<10	M	<10	M	<10	M	<10	M
Phenanthrene	<15 µg/kg	TM218	<15	M	<15	M	<15	M	<15	M	<15	M	<15	M
Anthracene	<16 µg/kg	TM218	<16	M	<16	M	<16	M	<16	M	<16	M	<16	M
Fluoranthene	<17 µg/kg	TM218	96.3	M	<17	M	<17	M	<17	M	<17	M	<17	M
Pyrene	<15 µg/kg	TM218	172	M	<15	M	<15	M	<15	M	<15	M	<15	M
Benz(a)anthracene	<14 µg/kg	TM218	284	M	<14	M	<14	M	<14	M	<14	M	<14	M
Chrysene	<10 µg/kg	TM218	192	M	<10	M	<10	M	<10	M	<10	M	<10	M
Benzo(b)fluoranthene	<15 µg/kg	TM218	218	M	<15	M	<15	M	<15	M	<15	M	<15	M
Benzo(k)fluoranthene	<14 µg/kg	TM218	68.7	M	<14	M	<14	M	<14	M	<14	M	<14	M
Benzo(a)pyrene	<15 µg/kg	TM218	196	M	<15	M	<15	M	<15	M	<15	M	<15	M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	75.2	M	<18	M	<18	M	<18	M	<18	M	<18	M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23	M	<23	M	<23	M	<23	M	<23	M	<23	M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	142	M	<24	M	<24	M	<24	M	<24	M	<24	M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	1440		<118		<118		<118		<118		<118	

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
Naphthalene-d8 % recovery**	%	TM218		90.7	78.1	87.1	84.1	81.6	82.9
Acenaphthene-d10 % recovery**	%	TM218		82.7	81	85.2	82.2	80	82.3
Phenanthrene-d10 % recovery**	%	TM218		88.9	83.1	83.1	77.3	75	78.3
Chrysene-d12 % recovery**	%	TM218		97.5	92.5	78.4	81.4	75.8	83.4
Perylene-d12 % recovery**	%	TM218		87.5	82.4	79.3	79.2	70.5	77.5
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<45	<9 M	<9 #	<9
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<60	<12 M	<12 #	<12
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<40	<8 M	<8 #	<8
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<50	<10 M	<10 #	<10
Phenanthrene	<15 µg/kg	TM218		<15 M	15.3 M	<75	<15 M	<15 #	<15
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<80	<16 M	<16 #	<16
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<85	<17 M	<17 #	<17
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<75	<15 M	<15 #	<15
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<70	<14 M	<14 #	<14
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<50	<10 M	<10 #	<10
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<75	<15 M	<15 #	<15
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<70	<14 M	<14 #	<14
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<75	<15 M	<15 #	<15
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<90	<18 M	<18 #	<18
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<115	<23 M	<23 #	<23
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<120	<24 M	<24 #	<24
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<590	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
Naphthalene-d8 % recovery**	%	TM218		92.2	94.4	87.6	98.9	94.2	94
Acenaphthene-d10 % recovery**	%	TM218		89.6	92.4	87.5	95.5	94	94.6
Phenanthrene-d10 % recovery**	%	TM218		88.8	92.6	85	91.5	96	95.6
Chrysene-d12 % recovery**	%	TM218		80.2	88.9	87.2	81	84.5	90.7
Perylene-d12 % recovery**	%	TM218		78.2	88.9	79.5	73.6	84.4	93.9
Naphthalene	<9 µg/kg	TM218		<9	<9 M	<9 M	<9 @ M	<9 @ M	<9 @ M
Acenaphthylene	<12 µg/kg	TM218		<12	<12 M	<12 M	<12 @ M	<12 @ M	<12 @ M
Acenaphthene	<8 µg/kg	TM218		<8	<8 M	<8 M	<8 @ M	<8 @ M	<8 @ M
Fluorene	<10 µg/kg	TM218		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Phenanthrene	<15 µg/kg	TM218		<15	<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M
Anthracene	<16 µg/kg	TM218		<16	<16 M	<16 M	<16 @ M	<16 @ M	<16 @ M
Fluoranthene	<17 µg/kg	TM218		<17	<17 M	<17 M	<17 @ M	<17 @ M	<17 @ M
Pyrene	<15 µg/kg	TM218		<15	<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M
Benz(a)anthracene	<14 µg/kg	TM218		<14	<14 M	<14 M	<14 @ M	<14 @ M	<14 @ M
Chrysene	<10 µg/kg	TM218		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15	<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14	<14 M	<14 M	<14 @ M	<14 @ M	<14 @ M
Benzo(a)pyrene	<15 µg/kg	TM218		<15	<15 M	<15 M	<15 @ M	<15 @ M	<15 @ M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18	<18 M	<18 M	<18 @ M	<18 @ M	<18 @ M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23	<23 M	<23 M	<23 @ M	<23 @ M	<23 @ M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24	<24 M	<24 M	<24 @ M	<24 @ M	<24 @ M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
Naphthalene-d8 % recovery**	%	TM218		95.7	95.5	93.8	92.7	92.5	107
Acenaphthene-d10 % recovery**	%	TM218		89.8	89.4	95	93.3	95.2	101
Phenanthrene-d10 % recovery**	%	TM218		93.5	95.7	96	95.2	96.8	112
Chrysene-d12 % recovery**	%	TM218		77.8	78.4	88.9	93	92.3	122
Perylene-d12 % recovery**	%	TM218		70	70.1	88.6	98.9	95.9	108
Naphthalene	<9 µg/kg	TM218		<9 @ M	<9 @ M	<9 @ M	<9 @ M	<9 @ M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 @ M	<12 @ M	<12 @ M	<12 @ M	<12 @ M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 @ M	<8 @ M	<8 @ M	<8 @ M	<8 @ M	<8 M
Fluorene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<10 @ M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 M
Anthracene	<16 µg/kg	TM218		<16 @ M	<16 @ M	<16 @ M	<16 @ M	<16 @ M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 @ M	<17 @ M	<17 @ M	<17 @ M	<17 @ M	<17 M
Pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<14 @ M	<14 @ M	<14 @ M	<14 M
Chrysene	<10 µg/kg	TM218		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<10 @ M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 @ M	<14 @ M	<14 @ M	<14 @ M	<14 @ M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 @ M	<18 @ M	<18 @ M	<18 @ M	<18 @ M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 @ M	<23 @ M	<23 @ M	<23 @ M	<23 @ M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 @ M	<24 @ M	<24 @ M	<24 @ M	<24 @ M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
Naphthalene-d8 % recovery**	%	TM218		85.2	90.8	91.2	96.5	94.8	102
Acenaphthene-d10 % recovery**	%	TM218		84.1	88.5	89	91.6	86.3	102
Phenanthrene-d10 % recovery**	%	TM218		78.4	89.1	90.1	84.9	91.3	102
Chrysene-d12 % recovery**	%	TM218		78.2	83	83.1	84.4	99.7	98
Perylene-d12 % recovery**	%	TM218		72.4	82.4	81.4	72.8	89.1	97.2
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

PAH by GCMS

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref. TP325				
			Depth (m) 2.80 - 2.90				
			Sample Type Soil/Solid (S)				
			Date Sampled 08/10/2020				
			Sampled Time -				
			Date Received 10/10/2020				
			SDG Ref 201013-75				
			Lab Sample No.(s) 23022342				
			AGS Reference ES5				
Naphthalene-d8 % recovery**	%	TM218	82.7				
Acenaphthene-d10 % recovery**	%	TM218	81.5				
Phenanthrene-d10 % recovery**	%	TM218	76.8				
Chrysene-d12 % recovery**	%	TM218	78.1				
Perylene-d12 % recovery**	%	TM218	71				
Naphthalene	µg/kg	TM218	<9 #				
Acenaphthylene	µg/kg	TM218	<12 #				
Acenaphthene	µg/kg	TM218	<8 #				
Fluorene	µg/kg	TM218	<10 #				
Phenanthrene	µg/kg	TM218	<15 #				
Anthracene	µg/kg	TM218	<16 #				
Fluoranthene	µg/kg	TM218	<17 #				
Pyrene	µg/kg	TM218	<15 #				
Benz(a)anthracene	µg/kg	TM218	<14 #				
Chrysene	µg/kg	TM218	<10 #				
Benzo(b)fluoranthene	µg/kg	TM218	<15 #				
Benzo(k)fluoranthene	µg/kg	TM218	<14 #				
Benzo(a)pyrene	µg/kg	TM218	<15 #				
Indeno(1,2,3-cd)pyrene	µg/kg	TM218	<18 #				
Dibenzo(a,h)anthracene	µg/kg	TM218	<23 #				
Benzo(g,h,i)perylene	µg/kg	TM218	<24 #				
PAH, Total Detected USEPA 16	µg/kg	TM218	<118				

Semi Volatile Organic Compounds

Results Legend	
#	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)

Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
Sampled Time	-	-	-	-	-	-
Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3

Component	LOD/Units	Method					
Phenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	240	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157	<500	<500	<500	<500	<500	<500
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
			Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
			AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<1000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<500	<500	<500	<500	<500	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	4310	<1000	<1000	<1000	<1000
Decahydropentamethylnaphthalene	µg/kg	TM157			1100				

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sampled Time	.	.	.	.	.	.
Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1

Component	LOD/Units	Method						
Unknown	µg/kg	TM157		3210				

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<200	<200	<200
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<500	<500	<500	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<1000	<1000

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<200	<200	<200	<200	<400	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	193000	<1000
Unknown	µg/kg	TM157						193000	

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
Sampled Time	-	-	-	-	-	-
Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3

Component	LOD/Units	Method					
Phenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157	<500	<100	<100	<500	<500	<500
4-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<1000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP325
Depth (m)	2.80 - 2.90
Sample Type	Soil/Solid (S)
Date Sampled	08/10/2020
Sampled Time	-
Date Received	10/10/2020
SDG Ref	201013-75
Lab Sample No.(s)	23022342
AGS Reference	ES5

Component	LOD/Units	Method	
Phenol	<100 µg/kg	TM157	<100
Pentachlorophenol	<100 µg/kg	TM157	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157	<100
Nitrobenzene	<100 µg/kg	TM157	<100
Isophorone	<100 µg/kg	TM157	<100
Hexachloroethane	<100 µg/kg	TM157	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157	<100
Hexachlorobutadiene	<100 µg/kg	TM157	<100
Hexachlorobenzene	<100 µg/kg	TM157	<100
n-Dioctyl phthalate	<100 µg/kg	TM157	<100
Dimethyl phthalate	<100 µg/kg	TM157	<100
Diethyl phthalate	<100 µg/kg	TM157	<100
n-Dibutyl phthalate	<100 µg/kg	TM157	<100
Dibenzofuran	<100 µg/kg	TM157	<100
Carbazole	<100 µg/kg	TM157	<100
Butylbenzyl phthalate	<100 µg/kg	TM157	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157	<100
Azobenzene	<100 µg/kg	TM157	<100
4-Nitrophenol	<100 µg/kg	TM157	<500
4-Nitroaniline	<100 µg/kg	TM157	<100
4-Methylphenol	<100 µg/kg	TM157	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157	<100
4-Chloroaniline	<100 µg/kg	TM157	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157	<100
4-Bromophenylphenylether	<100 µg/kg	TM157	<100
3-Nitroaniline	<100 µg/kg	TM157	<100
2-Nitrophenol	<100 µg/kg	TM157	<100
2-Nitroaniline	<100 µg/kg	TM157	<100
2-Methylphenol	<100 µg/kg	TM157	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157	<100

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP325
Depth (m)	2.80 - 2.90
Sample Type	Soil/Solid (S)
Date Sampled	08/10/2020
Sampled Time	.
Date Received	10/10/2020
SDG Ref	201013-75
Lab Sample No.(s)	23022342
AGS Reference	ES5

Component	LOD/Units	Method	
2-Chlorophenol	<100 µg/kg	TM157	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157	<100
2,4-Dimethylphenol	<100 µg/kg	TM157	<100
2,4-Dichlorophenol	<100 µg/kg	TM157	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157	<100
2-Chloronaphthalene	<100 µg/kg	TM157	<100
2-Methylnaphthalene	<100 µg/kg	TM157	<100
Acenaphthylene	<100 µg/kg	TM157	<100
Acenaphthene	<100 µg/kg	TM157	<100
Anthracene	<100 µg/kg	TM157	<100
Benzo(a)anthracene	<100 µg/kg	TM157	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157	<100
Benzo(a)pyrene	<100 µg/kg	TM157	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157	<100
Chrysene	<100 µg/kg	TM157	<100
Fluoranthene	<100 µg/kg	TM157	<100
Fluorene	<100 µg/kg	TM157	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157	<100
Phenanthrene	<100 µg/kg	TM157	<100
Pyrene	<100 µg/kg	TM157	<100
Naphthalene	<100 µg/kg	TM157	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157	<100
TIC report		TM157	Not Detected
Total SVOC TIC	<100 µg/kg	TM157	<1000

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
			Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
			AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3
GRO Surrogate % recovery**	%	TM089		98.1	126	72.4	122	119	115
Aliphatics >C5-C6	<10 µg/kg	TM089		21.2	<10	38.9	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		50.8	10.8	49	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		90.2	18.9	186	<10	<10	12
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		5490	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		23100	<1000	1210	2790	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		84200	1420	13300	134000	<1000	11700
Aliphatics >C35-C44	<1000 µg/kg	TM414		44300	<1000	<1000	11100	<1000	1510
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		157000	<5000	15500	148000	<5000	13900
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		215000	<10000	59200	162000	<10000	18700
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		59.2	13.5	123	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		3900	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		51600	1200	27300	13300	<1000	3250
Aromatics >EC35-EC44	<1000 µg/kg	TM414		2090	<1000	16200	<1000	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		58000	<5000	43800	14400	<5000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		215000	<10000	59600	162000	<10000	14000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		162	<50	274	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		59.2	<50	123	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		221	<20	397	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
GRO Surrogate % recovery**	%	TM089		99.2	99.2	96.4	67.4 4	107	74.4
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	10.2	<10	14.7 4	<10	11.4
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	17.3	<10	29.4 4	<10	15.5
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	23.4	<10	27.3 4	<10	58.9
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	30700	<1000	<1000	<1000	1070
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	41900	<1000	5230	<1000	8470
Aliphatics >C21-C35	<1000 µg/kg	TM414		10800	49500	1370	75900	1940	2840
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	6880	<1000	11200	<1000	2540
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		11800	129000	<5000	93400	<5000	14900
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		16700	149000	<10000	124000	<10000	377000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10 4	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10 4	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	15.3	<10	16.8 4	<10	39.3
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	4010	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	6130	<1000	1690	<1000	1230
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	6150	<1000	3510	<1000	25400
Aromatics > EC21-EC35	<1000 µg/kg	TM414		2710	5400	<1000	13100	<1000	237000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		1970	<1000	<1000	8210	<1000	98300
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	36900
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	19200	<5000	30500	<5000	362000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		11800	149000	<10000	124000	<10000	377000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	50.9	<50	71.4 4	0	85.8
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50 4	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	50.9	<20	71.4 4	<20	85.8

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
GRO Surrogate % recovery**	%	TM089		83.9	86	115	90.3 @	89.1 @	79.7 @
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10 @	<10 @	<10 @
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	11.3	<10	<10 @	<10 @	<10 @
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	16.8	<10 @	<10 @	<10 @
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	1610	<1000	<1000	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	24200	4140	<1000	<1000	11300
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	3380	<1000	<1000	<1000	1330
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	29200	<5000	<5000	<5000	13500
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	41400	<10000	<10000	<10000	22900
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10 @	<10 @	<10 @
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10 @	<10 @	<10 @
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	11.2	<10 @	<10 @	<10 @
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	1770	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	8000	2530	<1000	<1000	6280
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	2030	1270	<1000	<1000	2910
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	12200	<5000	<5000	<5000	9360
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	41400	<10000	<10000	<10000	22900
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50 @	<50 @	<50 @
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50 @	<50 @	<50 @
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20 @	<20 @	<20 @

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
GRO Surrogate % recovery**	%	TM089		93.6 @	99.4 @	121 @	99.7 @	70.3 @	103
Aliphatics >C5-C6	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	12.5 @	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	12.5 @	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	10 @	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	5120	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		4930	<1000	<1000	<1000	41900	14600
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	4590	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		5610	<5000	<5000	<5000	51600	15800
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		26400	<10000	<10000	<10000	256000	20600
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	<10 @	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	<10 @	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10 @	<10 @	<10 @	<10 @	<10 @	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	2220	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		13900	<1000	1690	<1000	157000	3410
Aromatics >EC35-EC44	<1000 µg/kg	TM414		6520	<1000	<1000	<1000	45400	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		20800	<5000	<5000	<5000	205000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		26400	<10000	<10000	<10000	256000	15800
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50 @	<50 @	<50 @	<50 @	<50 @	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50 @	<50 @	<50 @	<50 @	<50 @	<50
GRO >C5-C10	<20 µg/kg	TM089		<20 @	<20 @	<20 @	<20 @	<20 @	<20

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
GRO Surrogate % recovery**	%	TM089		107	115	119	97.2	87.2	104
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	11.6
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	18.2
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	13.6	<10	<10	<10	23.1
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	2760
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	6490	1510	1360	<1000	36200
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	5430
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	6720	<5000	<5000	<5000	44400
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	63500
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	14.9
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	14100
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	4630
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	19100
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	63500
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	52.8
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	52.8

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	Depth (m)	Sample Type	Date Sampled	Sampled Time	Date Received	SDG Ref	Lab Sample No.(s)	AGS Reference
			TP325	2.80 - 2.90	Soil/Solid (S)	08/10/2020	-	10/10/2020	201013-75	23022342	ES5
GRO Surrogate % recovery**	%	TM089	103								
Aliphatics >C5-C6	<10 µg/kg	TM089	<10								
Aliphatics >C6-C8	<10 µg/kg	TM089	<10								
Aliphatics >C8-C10	<10 µg/kg	TM089	<10								
Aliphatics >C10-C12	<1000 µg/kg	TM414	<1000								
Aliphatics >C12-C16	<1000 µg/kg	TM414	<1000								
Aliphatics >C16-C21	<1000 µg/kg	TM414	<1000								
Aliphatics >C21-C35	<1000 µg/kg	TM414	<1000								
Aliphatics >C35-C44	<1000 µg/kg	TM414	<1000								
Total Aliphatics >C10-C44	<5000 µg/kg	TM414	<5000								
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414	<10000								
Aromatics >EC5-EC7	<10 µg/kg	TM089	<10								
Aromatics >EC7-EC8	<10 µg/kg	TM089	<10								
Aromatics >EC8-EC10	<10 µg/kg	TM089	<10								
Aromatics > EC10-EC12	<1000 µg/kg	TM414	<1000								
Aromatics > EC12-EC16	<1000 µg/kg	TM414	<1000								
Aromatics > EC16-EC21	<1000 µg/kg	TM414	<1000								
Aromatics > EC21-EC35	<1000 µg/kg	TM414	<1000								
Aromatics >EC35-EC44	<1000 µg/kg	TM414	<1000								
Aromatics > EC40-EC44	<1000 µg/kg	TM414	<1000								
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414	<5000								
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414	<10000								
Total Aliphatics >C5-C10	<50 µg/kg	TM089	<50								
Total Aromatics >EC5-EC10	<50 µg/kg	TM089	<50								
GRO >C5-C10	<20 µg/kg	TM089	<20								

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
			Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
			AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3
Dibromofluoromethane**	%	TM116		108	109	111	121	114	110
Toluene-d8**	%	TM116		99.5	100	99.9	103	102	99
4-Bromofluorobenzene**	%	TM116		79.3	81.7	91.4	98.8	100	89.1
Dichlorodifluoromethane	µg/kg	TM116		<6 M	<6 M	<120 M	<6 M	<6 M	<6 M
Chloromethane	µg/kg	TM116		<7 3 #	<7 3 #	<140 3 #	<7 #	<7 #	<7 #
Vinyl Chloride	µg/kg	TM116		<6 M	<6 M	<120 M	<6 M	<6 M	<6 M
Bromomethane	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Chloroethane	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	µg/kg	TM116		<6 M	<6 M	<120 M	<6 M	<6 M	<6 M
1,1-Dichloroethene	µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
Carbon Disulphide	µg/kg	TM116		<7 M	<7 M	<140 M	<7 M	<7 M	9.52 M
Dichloromethane	µg/kg	TM116		16.6 #	<10 #	<200 #	<10 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	µg/kg	TM116		<8 M	<8 M	<160 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	µg/kg	TM116		<6 M	<6 M	<120 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	µg/kg	TM116		<10	<10	<200	<10	<10	<10
Bromochloromethane	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Chloroform	µg/kg	TM116		<8 M	<8 M	<160 M	<8 M	<8 M	<8 M
1,1,1-Trichloroethane	µg/kg	TM116		<7 M	<7 M	<140 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Carbontetrachloride	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	µg/kg	TM116		<5 M	<5 M	<100 M	<5 M	<5 M	<5 M
Benzene	µg/kg	TM116		<9 M	<9 M	<180 M	<9 M	<9 M	<9 M
Trichloroethene	µg/kg	TM116		<9 #	<9 #	<180 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Dibromomethane	µg/kg	TM116		<9 M	<9 M	<180 M	<9 M	<9 M	<9 M
Bromodichloromethane	µg/kg	TM116		<7 M	<7 M	<140 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Toluene	µg/kg	TM116		<7 M	<7 M	<140 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	µg/kg	TM116		<10	<10	<200	<10	<10	<10
1,1,2-Trichloroethane	µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
			Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
			AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<140 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<100 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<100 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<80 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<100 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<320 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<180 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<160 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<280 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<180 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<200	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<160 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<100 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<220	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<200 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<280 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<200 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<400	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<400	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<260 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303
			Depth (m)	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	09/10/2020	09/10/2020	09/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022374	23022381	23022392	23022467	23022478	23022487
			AGS Reference	ES1	ES2	ES3	ES1	ES2	ES3
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<400 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.4	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<800	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<1000	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
Dibromofluoromethane**	%	TM116		111	117	115	107	109	115
Toluene-d8**	%	TM116		104	98	101	103	101	97.2
4-Bromofluorobenzene**	%	TM116		96.6	82.5	93.8	86.6	97.1	88.7
Dichlorodifluoromethane	µg/kg	TM116	<6	<120 M	<6 M	<6	<120 M	<6 #	<6
Chloromethane	µg/kg	TM116	<7	<140 3 #	<7 #	<7	<140 3 #	<7 #	<7
Vinyl Chloride	µg/kg	TM116	<6	<120 M	<6 M	<6	<120 M	<6 #	<6
Bromomethane	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
Chloroethane	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
Trichlorofluorormethane	µg/kg	TM116	<6	<120 M	<6 M	<6	<120 M	<6 #	<6
1,1-Dichloroethene	µg/kg	TM116	<10	<200 #	<10 #	<10	<200 #	<10 #	<10
Carbon Disulphide	µg/kg	TM116	<7	<140 M	<7 M	<7	<140 M	<7 #	<7
Dichloromethane	µg/kg	TM116	<10	<200 #	<10 #	<10	<200 #	<10 #	<10
Methyl Tertiary Butyl Ether	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
trans-1,2-Dichloroethene	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
1,1-Dichloroethane	µg/kg	TM116	<8	<160 M	<8 M	<8	<160 M	<8 #	<8
cis-1,2-Dichloroethene	µg/kg	TM116	<6	<120 M	<6 M	<6	<120 M	<6 #	<6
2,2-Dichloropropane	µg/kg	TM116	<10	<200	<10	<10	<200	<10	<10
Bromochloromethane	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
Chloroform	µg/kg	TM116	<8	<160 M	<8 M	<8	<160 M	<8 #	<8
1,1,1-Trichloroethane	µg/kg	TM116	<7	<140 M	<7 M	<7	<140 M	<7 #	<7
1,1-Dichloropropene	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
Carbontetrachloride	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
1,2-Dichloroethane	µg/kg	TM116	<5	<100 M	<5 M	<5	<100 M	<5 #	<5
Benzene	µg/kg	TM116	<9	<180 M	<9 M	<9	<180 M	<9 #	<9
Trichloroethene	µg/kg	TM116	<9	<180 #	<9 #	<9	<180 #	<9 #	<9
1,2-Dichloropropane	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
Dibromomethane	µg/kg	TM116	<9	<180 M	<9 M	<9	<180 M	<9 #	<9
Bromodichloromethane	µg/kg	TM116	<7	<140 M	<7 M	<7	<140 M	<7 #	<7
cis-1,3-Dichloropropene	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10
Toluene	µg/kg	TM116	<7	<140 M	<7 M	<7	<140 M	<7 #	<7
trans-1,3-Dichloropropene	µg/kg	TM116	<10	<200	<10	<10	<200	<10	<10
1,1,2-Trichloroethane	µg/kg	TM116	<10	<200 M	<10 M	<10	<200 M	<10 #	<10

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
1,3-Dichloropropane	<7 µg/kg	TM116		<140 M	<7 M	<7	<140 M	<7 #	<7
Tetrachloroethene	<5 µg/kg	TM116		<100 M	<5 M	<5	<100 M	<5 #	<5
Dibromochloromethane	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
1,2-Dibromoethane	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
Chlorobenzene	<5 µg/kg	TM116		<100 M	<5 M	<5	<100 M	<5 #	<5
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
Ethylbenzene	<4 µg/kg	TM116		<80 M	<4 M	<4	<80 M	<4 #	<4
p/m-Xylene	<10 µg/kg	TM116		<200 #	<10 #	<10	<200 #	<10 #	<10
o-Xylene	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
Styrene	<10 µg/kg	TM116		<200 #	<10 #	<10	<200 #	<10 #	<10
Bromoform	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
Isopropylbenzene	<5 µg/kg	TM116		<100 #	<5 #	<5	<100 #	<5 #	<5
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<200 #	<10 #	<10	<200 #	<10 #	<10
1,2,3-Trichloropropane	<16 µg/kg	TM116		<320 M	<16 M	<16	<320 M	<16 #	<16
Bromobenzene	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
Propylbenzene	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
2-Chlorotoluene	<9 µg/kg	TM116		<180 M	<9 M	<9	<180 M	<9 #	<9
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<160 M	<8 M	<8	<160 M	<8 #	<8
4-Chlorotoluene	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
tert-Butylbenzene	<14 µg/kg	TM116		<280 M	<14 M	<14	<280 M	<14 #	<14
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<180 #	<9 #	<9	<180 #	<9 #	<9
sec-Butylbenzene	<10 µg/kg	TM116		<200	<10	<10	<200	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
1,3-Dichlorobenzene	<8 µg/kg	TM116		<160 M	<8 M	<8	<160 M	<8 #	<8
1,4-Dichlorobenzene	<5 µg/kg	TM116		<100 M	<5 M	<5	<100 M	<5 #	<5
n-Butylbenzene	<11 µg/kg	TM116		<220	<11	<11	<220	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<200 M	<10 M	<10	<200 M	<10 #	<10
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<280 M	<14 M	<14	<280 M	<14 #	<14
Tert-amyl methyl ether	<10 µg/kg	TM116		<200 #	<10 #	<10	<200 #	<10 #	<10
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<400	<20	<20	<400	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<400	<20	<20	<400	<20	<20
Naphthalene	<13 µg/kg	TM116		<260 M	<13 M	<13	<260 M	<13 #	<13

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP303	TP305	TP305	TP305	TP305	TP306
			Depth (m)	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00	2.80 - 2.90	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	09/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022493	23022427	23022438	23022447	23022457	23022399
			AGS Reference	ES4	ES1	ES2	ES3	ES4	ES1
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<400 #	<20 #	<20	<400 #	<20 #	<20
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.4	<0.02	<0.02	<0.4	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<800	<40	<40	<800	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<1000	<50	<50	<1000	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
Dibromofluoromethane**	%	TM116		114	113	119	108 @	109 @	107 @
Toluene-d8**	%	TM116		103	85.7	93.6	99.3 @	98.9 @	93.5 @
4-Bromofluorobenzene**	%	TM116		91.3	70	83.8	95.3 @	98.8 @	79 @
Dichlorodifluoromethane	<6 µg/kg	TM116		<6	<6 M	<6 M	<6 @ M	<6 @ M	<6 @ M
Chloromethane	<7 µg/kg	TM116		<7	<7 3 #	<7 #	<7 @ #	<7 @ #	<7 @ #
Vinyl Chloride	<6 µg/kg	TM116		<6	<6 M	<6 M	<6 @ M	<6 @ M	<6 @ M
Bromomethane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Chloroethane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Trichlorofluorormethane	<6 µg/kg	TM116		<6	<6 M	<6 M	<6 @ M	<6 @ M	<6 @ M
1,1-Dichloroethene	<10 µg/kg	TM116		<10	<10 #	<10 #	<10 @ #	<10 @ #	<10 @ #
Carbon Disulphide	<7 µg/kg	TM116		<7	<7 M	<7 M	<7 @ M	<7 @ M	<7 @ M
Dichloromethane	<10 µg/kg	TM116		<10	<10 #	<10 #	<10 @ #	<10 @ #	<10 @ #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
1,1-Dichloroethane	<8 µg/kg	TM116		<8	<8 M	<8 M	<8 @ M	<8 @ M	<8 @ M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6	<6 M	<6 M	<6 @ M	<6 @ M	<6 @ M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10 @	<10 @	<10 @
Bromochloromethane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Chloroform	<8 µg/kg	TM116		<8	<8 M	<8 M	<8 @ M	<8 @ M	<8 @ M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7	<7 M	<7 M	<7 @ M	<7 @ M	<7 @ M
1,1-Dichloropropene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Carbontetrachloride	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
1,2-Dichloroethane	<5 µg/kg	TM116		<5	<5 M	<5 M	<5 @ M	<5 @ M	<5 @ M
Benzene	<9 µg/kg	TM116		<9	<9 M	<9 M	<9 @ M	<9 @ M	<9 @ M
Trichloroethene	<9 µg/kg	TM116		<9	<9 #	<9 #	<9 @ #	<9 @ #	<9 @ #
1,2-Dichloropropane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Dibromomethane	<9 µg/kg	TM116		<9	<9 M	<9 M	<9 @ M	<9 @ M	<9 @ M
Bromodichloromethane	<7 µg/kg	TM116		<7	<7 M	<7 M	<7 @ M	<7 @ M	<7 @ M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Toluene	<7 µg/kg	TM116		<7	<7 M	<7 M	<7 @ M	<7 @ M	<7 @ M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10 @	<10 @	<10 @
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
1,3-Dichloropropane	<7 µg/kg	TM116		<7	<7 M	<7 M	<7 @ M	<7 @ M	<7 @ M
Tetrachloroethene	<5 µg/kg	TM116		<5	<5 M	<5 M	<5 @ M	<5 @ M	<5 @ M
Dibromochloromethane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
1,2-Dibromoethane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Chlorobenzene	<5 µg/kg	TM116		<5	<5 M	<5 M	<5 @ M	<5 @ M	<5 @ M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Ethylbenzene	<4 µg/kg	TM116		<4	<4 M	<4 M	<4 @ M	<4 @ M	<4 @ M
p/m-Xylene	<10 µg/kg	TM116		<10	<10 #	<10 #	<10 @ #	<10 @ #	<10 @ #
o-Xylene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Styrene	<10 µg/kg	TM116		<10	<10 #	<10 #	<10 @ #	<10 @ #	<10 @ #
Bromoform	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Isopropylbenzene	<5 µg/kg	TM116		<5	<5 #	<5 #	<5 @ #	<5 @ #	<5 @ #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10	<10 #	<10 #	<10 @ #	<10 @ #	<10 @ #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16	<16 M	<16 M	<16 @ M	<16 @ M	<16 @ M
Bromobenzene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
Propylbenzene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
2-Chlorotoluene	<9 µg/kg	TM116		<9	<9 M	<9 M	<9 @ M	<9 @ M	<9 @ M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8	<8 M	<8 M	<8 @ M	<8 @ M	<8 @ M
4-Chlorotoluene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
tert-Butylbenzene	<14 µg/kg	TM116		<14	<14 M	<14 M	<14 @ M	<14 @ M	<14 @ M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9	<9 #	<9 #	<9 @ #	<9 @ #	<9 @ #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10 @	<10 @	<10 @
4-Isopropyltoluene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8	<8 M	<8 M	<8 @ M	<8 @ M	<8 @ M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5	<5 M	<5 M	<5 @ M	<5 @ M	<5 @ M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11 @	<11 @	<11 @
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10	<10 M	<10 M	<10 @ M	<10 @ M	<10 @ M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14	<14 M	<14 M	<14 @ M	<14 @ M	<14 @ M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10	<10 #	<10 #	<10 @ #	<10 @ #	<10 @ #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20 @	<20 @	<20 @
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20 @	<20 @	<20 @
Naphthalene	<13 µg/kg	TM116		<13	<13 M	<13 M	<13 @ M	<13 @ M	<13 @ M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP306	TP306	TP306	TP313	TP313	TP313
			Depth (m)	1.00 - 1.10	1.80 - 1.90	2.80	0.40 - 0.50	1.10 - 1.20	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	07/10/2020	07/10/2020	07/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022405	23022410	23022418	23055417	23055415	23055418
			AGS Reference	ES2	ES4	ES6			
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20	<20 #	<20 #	<20 @ #	<20 @ #	<20 @ #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected @	Not Detected @	Not Detected @
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02 @	<0.02 @	<0.02 @
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40 @	<40 @	<40 @
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
Dibromofluoromethane**	%	TM116		110 @	109 @	110 @	110 @	112 @	108
Toluene-d8**	%	TM116		95 @	97.3 @	99.7 @	99.7 @	95.2 @	103
4-Bromofluorobenzene**	%	TM116		81.4 @	96.6 @	102 @	97.4 @	84.5 @	93.9
Dichlorodifluoromethane	µg/kg	TM116		<6 @ M	<6 @ M	<6 @ M	<6 @ M	<120 @ M	<6 M
Chloromethane	µg/kg	TM116		<7 @ #	<7 @ #	<7 @ #	<7 @ #	<140 @ #	<7 #
Vinyl Chloride	µg/kg	TM116		<6 @ M	<6 @ M	<6 @ M	<6 @ M	<120 @ M	<6 M
Bromomethane	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Chloroethane	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Trichlorofluorormethane	µg/kg	TM116		<6 @ M	<6 @ M	<6 @ M	<6 @ M	<120 @ M	<6 M
1,1-Dichloroethene	µg/kg	TM116		<10 @ #	<10 @ #	<10 @ #	<10 @ #	<200 @ #	<10 #
Carbon Disulphide	µg/kg	TM116		<7 @ M	<7 @ M	<7 @ M	<7 @ M	<140 @ M	<7 M
Dichloromethane	µg/kg	TM116		<10 @ #	<10 @ #	<10 @ #	<10 @ #	<200 @ #	<10 #
Methyl Tertiary Butyl Ether	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
trans-1,2-Dichloroethene	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
1,1-Dichloroethane	µg/kg	TM116		<8 @ M	<8 @ M	<8 @ M	<8 @ M	<160 @ M	<8 M
cis-1,2-Dichloroethene	µg/kg	TM116		<6 @ M	<6 @ M	<6 @ M	<6 @ M	<120 @ M	<6 M
2,2-Dichloropropane	µg/kg	TM116		<10 @	<10 @	<10 @	<10 @	<200 @	<10
Bromochloromethane	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Chloroform	µg/kg	TM116		<8 @ M	<8 @ M	<8 @ M	<8 @ M	<160 @ M	<8 M
1,1,1-Trichloroethane	µg/kg	TM116		<7 @ M	<7 @ M	<7 @ M	<7 @ M	<140 @ M	<7 M
1,1-Dichloropropene	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Carbontetrachloride	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
1,2-Dichloroethane	µg/kg	TM116		<5 @ M	<5 @ M	<5 @ M	<5 @ M	<100 @ M	<5 M
Benzene	µg/kg	TM116		<9 @ M	<9 @ M	<9 @ M	<9 @ M	<180 @ M	<9 M
Trichloroethene	µg/kg	TM116		<9 @ #	<9 @ #	<9 @ #	<9 @ #	<180 @ #	<9 #
1,2-Dichloropropane	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Dibromomethane	µg/kg	TM116		<9 @ M	<9 @ M	<9 @ M	<9 @ M	<180 @ M	<9 M
Bromodichloromethane	µg/kg	TM116		<7 @ M	<7 @ M	<7 @ M	<7 @ M	<140 @ M	<7 M
cis-1,3-Dichloropropene	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Toluene	µg/kg	TM116		<7 @ M	<7 @ M	<7 @ M	<7 @ M	<140 @ M	<7 M
trans-1,3-Dichloropropene	µg/kg	TM116		<10 @	<10 @	<10 @	<10 @	<200 @	<10
1,1,2-Trichloroethane	µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
1,3-Dichloropropane	<7 µg/kg	TM116		<7 @ M	<7 @ M	<7 @ M	<7 @ M	<140 @ M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 @ M	<5 @ M	<5 @ M	<5 @ M	<100 @ M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 @ M	<5 @ M	<5 @ M	<5 @ M	<100 @ M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 @ M	<4 @ M	<4 @ M	<4 @ M	<80 @ M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 @ #	<10 @ #	<10 @ #	<10 @ #	<200 @ #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Styrene	<10 µg/kg	TM116		<10 @ #	<10 @ #	<10 @ #	<10 @ #	<200 @ #	<10 #
Bromoform	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 @ #	<5 @ #	<5 @ #	<5 @ #	<100 @ #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 @ #	<10 @ #	<10 @ #	<10 @ #	<200 @ #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 @ M	<16 @ M	<16 @ M	<16 @ M	<320 @ M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 @ M	<9 @ M	<9 @ M	<9 @ M	<180 @ M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 @ M	<8 @ M	<8 @ M	<8 @ M	<160 @ M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 @ M	<14 @ M	<14 @ M	<14 @ M	<280 @ M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 @ #	<9 @ #	<9 @ #	<9 @ #	<180 @ #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10 @	<10 @	<10 @	<10 @	<200 @	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 @ M	<8 @ M	<8 @ M	<8 @ M	<160 @ M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 @ M	<5 @ M	<5 @ M	<5 @ M	<100 @ M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11 @	<11 @	<11 @	<11 @	<220 @	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 @ M	<10 @ M	<10 @ M	<10 @ M	<200 @ M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 @ M	<14 @ M	<14 @ M	<14 @ M	<280 @ M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 @ #	<10 @ #	<10 @ #	<10 @ #	<200 @ #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20 @	<20 @	<20 @	<20 @	<400 @	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20 @	<20 @	<20 @	<20 @	<400 @	<20
Naphthalene	<13 µg/kg	TM116		<13 @ M	<13 @ M	<13 @ M	<13 @ M	<260 @ M	<13 M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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♦5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP313	TP318	TP318	TP318	TP318	TP320
			Depth (m)	2.70 - 2.80	0.50 - 0.60	0.90 - 1.00	2.00 - 2.10	3.50 - 3.60	0.50 - 0.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	07/10/2020	07/10/2020	07/10/2020	07/10/2020	07/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23055416	23055420	23055421	23055426	23055423	23022348
			AGS Reference						ES1
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 @ #	<20 @ #	<20 @ #	<20 @ #	<400 @ #	<20 #
VOC TIC		TM116		Not Detected @	Not Detected @	Not Detected @	Not Detected @	Not Detected @	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02 @	<0.02 @	<0.02 @	<0.02 @	<0.4 @	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40 @	<40 @	<40 @	<40 @	<800 @	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<1000	<50

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
Dibromofluoromethane**	%	TM116		107	105	116	112	113	110
Toluene-d8**	%	TM116		103	96.7	101	102	102	104
4-Bromofluorobenzene**	%	TM116		97.2	72.5	97.5	88.1	97	90.7
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<120 M
Chloromethane	<7 µg/kg	TM116		<7 3 #	<7 #	<7 #	<7 #	<7 #	<140 3 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<120 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<120 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<200 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	12.6 M	<7 M	<7 M	<7 M	<140 M
Dichloromethane	<10 µg/kg	TM116		26.6 #	<10 #	<10 #	<10 #	<10 #	<200 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<160 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<120 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<200
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<160 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<140 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<100 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<180 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<180 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<180 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<140 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<140 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<200
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 Client Reference: 2020WW102 Report Number: 579784
Location: Arklow Bank Order Number: 8984 Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<140 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<100 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<100 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<80 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<200 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<200 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #	<5 #	<100 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<200 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M	<16 M	<320 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<180 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<160 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<280 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<180 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<200
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<160 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<100 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<220
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<200 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<280 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<200 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<400
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<400
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M	<13 M	<260 M

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP320	TP320	TP320	TP325	TP325	TP325
			Depth (m)	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.40 - 0.50	0.90 - 1.00	1.70 - 1.80
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020	08/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020	10/10/2020
			SDG Ref	201013-75	201013-75	201013-75	201013-75	201013-75	201013-75
			Lab Sample No.(s)	23022354	23022363	23022369	23022499	23022329	23022336
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #	<20 #	<400 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.4
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<800
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<1000

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP325
Depth (m)	2.80 - 2.90
Sample Type	Soil/Solid (S)
Date Sampled	08/10/2020
Sampled Time	-
Date Received	10/10/2020
SDG Ref	201013-75
Lab Sample No.(s)	23022342
AGS Reference	ES5

Component	LOD/Units	Method	
Dibromofluoromethane**	%	TM116	111
Toluene-d8**	%	TM116	101
4-Bromofluorobenzene**	%	TM116	97.8
Dichlorodifluoromethane	<6 µg/kg	TM116	<6 #
Chloromethane	<7 µg/kg	TM116	<7 #
Vinyl Chloride	<6 µg/kg	TM116	<6 #
Bromomethane	<10 µg/kg	TM116	<10 #
Chloroethane	<10 µg/kg	TM116	<10 #
Trichlorofluorormethane	<6 µg/kg	TM116	<6 #
1,1-Dichloroethene	<10 µg/kg	TM116	<10 #
Carbon Disulphide	<7 µg/kg	TM116	<7 #
Dichloromethane	<10 µg/kg	TM116	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116	<10 #
trans-1,2-Dichloroethene	<10 µg/kg	TM116	<10 #
1,1-Dichloroethane	<8 µg/kg	TM116	<8 #
cis-1,2-Dichloroethene	<6 µg/kg	TM116	<6 #
2,2-Dichloropropane	<10 µg/kg	TM116	<10
Bromochloromethane	<10 µg/kg	TM116	<10 #
Chloroform	<8 µg/kg	TM116	<8 #
1,1,1-Trichloroethane	<7 µg/kg	TM116	<7 #
1,1-Dichloropropene	<10 µg/kg	TM116	<10 #
Carbontetrachloride	<10 µg/kg	TM116	<10 #
1,2-Dichloroethane	<5 µg/kg	TM116	<5 #
Benzene	<9 µg/kg	TM116	<9 #
Trichloroethene	<9 µg/kg	TM116	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116	<10 #
Dibromomethane	<9 µg/kg	TM116	<9 #
Bromodichloromethane	<7 µg/kg	TM116	<7 #
cis-1,3-Dichloropropene	<10 µg/kg	TM116	<10 #
Toluene	<7 µg/kg	TM116	<7 #
trans-1,3-Dichloropropene	<10 µg/kg	TM116	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116	<10 #

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP325
Depth (m)	2.80 - 2.90
Sample Type	Soil/Solid (S)
Date Sampled	08/10/2020
Sampled Time	.
Date Received	10/10/2020
SDG Ref	201013-75
Lab Sample No.(s)	23022342
AGS Reference	ES5

Component	LOD/Units	Method	
1,3-Dichloropropane	<7 µg/kg	TM116	<7 #
Tetrachloroethene	<5 µg/kg	TM116	<5 #
Dibromochloromethane	<10 µg/kg	TM116	<10 #
1,2-Dibromoethane	<10 µg/kg	TM116	<10 #
Chlorobenzene	<5 µg/kg	TM116	<5 #
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #
Ethylbenzene	<4 µg/kg	TM116	<4 #
p/m-Xylene	<10 µg/kg	TM116	<10 #
o-Xylene	<10 µg/kg	TM116	<10 #
Styrene	<10 µg/kg	TM116	<10 #
Bromoform	<10 µg/kg	TM116	<10 #
Isopropylbenzene	<5 µg/kg	TM116	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116	<16 #
Bromobenzene	<10 µg/kg	TM116	<10 #
Propylbenzene	<10 µg/kg	TM116	<10 #
2-Chlorotoluene	<9 µg/kg	TM116	<9 #
1,3,5-Trimethylbenzene	<8 µg/kg	TM116	<8 #
4-Chlorotoluene	<10 µg/kg	TM116	<10 #
tert-Butylbenzene	<14 µg/kg	TM116	<14 #
1,2,4-Trimethylbenzene	<9 µg/kg	TM116	<9 #
sec-Butylbenzene	<10 µg/kg	TM116	<10
4-Isopropyltoluene	<10 µg/kg	TM116	<10 #
1,3-Dichlorobenzene	<8 µg/kg	TM116	<8 #
1,4-Dichlorobenzene	<5 µg/kg	TM116	<5 #
n-Butylbenzene	<11 µg/kg	TM116	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116	<10 #
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116	<14 #
Tert-amyl methyl ether	<10 µg/kg	TM116	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116	<20
Hexachlorobutadiene	<20 µg/kg	TM116	<20
Naphthalene	<13 µg/kg	TM116	<13 #

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP325
Depth (m)	2.80 - 2.90
Sample Type	Soil/Solid (S)
Date Sampled	08/10/2020
Sampled Time	.
Date Received	10/10/2020
SDG Ref	201013-75
Lab Sample No.(s)	23022342
AGS Reference	ES5

Component	LOD/Units	Method	
1,2,3-Trichlorobenzene	<20 µg/kg	TM116	<20 #
VOC TIC		TM116	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116	<0.02
Sum of BTEX	<40 µg/kg	TM116	<40
Total VOC TIC	<50 µg/kg	TM116	<50

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH301ES1 1.00 - 1.50 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022374 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH301ES2 2.00 - 2.50 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022381 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	BH301ES3 3.00 - 3.50 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022392 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP303ES1 0.40 - 0.50 SOLID 09/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022467 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP303ES2 0.90 - 1.00 SOLID 09/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022478 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP303ES3 1.40 - 1.50 SOLID 09/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022487 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP303ES4 2.90 - 3.00 SOLID 09/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022493 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP305ES1 0.50 - 0.60 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022427 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP305ES2 0.90 - 1.00 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022438 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP305ES3 1.90 - 2.00 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022447 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP305ES4 2.80 - 2.90 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022457 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP306ES1 0.50 - 0.60 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022399 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP306ES2 1.00 - 1.10 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022405 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP306ES4 1.80 - 1.90 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022410 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP306ES6 2.80 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022418 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP313 0.40 - 0.50 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055417 TM048	28/10/2020	Marcin Magdziarek	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP313 1.10 - 1.20 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055415 TM048	27/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP313 1.60 - 1.70 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055418 TM048	27/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP313 2.70 - 2.80 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055416 TM048	27/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP318 0.50 - 0.60 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055420 TM048	27/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP318 0.90 - 1.00 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055421 TM048	27/10/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP318 2.00 - 2.10 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055426 TM048	28/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP318 3.50 - 3.60 SOLID 07/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23055423 TM048	27/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP320ES1 0.50 - 0.60 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022348 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP320ES2 1.00 - 1.10 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022354 TM048	21/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP320ES3 1.50 - 1.60 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022363 TM048	21/10/20	Andrzej Ferfecki	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 201013-75 **Client Reference:** 2020WW102 **Report Number:** 579784
Location: Arklow Bank **Order Number:** 8984 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP320ES5 2.50 - 2.60 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022369 TM048	21/10/2020	Agnieszka Chelmowska	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP325ES1 0.40 - 0.50 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022499 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP325ES2 0.90 - 1.00 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022329 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP325ES3 1.70 - 1.80 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022336 TM048	20/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP325ES5 2.80 - 2.90 SOLID 08/10/2020 00:00:00 10/10/2020 09:00:00 201013-75 23022342 TM048	21/10/2020	Paul Poynton	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.134	**Natural Moisture Content (%)**	48.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	67.4
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022329
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP325 ES2
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00404	<0.001	0.0404	<0.01	-	-	-
Arsenic	0.0928	<0.0005	0.928	<0.005	-	-	-
Barium	0.00309	<0.0002	0.0309	<0.002	-	-	-
Cadmium	0.00273	<0.00008	0.0273	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0254	<0.0003	0.254	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.109	<0.003	1.09	<0.03	-	-	-
Nickel	0.00279	<0.0004	0.0279	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.617	<0.001	6.17	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	69.4	<2	694	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	129	<5	1290	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	6.45
Conductivity (µS/cm)	168.00
Temperature (°C)	20.47
Volume Leachant (Litres)	0.856

Mcerts Certification does not apply to leachates

14/12/2020 14:32:33

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.153	**Natural Moisture Content (%)**	70.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	58.7
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022336
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP325 ES3
Depth (m)	1.70 - 1.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	28.9	<3	289	<30	-	-	-
Fluoride	1.72	<0.5	17.2	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00187	<0.001	0.0187	<0.01	-	-	-
Arsenic	0.0219	<0.0005	0.219	<0.005	-	-	-
Barium	0.266	<0.0002	2.66	<0.002	-	-	-
Cadmium	0.0294	<0.00008	0.294	<0.0008	-	-	-
Chromium	0.00131	<0.001	0.0131	<0.01	-	-	-
Copper	0.32	<0.0003	3.2	<0.003	-	-	-
Lead	0.0057	<0.0002	0.057	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00184	<0.0004	0.0184	<0.004	-	-	-
Selenium	0.00363	<0.001	0.0363	<0.01	-	-	-
Zinc	1.54	<0.001	15.4	<0.01	-	-	-
Chloride	6.8	<2	68	<20	-	-	-
Sulphate (soluble)	24.6	<2	246	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	93.8	<5	938	<50	-	-	-

Leach Test Information

Date Prepared	15-Oct-2020
pH (pH Units)	6.75
Conductivity (µS/cm)	121.00
Temperature (°C)	20.40
Volume Leachant (Litres)	0.837

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.103	**Natural Moisture Content (%)**	15.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	86.8
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022342
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP325 ES5
Depth (m)	2.80 - 2.90

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.0093	<0.001	0.093	<0.01	-	-	-
Arsenic	0.0273	<0.0005	0.273	<0.005	-	-	-
Barium	0.0051	<0.0002	0.051	<0.002	-	-	-
Cadmium	0.000112	<0.00008	0.00112	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0034	<0.0003	0.034	<0.003	-	-	-
Lead	0.00105	<0.0002	0.0105	<0.002	-	-	-
Molybdenum	0.00619	<0.003	0.0619	<0.03	-	-	-
Nickel	0.00314	<0.0004	0.0314	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0331	<0.001	0.331	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	5.1	<2	51	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	20	<5	200	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	6.99
Conductivity (µS/cm)	23.40
Temperature (°C)	20.30
Volume Leachant (Litres)	0.887

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.098	**Natural Moisture Content (%)**	8.83
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	91.9
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022348
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP320 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	0.748	<0.5	7.48	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00181	<0.001	0.0181	<0.01	-	-	-
Arsenic	0.0107	<0.0005	0.107	<0.005	-	-	-
Barium	0.194	<0.0002	1.94	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00204	<0.0003	0.0204	<0.003	-	-	-
Lead	0.000924	<0.0002	0.00924	<0.002	-	-	-
Molybdenum	0.00834	<0.003	0.0834	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0144	<0.001	0.144	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	15.4	<2	154	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	75.6	<5	756	<50	-	-	-

Leach Test Information

Date Prepared	15-Oct-2020
pH (pH Units)	7.49
Conductivity (µS/cm)	96.70
Temperature (°C)	20.50
Volume Leachant (Litres)	0.892

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.122	**Natural Moisture Content (%)**	34.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74.3
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022354
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP320 ES2
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	0.633	<0.5	6.33	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000204	<0.00001	0.000204	<0.0001	-	-	-
Antimony	0.00407	<0.001	0.0407	<0.01	-	-	-
Arsenic	1.39	<0.0113	13.9	<0.113	-	-	-
Barium	0.00328	<0.0002	0.0328	<0.002	-	-	-
Cadmium	0.000125	<0.00008	0.00125	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0172	<0.0003	0.172	<0.003	-	-	-
Lead	0.0788	<0.0002	0.788	<0.002	-	-	-
Molybdenum	0.0705	<0.003	0.705	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	0.00339	<0.001	0.0339	<0.01	-	-	-
Zinc	0.0201	<0.001	0.201	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	19.2	<2	192	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	51.1	<5	511	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	7.62
Conductivity (µS/cm)	65.10
Temperature (°C)	20.10
Volume Leachant (Litres)	0.868

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.133	**Natural Moisture Content (%)**	46.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	68.4
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022363
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP320 ES3
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11.4	<3	114	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00905	<0.0005	0.0905	<0.005	-	-	-
Barium	0.0199	<0.0002	0.199	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00176	<0.0003	0.0176	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00191	<0.001	0.0191	<0.01	-	-	-
Chloride	2.2	<2	22	<20	-	-	-
Sulphate (soluble)	19.6	<2	196	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	132	<5	1320	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	7.59
Conductivity (µS/cm)	169.00
Temperature (°C)	20.00
Volume Leachant (Litres)	0.858

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.138	**Natural Moisture Content (%)**	52.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	65.5
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022369
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP320 ES5
Depth (m)	2.50 - 2.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0138	<0.0002	0.138	<0.002	-	-	-
Cadmium	0.00302	<0.00008	0.0302	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00217	<0.0003	0.0217	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00174	<0.0004	0.0174	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.709	<0.001	7.09	<0.01	-	-	-
Chloride	2.5	<2	25	<20	-	-	-
Sulphate (soluble)	111	<2	1110	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	215	<5	2150	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	6.61
Conductivity (µS/cm)	281.00
Temperature (°C)	20.20
Volume Leachant (Litres)	0.852

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.155	**Natural Moisture Content (%)**	73.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	57.5
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022374
Sampled Date	08-Oct-2020
Customer Sample Ref.	BH301 ES1
Depth (m)	1.00 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	9.21	<3	92.1	<30	-	-	-
Fluoride	24.1	<5	241	<50	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00173	<0.001	0.0173	<0.01	-	-	-
Arsenic	0.103	<0.0005	1.03	<0.005	-	-	-
Barium	0.00876	<0.0002	0.0876	<0.002	-	-	-
Cadmium	0.00764	<0.00008	0.0764	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0154	<0.0003	0.154	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.0119	<0.003	0.119	<0.03	-	-	-
Nickel	0.05	<0.0004	0.5	<0.004	-	-	-
Selenium	0.00206	<0.001	0.0206	<0.01	-	-	-
Zinc	0.373	<0.001	3.73	<0.01	-	-	-
Chloride	2	<2	20	<20	-	-	-
Sulphate (soluble)	1580	<10	15800	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	1640	<5	16400	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	5.00
Conductivity (µS/cm)	2,190.00
Temperature (°C)	20.40
Volume Leachant (Litres)	0.835

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.127	**Natural Moisture Content (%)**	40.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	71.3
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022381
Sampled Date	08-Oct-2020
Customer Sample Ref.	BH301 ES2
Depth (m)	2.00 - 2.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	5.72	<3	57.2	<30	-	-	-
Fluoride	1.49	<0.5	14.9	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00356	<0.0005	0.0356	<0.005	-	-	-
Barium	0.0249	<0.0002	0.249	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00141	<0.0003	0.0141	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00203	<0.0004	0.0203	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0093	<0.001	0.093	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	487	<10	4870	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	684	<5	6840	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	6.85
Conductivity (µS/cm)	889.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.863

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.153	**Natural Moisture Content (%)**	70.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	58.8
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022392
Sampled Date	08-Oct-2020
Customer Sample Ref.	BH301 ES3
Depth (m)	3.00 - 3.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.24	<3	42.4	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00395	<0.001	0.0395	<0.01	-	-	-
Arsenic	0.0251	<0.0005	0.251	<0.005	-	-	-
Barium	0.261	<0.0002	2.61	<0.002	-	-	-
Cadmium	0.000137	<0.00008	0.00137	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00182	<0.0003	0.0182	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00306	<0.0004	0.0306	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.206	<0.001	2.06	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	99.9	<2	999	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	182	<5	1820	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	7.04
Conductivity (µS/cm)	234.00
Temperature (°C)	20.40
Volume Leachant (Litres)	0.837

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.092	**Natural Moisture Content (%)**	2.21
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	97.8
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022399
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP306 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0156	<0.0005	0.156	<0.005	-	-	-
Barium	0.0016	<0.0002	0.016	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00166	<0.0003	0.0166	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00376	<0.003	0.0376	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00123	<0.001	0.0123	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	48.6	<5	486	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	7.61
Conductivity (µS/cm)	66.60
Temperature (°C)	20.10
Volume Leachant (Litres)	0.898

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.097	**Natural Moisture Content (%)**	7.24
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	93.3
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022405
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP306 ES2
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00157	<0.0005	0.0157	<0.005	-	-	-
Barium	0.00258	<0.0002	0.0258	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00181	<0.001	0.0181	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	5.9	<2	59	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	34.7	<5	347	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	7.87
Conductivity (µS/cm)	37.30
Temperature (°C)	20.50
Volume Leachant (Litres)	0.893

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.146	**Natural Moisture Content (%)**	61.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	61.8
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022410
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP306 ES4
Depth (m)	1.80 - 1.90

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	30.4	<3	304	<30	-	-	-
Fluoride	0.849	<0.5	8.49	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000156	<0.00001	0.000156	<0.0001	-	-	-
Antimony	0.00136	<0.001	0.0136	<0.01	-	-	-
Arsenic	0.0478	<0.0005	0.478	<0.005	-	-	-
Barium	0.275	<0.0002	2.75	<0.002	-	-	-
Cadmium	0.000104	<0.00008	0.00104	<0.0008	-	-	-
Chromium	0.00295	<0.001	0.0295	<0.01	-	-	-
Copper	0.0437	<0.0003	0.437	<0.003	-	-	-
Lead	0.0352	<0.0002	0.352	<0.002	-	-	-
Molybdenum	0.0055	<0.003	0.055	<0.03	-	-	-
Nickel	0.00322	<0.0004	0.0322	<0.004	-	-	-
Selenium	0.0014	<0.001	0.014	<0.01	-	-	-
Zinc	0.202	<0.001	2.02	<0.01	-	-	-
Chloride	9	<2	90	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	91	<5	910	<50	-	-	-

Leach Test Information

Date Prepared	15-Oct-2020
pH (pH Units)	7.60
Conductivity (µS/cm)	113.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.845

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.127	**Natural Moisture Content (%)**	41.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	70.6
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022418
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP306 ES6
Depth (m)	2.80

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	13.2	<3	132	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00173	<0.001	0.0173	<0.01	-	-	-
Arsenic	0.0496	<0.0005	0.496	<0.005	-	-	-
Barium	0.115	<0.0002	1.15	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00195	<0.001	0.0195	<0.01	-	-	-
Copper	0.0074	<0.0003	0.074	<0.003	-	-	-
Lead	0.0115	<0.0002	0.115	<0.002	-	-	-
Molybdenum	0.00527	<0.003	0.0527	<0.03	-	-	-
Nickel	0.000958	<0.0004	0.00958	<0.004	-	-	-
Selenium	0.00173	<0.001	0.0173	<0.01	-	-	-
Zinc	0.0781	<0.001	0.781	<0.01	-	-	-
Chloride	5.2	<2	52	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	38.3	<5	383	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	6.81
Conductivity (µS/cm)	40.30
Temperature (°C)	20.30
Volume Leachant (Litres)	0.863

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.093	**Natural Moisture Content (%)**	2.98
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	97.1
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022427
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP305 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	7.05	<3	70.5	<30	-	-	-
Fluoride	0.597	<0.5	5.97	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00303	<0.0005	0.0303	<0.005	-	-	-
Barium	0.0711	<0.0002	0.711	<0.002	-	-	-
Cadmium	0.000102	<0.00008	0.00102	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0131	<0.0003	0.131	<0.003	-	-	-
Lead	0.000333	<0.0002	0.00333	<0.002	-	-	-
Molybdenum	0.00875	<0.003	0.0875	<0.03	-	-	-
Nickel	0.00112	<0.0004	0.0112	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00574	<0.001	0.0574	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	47	<2	470	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	126	<5	1260	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	7.34
Conductivity (µS/cm)	153.00
Temperature (°C)	20.50
Volume Leachant (Litres)	0.897

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.103	**Natural Moisture Content (%)**	13.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88.4
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022438
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP305 ES2
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.0028	<0.001	0.028	<0.01	-	-	-
Arsenic	0.0031	<0.0005	0.031	<0.005	-	-	-
Barium	0.00787	<0.0002	0.0787	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000466	<0.0003	0.00466	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00308	<0.0004	0.0308	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0067	<0.001	0.067	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	30.3	<2	303	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	70.7	<5	707	<50	-	-	-

Leach Test Information

Date Prepared	15-Oct-2020
pH (pH Units)	7.66
Conductivity (µS/cm)	89.30
Temperature (°C)	20.10
Volume Leachant (Litres)	0.888

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.180	**Natural Moisture Content (%)**	101
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	49.9
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022447
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP305 ES3
Depth (m)	1.90 - 2.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	13	<3	130	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.0012	<0.001	0.012	<0.01	-	-	-
Arsenic	0.00795	<0.0005	0.0795	<0.005	-	-	-
Barium	0.022	<0.0002	0.22	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0148	<0.0003	0.148	<0.003	-	-	-
Lead	0.00221	<0.0002	0.0221	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00147	<0.0004	0.0147	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00706	<0.001	0.0706	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	62.8	<2	628	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	128	<5	1280	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	6.56
Conductivity (µS/cm)	172.00
Temperature (°C)	20.10
Volume Leachant (Litres)	0.810

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	21.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.4
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022457
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP305 ES4
Depth (m)	2.80 - 2.90

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.37	<3	33.7	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00662	<0.001	0.0662	<0.01	-	-	-
Arsenic	0.0117	<0.0005	0.117	<0.005	-	-	-
Barium	0.00963	<0.0002	0.0963	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00705	<0.0003	0.0705	<0.003	-	-	-
Lead	0.00216	<0.0002	0.0216	<0.002	-	-	-
Molybdenum	0.0102	<0.003	0.102	<0.03	-	-	-
Nickel	0.00252	<0.0004	0.0252	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0474	<0.001	0.474	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	14.7	<2	147	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	39.3	<5	393	<50	-	-	-

Leach Test Information

Date Prepared	15-Oct-2020
pH (pH Units)	7.57
Conductivity (µS/cm)	47.30
Temperature (°C)	20.60
Volume Leachant (Litres)	0.880

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.097	**Natural Moisture Content (%)**	6.94
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	93.5
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022467
Sampled Date	09-Oct-2020
Customer Sample Ref.	TP303 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00614	<0.0005	0.0614	<0.005	-	-	-
Barium	0.00307	<0.0002	0.0307	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00166	<0.0003	0.0166	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00342	<0.001	0.0342	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	54.6	<5	546	<50	-	-	-

Leach Test Information

Date Prepared	15-Oct-2020
pH (pH Units)	8.19
Conductivity (µS/cm)	73.60
Temperature (°C)	20.20
Volume Leachant (Litres)	0.894

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.123	**Natural Moisture Content (%)**	36.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	73.2
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022478
Sampled Date	09-Oct-2020
Customer Sample Ref.	TP303 ES2
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00178	<0.001	0.0178	<0.01	-	-	-
Arsenic	0.455	<0.00365	4.55	<0.0365	-	-	-
Barium	0.00152	<0.0002	0.0152	<0.002	-	-	-
Cadmium	0.000444	<0.00008	0.00444	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0467	<0.0003	0.467	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.0493	<0.003	0.493	<0.03	-	-	-
Nickel	0.00162	<0.0004	0.0162	<0.004	-	-	-
Selenium	0.00214	<0.001	0.0214	<0.01	-	-	-
Zinc	0.144	<0.001	1.44	<0.01	-	-	-
Chloride	3.7	<2	37	<20	-	-	-
Sulphate (soluble)	14.9	<2	149	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	36.6	<5	366	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	7.34
Conductivity (µS/cm)	43.60
Temperature (°C)	19.90
Volume Leachant (Litres)	0.867

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.164	**Natural Moisture Content (%)**	82.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	54.7
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022487
Sampled Date	09-Oct-2020
Customer Sample Ref.	TP303 ES3
Depth (m)	1.40 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11.3	<3	113	<30	-	-	-
Fluoride	1.38	<0.5	13.8	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00135	<0.001	0.0135	<0.01	-	-	-
Arsenic	1.13	<0.00786	11.3	<0.0786	-	-	-
Barium	0.0375	<0.0002	0.375	<0.002	-	-	-
Cadmium	0.000603	<0.00008	0.00603	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0116	<0.0003	0.116	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.026	<0.003	0.26	<0.03	-	-	-
Nickel	0.00112	<0.0004	0.0112	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.124	<0.001	1.24	<0.01	-	-	-
Chloride	13.7	<2	137	<20	-	-	-
Sulphate (soluble)	1460	<10	14600	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	1570	<5	15700	<50	-	-	-

Leach Test Information

Date Prepared	16-Oct-2020
pH (pH Units)	6.90
Conductivity (µS/cm)	2,110.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.826

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.132	**Natural Moisture Content (%)**	46.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	68.1
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022493
Sampled Date	09-Oct-2020
Customer Sample Ref.	TP303 ES4
Depth (m)	2.90 - 3.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.72	<3	37.2	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.046	<0.0005	0.46	<0.005	-	-	-
Barium	0.0213	<0.0002	0.213	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00158	<0.0004	0.0158	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0163	<0.001	0.163	<0.01	-	-	-
Chloride	3.3	<2	33	<20	-	-	-
Sulphate (soluble)	447	<2	4470	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	587	<5	5870	<50	-	-	-

Leach Test Information

Date Prepared	14-Oct-2020
pH (pH Units)	6.16
Conductivity (µS/cm)	761.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.858

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.096	**Natural Moisture Content (%)**	6.57
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	93.8
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23022499
Sampled Date	08-Oct-2020
Customer Sample Ref.	TP325 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0041	<0.0002	0.041	<0.002	-	-	-
Cadmium	0.000101	<0.00008	0.00101	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000765	<0.0004	0.00765	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0113	<0.001	0.113	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	15.7	<2	157	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	36.2	<5	362	<50	-	-	-

Leach Test Information

Date Prepared	15-Oct-2020
pH (pH Units)	6.74
Conductivity (µS/cm)	44.80
Temperature (°C)	20.30
Volume Leachant (Litres)	0.894

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.092	**Natural Moisture Content (%)**	1.67
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	98.4
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23055415
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP313
Depth (m)	1.10 - 1.20

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00147	<0.0005	0.0147	<0.005	-	-	-
Barium	0.00263	<0.0002	0.0263	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000529	<0.0003	0.00529	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	9.1	<2	91	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	27.6	<5	276	<50	-	-	-

Leach Test Information

Date Prepared	25-Oct-2020
pH (pH Units)	6.95
Conductivity (µS/cm)	31.20
Temperature (°C)	20.80
Volume Leachant (Litres)	0.899

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.127	**Natural Moisture Content (%)**	39.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	71.5
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23055416
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP313
Depth (m)	2.70 - 2.80

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.98	<3	39.8	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00441	<0.001	0.0441	<0.01	-	-	-
Arsenic	0.00667	<0.0005	0.0667	<0.005	-	-	-
Barium	0.0286	<0.0002	0.286	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0026	<0.0003	0.026	<0.003	-	-	-
Lead	0.000473	<0.0002	0.00473	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.0106	<0.0004	0.106	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	3.6	<0.001	36	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	52.6	<2	526	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	104	<5	1040	<50	-	-	-

Leach Test Information

Date Prepared	25-Oct-2020
pH (pH Units)	7.64
Conductivity (µS/cm)	126.00
Temperature (°C)	16.70
Volume Leachant (Litres)	0.863

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.098	**Natural Moisture Content (%)**	9.04
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	91.7
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23055417
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP313
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000632	<0.0005	0.00632	<0.005	-	-	-
Barium	0.00134	<0.0002	0.0134	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000539	<0.0003	0.00539	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	34.4	<5	344	<50	-	-	-

Leach Test Information

Date Prepared	25-Oct-2020
pH (pH Units)	7.35
Conductivity (µS/cm)	39.90
Temperature (°C)	20.40
Volume Leachant (Litres)	0.892

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.128	**Natural Moisture Content (%)**	43.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	69.7
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23055418
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP313
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	14.9	<3	149	<30	-	-	-
Fluoride	0.811	<0.5	8.11	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000104	<0.00001	0.000104	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0455	<0.0005	0.455	<0.005	-	-	-
Barium	0.0104	<0.0002	0.104	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00221	<0.001	0.0221	<0.01	-	-	-
Copper	0.0233	<0.0003	0.233	<0.003	-	-	-
Lead	0.0138	<0.0002	0.138	<0.002	-	-	-
Molybdenum	0.0104	<0.003	0.104	<0.03	-	-	-
Nickel	0.00179	<0.0004	0.0179	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0147	<0.001	0.147	<0.01	-	-	-
Chloride	2.4	<2	24	<20	-	-	-
Sulphate (soluble)	34.2	<2	342	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	87.6	<5	876	<50	-	-	-

Leach Test Information

Date Prepared	25-Oct-2020
pH (pH Units)	6.81
Conductivity (µS/cm)	111.00
Temperature (°C)	20.70
Volume Leachant (Litres)	0.861

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	6.31
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.1
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23055420
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP318
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000956	<0.0005	0.00956	<0.005	-	-	-
Barium	0.0176	<0.0002	0.176	<0.002	-	-	-
Cadmium	0.00133	<0.00008	0.0133	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00125	<0.0003	0.0125	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00406	<0.003	0.0406	<0.03	-	-	-
Nickel	0.000502	<0.0004	0.00502	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0185	<0.001	0.185	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	191	<2	1910	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	326	<5	3260	<50	-	-	-

Leach Test Information

Date Prepared	25-Oct-2020
pH (pH Units)	6.97
Conductivity (µS/cm)	431.00
Temperature (°C)	20.60
Volume Leachant (Litres)	0.894

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.125	**Natural Moisture Content (%)**	38.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	72.2
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23055421
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP318
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00295	<0.001	0.0295	<0.01	-	-	-
Arsenic	0.315	<0.00261	3.15	<0.0261	-	-	-
Barium	0.00214	<0.0002	0.0214	<0.002	-	-	-
Cadmium	0.0021	<0.00008	0.021	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0142	<0.0003	0.142	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.141	<0.003	1.41	<0.03	-	-	-
Nickel	0.00205	<0.0004	0.0205	<0.004	-	-	-
Selenium	0.00248	<0.001	0.0248	<0.01	-	-	-
Zinc	0.525	<0.001	5.25	<0.01	-	-	-
Chloride	2.2	<2	22	<20	-	-	-
Sulphate (soluble)	62.3	<2	623	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	124	<5	1240	<50	-	-	-

Leach Test Information

Date Prepared	25-Oct-2020
pH (pH Units)	8.49
Conductivity (µS/cm)	150.00
Temperature (°C)	17.70
Volume Leachant (Litres)	0.865

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.136	**Natural Moisture Content (%)**	51
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	66.2
Particle Size <4mm	>95%		

Case	
SDG	201013-75
Lab Sample Number(s)	23055426
Sampled Date	07-Oct-2020
Customer Sample Ref.	TP318
Depth (m)	2.00 - 2.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.26	<3	42.6	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.005	<0.0005	0.05	<0.005	-	-	-
Barium	0.0155	<0.0002	0.155	<0.002	-	-	-
Cadmium	0.0000836	<0.00008	0.000836	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00439	<0.0003	0.0439	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0172	<0.001	0.172	<0.01	-	-	-
Chloride	8.9	<2	89	<20	-	-	-
Sulphate (soluble)	24.1	<2	241	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	130	<5	1300	<50	-	-	-

Leach Test Information

Date Prepared	25-Oct-2020
pH (pH Units)	6.52
Conductivity (µS/cm)	161.00
Temperature (°C)	20.80
Volume Leachant (Litres)	0.854

Mcerts Certification does not apply to leachates

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Notification of NDPs (No determination possible)

Date Received : 13/10/2020 13:22:33

Sample No	Customer Sample Ref.	Depth (m)	Test	Comment
23022447	TP305 ES3	1.90 - 2.00	Chromium III	Sample too coloured
23022447	TP305 ES3	1.90 - 2.00	Chromium III	Sample too coloured
23022447	TP305 ES3	1.90 - 2.00	Chromium III	Sample too coloured
23022447	TP305 ES3	1.90 - 2.00	Chromium III	Sample too coloured
23022447	TP305 ES3	1.90 - 2.00	Hexavalent Chromium (s)	Sample too coloured
23022447	TP305 ES3	1.90 - 2.00	Hexavalent Chromium (s)	Sample too coloured
23022447	TP305 ES3	1.90 - 2.00	Hexavalent Chromium (s)	Sample too coloured
23022447	TP305 ES3	1.90 - 2.00	Hexavalent Chromium (s)	Sample too coloured
23055423	TP318	3.50 - 3.60	Fluoride	Insufficient Sample
23055423	TP318	3.50 - 3.60	Fluoride	Insufficient Sample
23055423	TP318	3.50 - 3.60	Fluoride	Insufficient Sample
23055423	TP318	3.50 - 3.60	Fluoride	Insufficient Sample
23055423	TP318	3.50 - 3.60	Total Dissolved Solids	Insufficient Sample
23055423	TP318	3.50 - 3.60	Total Dissolved Solids	Insufficient Sample
23055423	TP318	3.50 - 3.60	Total Dissolved Solids	Insufficient Sample
23055423	TP318	3.50 - 3.60	Total Dissolved Solids	Insufficient Sample
23055423	TP318	3.50 - 3.60	Phenols by HPLC (W)	Insufficient Sample
23055423	TP318	3.50 - 3.60	Phenols by HPLC (W)	Insufficient Sample
23055423	TP318	3.50 - 3.60	Phenols by HPLC (W)	Insufficient Sample
23055423	TP318	3.50 - 3.60	Phenols by HPLC (W)	Insufficient Sample
23055423	TP318	3.50 - 3.60	Mercury Dissolved	Insufficient Sample
23055423	TP318	3.50 - 3.60	Mercury Dissolved	Insufficient Sample
23055423	TP318	3.50 - 3.60	Mercury Dissolved	Insufficient Sample
23055423	TP318	3.50 - 3.60	Mercury Dissolved	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Metals by ICP-MS	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Metals by ICP-MS	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Metals by ICP-MS	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Metals by ICP-MS	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Organic/Inorganic Carbon	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Organic/Inorganic Carbon	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Organic/Inorganic Carbon	Insufficient Sample
23055423	TP318	3.50 - 3.60	Dissolved Organic/Inorganic Carbon	Insufficient Sample
23055423	TP318	3.50 - 3.60	Anions by Kone (w)	Insufficient Sample
23055423	TP318	3.50 - 3.60	Anions by Kone (w)	Insufficient Sample
23055423	TP318	3.50 - 3.60	Anions by Kone (w)	Insufficient Sample
23055423	TP318	3.50 - 3.60	Anions by Kone (w)	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN 10:1 Leachate (1 Stage)	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN 10:1 Leachate (1 Stage)	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN 10:1 Leachate (1 Stage)	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN 10:1 Leachate (1 Stage)	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN Readings	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN Readings	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN Readings	Insufficient Sample
23055423	TP318	3.50 - 3.60	CEN Readings	Insufficient Sample

Table of Results - Appendix

Method No	Reference	Description
PM023	Leaching test method for the Assessment of Contaminated Land: Interim NRA Guidance. National Rivers Authority R & D note 301. (1994).	Leaching Procedure for NRA Leachates
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
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) 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
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
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
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
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	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

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

Test Completion Dates

Lab Sample No(s)	23022374	23022381	23022392	23022467	23022478	23022487	23022493	23022427	23022438	23022447
Customer Sample Ref.	BH301	BH301	BH301	TP303	TP303	TP303	TP303	TP305	TP305	TP305
AGS Ref.	ES1	ES2	ES3	ES1	ES2	ES3	ES4	ES1	ES2	ES3
Depth	1.00 - 1.50	2.00 - 2.50	3.00 - 3.50	0.40 - 0.50	0.90 - 1.00	1.40 - 1.50	2.90 - 3.00	0.50 - 0.60	0.90 - 1.00	1.90 - 2.00
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Asbestos ID in Solid Samples	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
CEN 10:1 Leachate (1 Stage)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	15-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
CEN Readings	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Chromium III	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	
Coronene	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Dissolved Metals by ICP-MS	21-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	20-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020
Dissolved Organic/Inorganic Carbon	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	18-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Easily Liberated Sulphide	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	16-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020
Fluoride	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020
GRO by GC-FID (S)	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	20-Oct-2020
Hexavalent Chromium (s)	16-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	
Loss on Ignition in soils	17-Oct-2020	17-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020
Mercury Dissolved	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
Metals in solid samples by OES	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Moisture at 105C	16-Oct-2020	16-Oct-2020	16-Oct-2020	15-Oct-2020	16-Oct-2020	16-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	16-Oct-2020
PAH 16 & 17 Calc	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
PAH by GCMS	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
PCBs by GCMS	20-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	19-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020
pH	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Phenols by HPLC (W)	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	19-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
Sample description	14-Oct-2020	14-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020
Semi Volatile Organic Compounds	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	16-Oct-2020	20-Oct-2020
Total Dissolved Solids	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	18-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Total Organic Carbon	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020
TPH CWG GC (S)	16-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	20-Oct-2020
VOC MS (S)	16-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020

Lab Sample No(s)	23022457	23022399	23022405	23022410	23022418	23055415	23055416	23055417	23055418	23055420
Customer Sample Ref.	TP305	TP306	TP306	TP306	TP306	TP313	TP313	TP313	TP313	TP318
AGS Ref.	ES4	ES1	ES2	ES4	ES6					
Depth	2.80 - 2.90	0.50 - 0.60	1.00 - 1.10	1.80 - 1.90	2.80	1.10 - 1.20	2.70 - 2.80	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020
Asbestos ID in Solid Samples	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020	27-Oct-2020	27-Oct-2020	28-Oct-2020	27-Oct-2020	27-Oct-2020
CEN 10:1 Leachate (1 Stage)	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
CEN Readings	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	28-Oct-2020	26-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
Chromium III	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
Coronene	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	28-Oct-2020	27-Oct-2020	27-Oct-2020	28-Oct-2020	28-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	28-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020	28-Oct-2020
Dissolved Metals by ICP-MS	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020
Dissolved Organic/Inorganic Carbon	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	28-Oct-2020	29-Oct-2020	29-Oct-2020	28-Oct-2020	29-Oct-2020
Easily Liberated Sulphide	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	27-Oct-2020
Fluoride	21-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
GRO by GC-FID (S)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	27-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	27-Oct-2020
Hexavalent Chromium (s)	19-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
Loss on Ignition in soils	19-Oct-2020	20-Oct-2020	17-Oct-2020	20-Oct-2020	20-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
Mercury Dissolved	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	28-Oct-2020	27-Oct-2020	27-Oct-2020	28-Oct-2020	27-Oct-2020
Metals in solid samples by OES	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	28-Oct-2020	29-Oct-2020	28-Oct-2020	28-Oct-2020	29-Oct-2020
Moisture at 105C	15-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	16-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
PAH 16 & 17 Calc	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	28-Oct-2020	27-Oct-2020	28-Oct-2020	28-Oct-2020	27-Oct-2020
PAH by GCMS	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	27-Oct-2020	27-Oct-2020	28-Oct-2020	27-Oct-2020	27-Oct-2020
PCBs by GCMS	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
pH	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	27-Oct-2020	28-Oct-2020	27-Oct-2020	27-Oct-2020	28-Oct-2020
Phenols by HPLC (W)	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020
Sample description	15-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	24-Oct-2020	24-Oct-2020	24-Oct-2020	24-Oct-2020	24-Oct-2020
Semi Volatile Organic Compounds	20-Oct-2020	16-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020
Total Dissolved Solids	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	29-Oct-2020	28-Oct-2020	28-Oct-2020	29-Oct-2020	29-Oct-2020
Total Organic Carbon	20-Oct-2020	22-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020	28-Oct-2020	29-Oct-2020	29-Oct-2020	29-Oct-2020	28-Oct-2020
TPH CWG GC (S)	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	27-Oct-2020
VOC MS (S)	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	27-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	27-Oct-2020

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Lab Sample No(s)	23055421	23055423	23055426	23022348	23022354	23022363	23022369	23022329	23022336	23022342
Customer Sample Ref.	TP318	TP318	TP318	TP320	TP320	TP320	TP320	TP325	TP325	TP325
AGS Ref.				ES1	ES2	ES3	ES5	ES2	ES3	ES5
Depth	0.90 - 1.00	3.50 - 3.60	2.00 - 2.10	0.50 - 0.60	1.00 - 1.10	1.50 - 1.60	2.50 - 2.60	0.90 - 1.00	1.70 - 1.80	2.80 - 2.90
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	27-Oct-2020	03-Nov-2020	27-Oct-2020	20-Oct-2020	19-Oct-2020	17-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Asbestos ID in Solid Samples	27-Oct-2020	27-Oct-2020	28-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	21-Oct-2020
CEN 10:1 Leachate (1 Stage)	25-Oct-2020		25-Oct-2020	17-Oct-2020	15-Oct-2020	15-Oct-2020	15-Oct-2020	17-Oct-2020	17-Oct-2020	17-Oct-2020
CEN Readings	26-Oct-2020		28-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Chromium III	28-Oct-2020	28-Oct-2020	28-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020
Coronene	28-Oct-2020	28-Oct-2020	28-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	28-Oct-2020	28-Oct-2020	28-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020
Dissolved Metals by ICP-MS	29-Oct-2020	11-Dec-2020	29-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020
Dissolved Organic/Inorganic Carbon	29-Oct-2020	06-Nov-2020	29-Oct-2020	21-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Easily Liberated Sulphide	28-Oct-2020	28-Oct-2020	28-Oct-2020	20-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	27-Oct-2020	27-Oct-2020	27-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	19-Oct-2020	16-Oct-2020	19-Oct-2020
Fluoride	28-Oct-2020	04-Nov-2020	28-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
GRO by GC-FID (S)	27-Oct-2020	27-Oct-2020	27-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020
Hexavalent Chromium (s)	28-Oct-2020	28-Oct-2020	28-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020
Loss on Ignition in soils	28-Oct-2020	28-Oct-2020	28-Oct-2020	19-Oct-2020	17-Oct-2020	17-Oct-2020	20-Oct-2020	19-Oct-2020	20-Oct-2020	20-Oct-2020
Mercury Dissolved	28-Oct-2020	04-Nov-2020	28-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020
Metals in solid samples by OES	29-Oct-2020	28-Oct-2020	29-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	23-Oct-2020	20-Oct-2020
Moisture at 105C	25-Oct-2020	28-Oct-2020	25-Oct-2020	15-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	16-Oct-2020	15-Oct-2020	14-Oct-2020
NRA Leachate		29-Oct-2020								
PAH 16 & 17 Calc	28-Oct-2020	28-Oct-2020	28-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020
PAH by GCMS	27-Oct-2020	27-Oct-2020	27-Oct-2020	22-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	20-Oct-2020	20-Oct-2020
PCBs by GCMS	28-Oct-2020	28-Oct-2020	28-Oct-2020	20-Oct-2020	20-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
pH	28-Oct-2020	27-Oct-2020	27-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Phenols by HPLC (W)	28-Oct-2020	10-Nov-2020	28-Oct-2020	21-Oct-2020	19-Oct-2020	19-Oct-2020	19-Oct-2020	21-Oct-2020	21-Oct-2020	20-Oct-2020
Sample description	24-Oct-2020	24-Oct-2020	24-Oct-2020	15-Oct-2020	14-Oct-2020	14-Oct-2020	14-Oct-2020	15-Oct-2020	14-Oct-2020	15-Oct-2020
Semi Volatile Organic Compounds	27-Oct-2020	27-Oct-2020	27-Oct-2020	20-Oct-2020	16-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	16-Oct-2020	20-Oct-2020
Total Dissolved Solids	29-Oct-2020	04-Nov-2020	29-Oct-2020	20-Oct-2020	18-Oct-2020	18-Oct-2020	18-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020
Total Organic Carbon	28-Oct-2020	28-Oct-2020	28-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	20-Oct-2020	22-Oct-2020	20-Oct-2020
TPH CWG GC (S)	27-Oct-2020	27-Oct-2020	27-Oct-2020	19-Oct-2020	16-Oct-2020	16-Oct-2020	19-Oct-2020	20-Oct-2020	16-Oct-2020	19-Oct-2020
VOC MS (S)	27-Oct-2020	27-Oct-2020	27-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020	16-Oct-2020

Lab Sample No(s)	23022499
Customer Sample Ref.	TP325
AGS Ref.	ES1
Depth	0.40 - 0.50
Type	Soil/Solid (S)
Anions by Kone (w)	20-Oct-2020
Asbestos ID in Solid Samples	21-Oct-2020
CEN 10:1 Leachate (1 Stage)	17-Oct-2020
CEN Readings	21-Oct-2020
Chromium III	20-Oct-2020
Coronene	20-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	19-Oct-2020
Dissolved Metals by ICP-MS	22-Oct-2020
Dissolved Organic/Inorganic Carbon	21-Oct-2020
Easily Liberated Sulphide	19-Oct-2020
EPH by GCxGC-FID	14-Dec-2020
EPH CWG GC (S)	19-Oct-2020
Fluoride	21-Oct-2020
GRO by GC-FID (S)	16-Oct-2020
Hexavalent Chromium (s)	19-Oct-2020
Loss on Ignition in soils	19-Oct-2020
Mercury Dissolved	20-Oct-2020
Metals in solid samples by OES	20-Oct-2020
Moisture at 105C	15-Oct-2020
PAH 16 & 17 Calc	20-Oct-2020
PAH by GCMS	20-Oct-2020
PCBs by GCMS	20-Oct-2020
pH	20-Oct-2020
Phenols by HPLC (W)	21-Oct-2020
Sample description	15-Oct-2020
Semi Volatile Organic Compounds	20-Oct-2020
Total Dissolved Solids	20-Oct-2020
Total Organic Carbon	19-Oct-2020
TPH CWG GC (S)	19-Oct-2020
VOC MS (S)	16-Oct-2020

CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

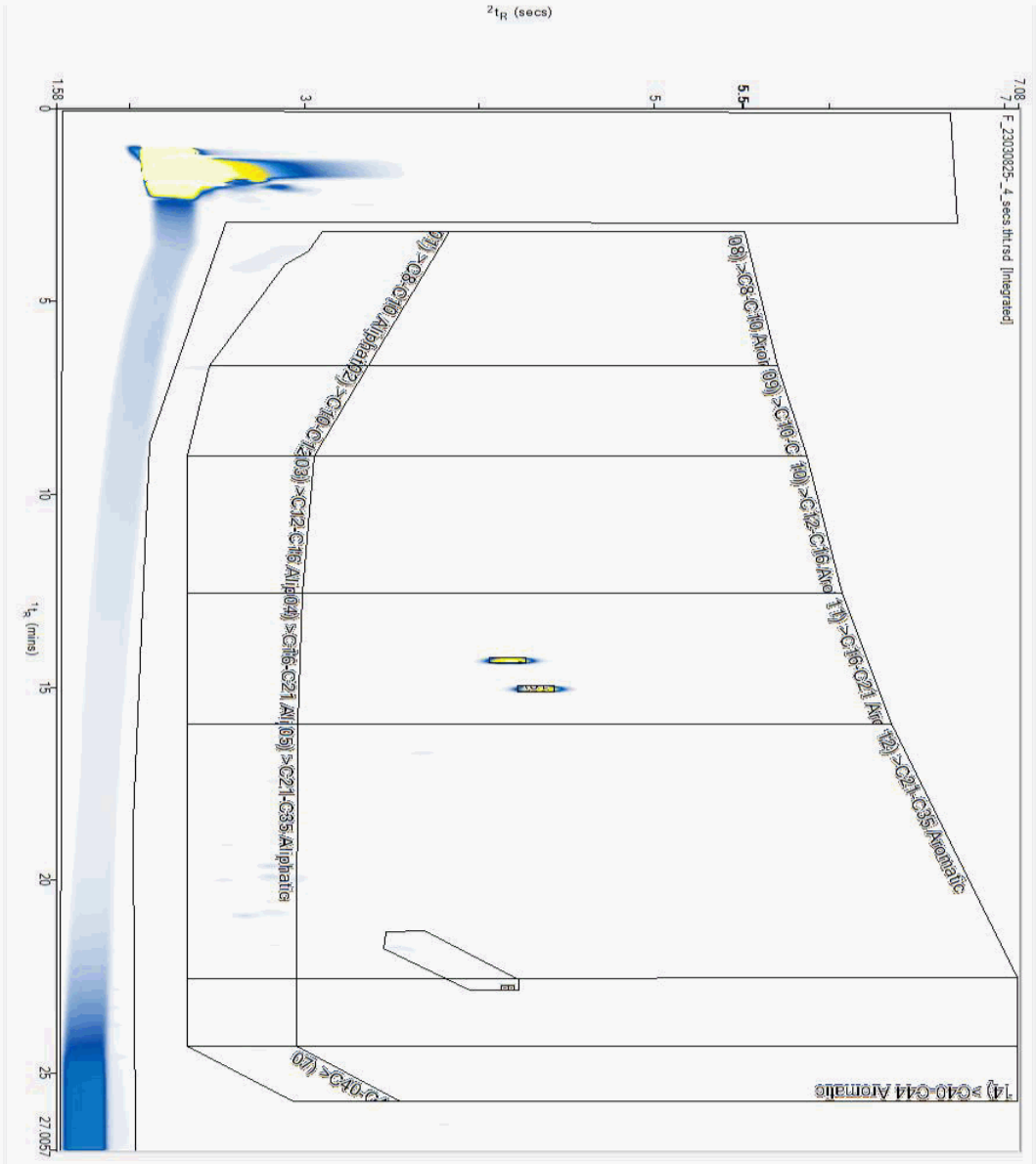
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23030825
Sample ID : TP305

Depth : 0.90 - 1.00

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23030825-_4_secs.tht
Date Acquired   :  15/10/20 10:38:20
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



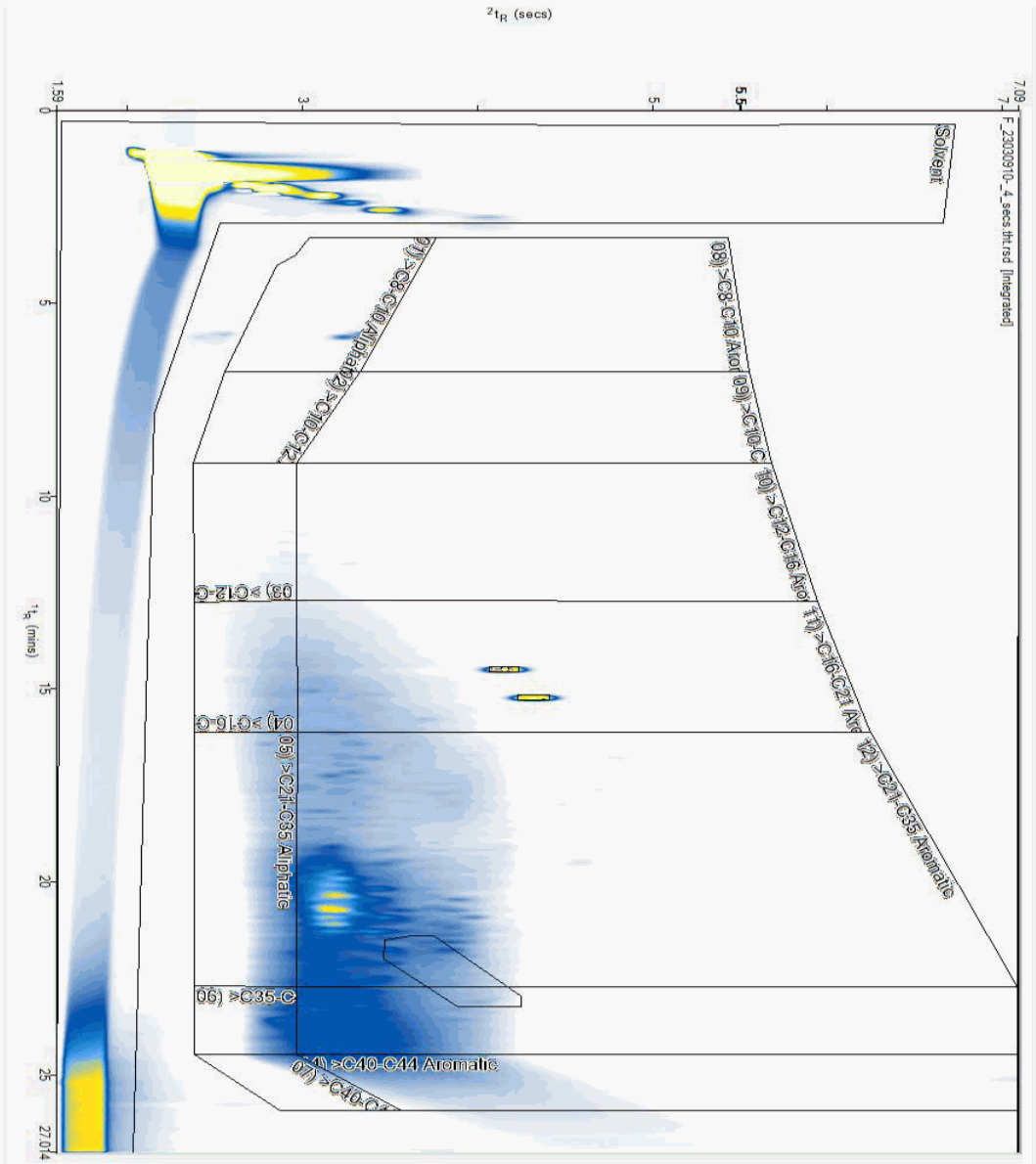
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23030910 **Depth :** 0.50 - 0.60
Sample ID : TP306

ChromSpace LIMS export
Current batch
Sample Identity: F_23030910-_4_secs.tht
Date Acquired : 18/10/20 04:09:46
Units : ppm
Dilution : 0
CF :
Multiplier :

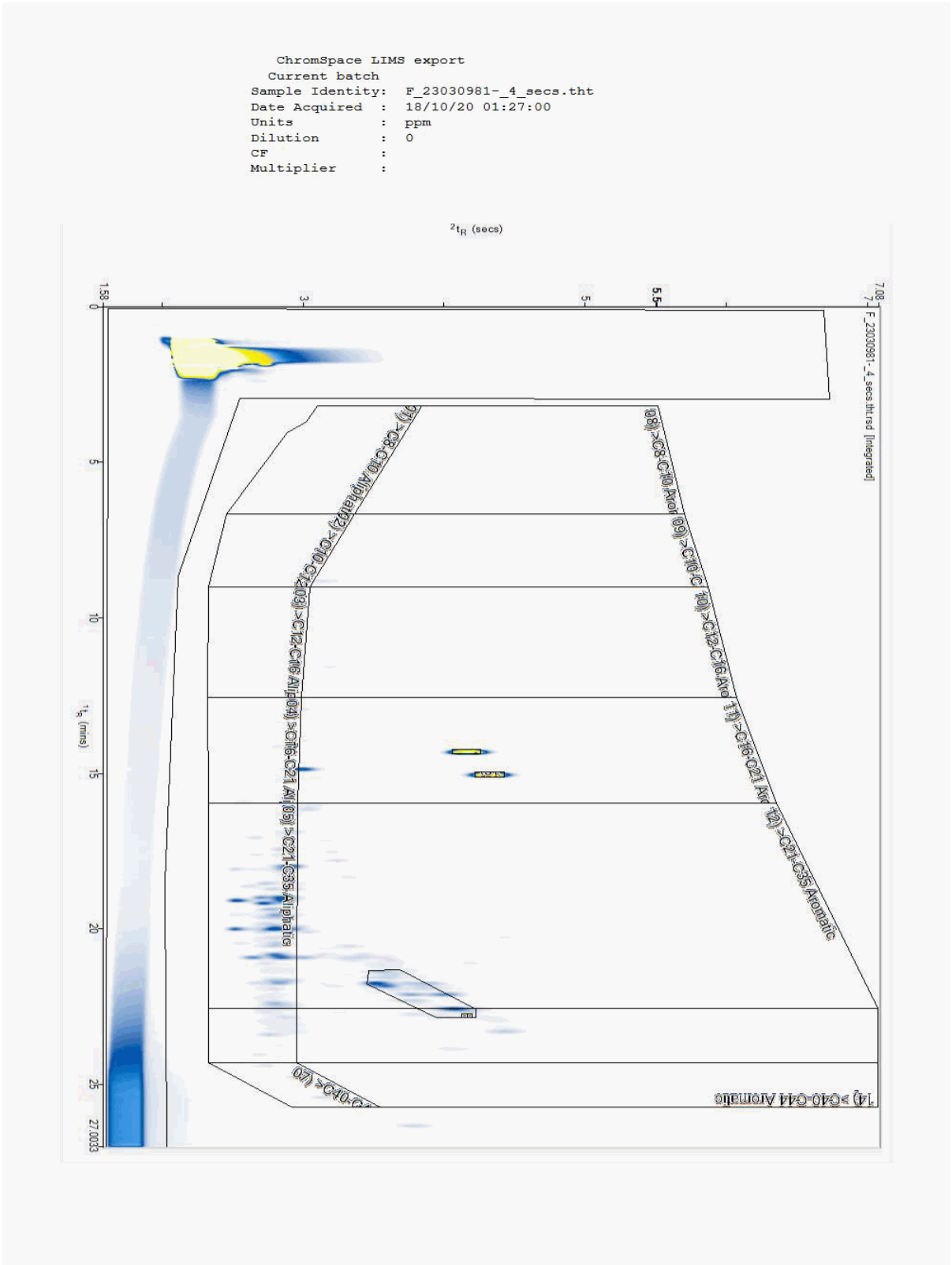


CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23030981 **Sample ID :** TP306 **Depth :** 1.80 - 1.90



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

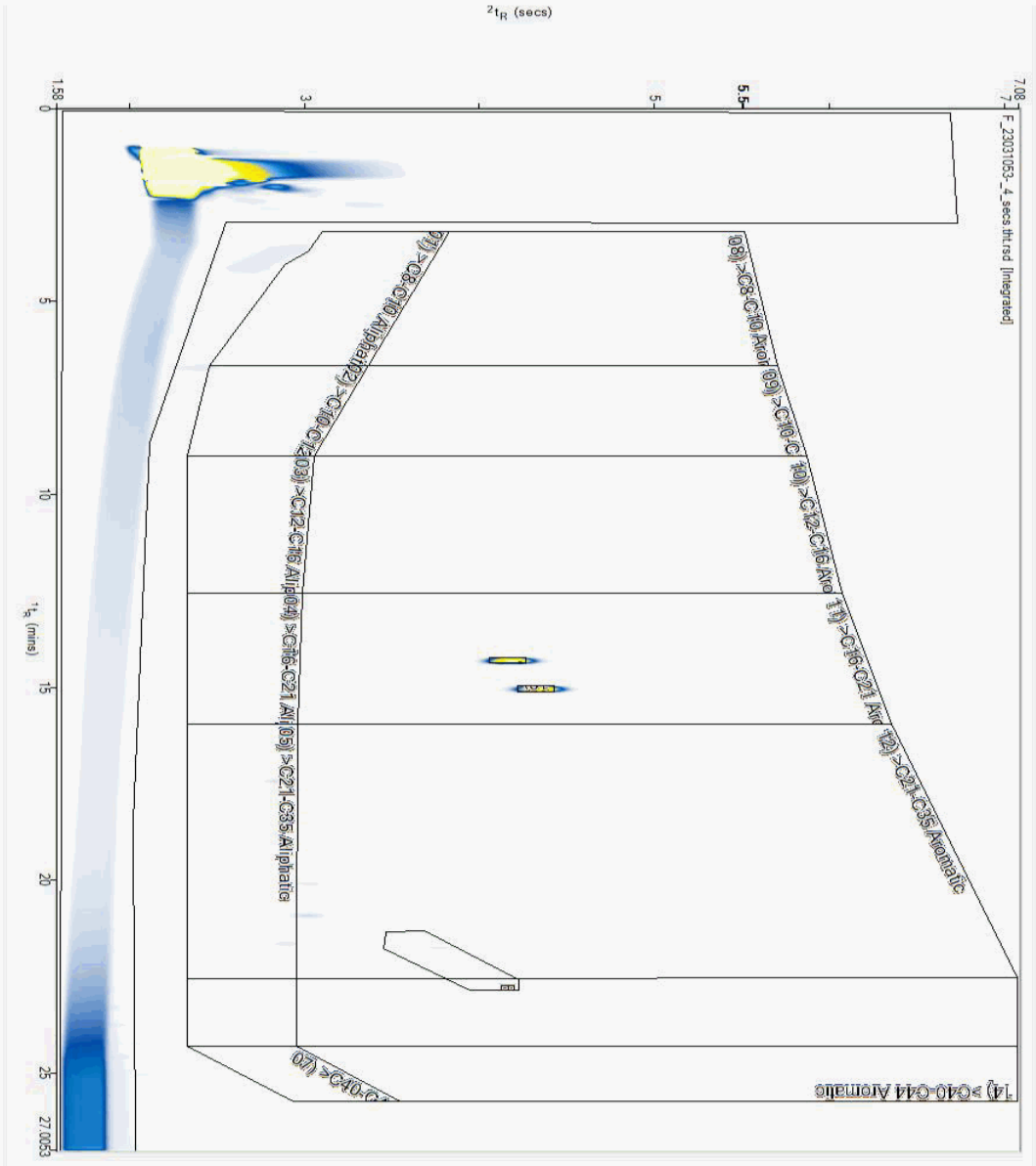
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23031053
Sample ID : TP306

Depth : 1.00 - 1.10

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23031053-_4_secs.tht
Date Acquired   :  15/10/20 10:07:05
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

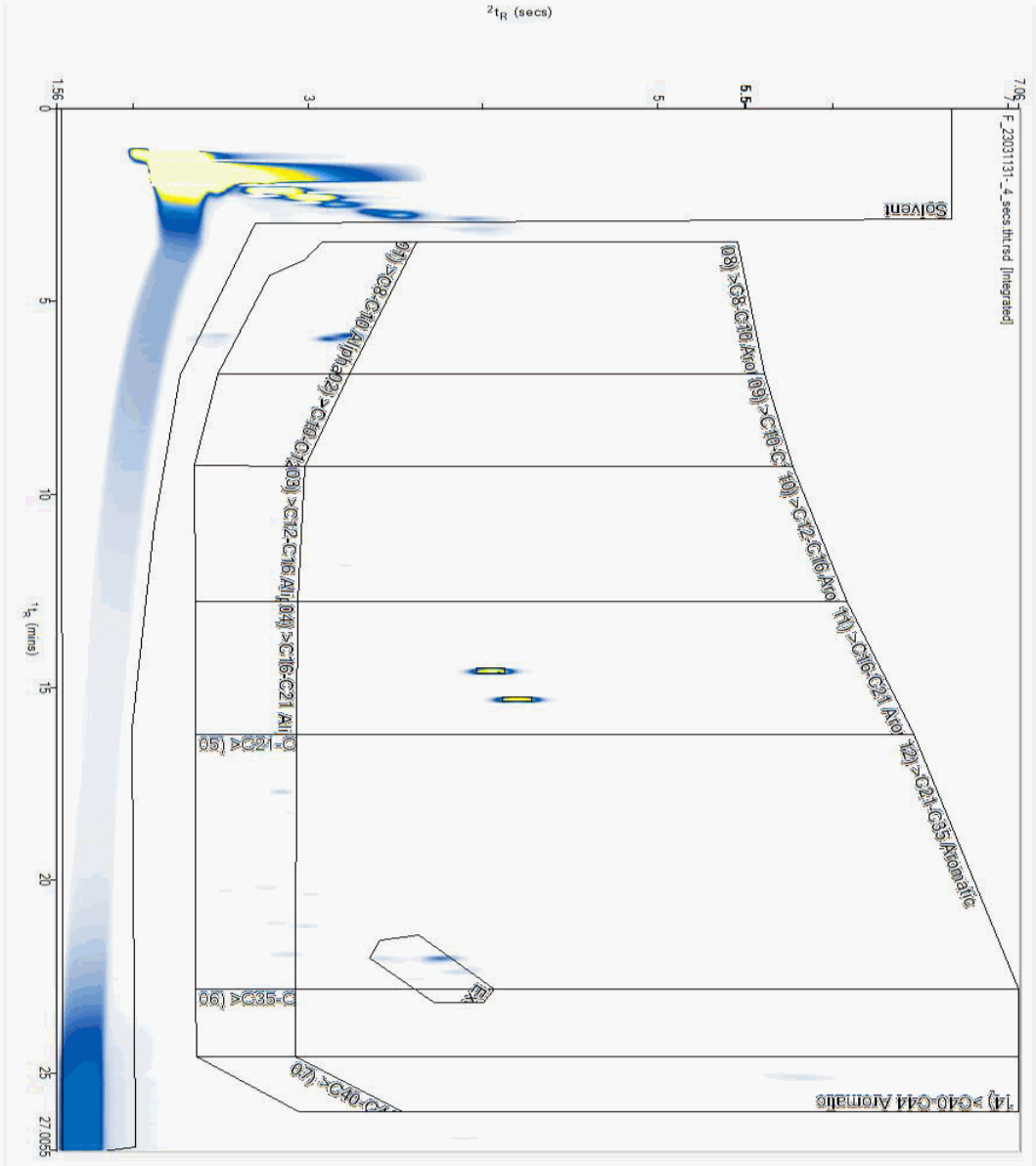
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23031131
Sample ID : TP320

Depth : 2.50 - 2.60

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23031131-_4_secs.tht
Date Acquired   :  17/10/20 06:25:57
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

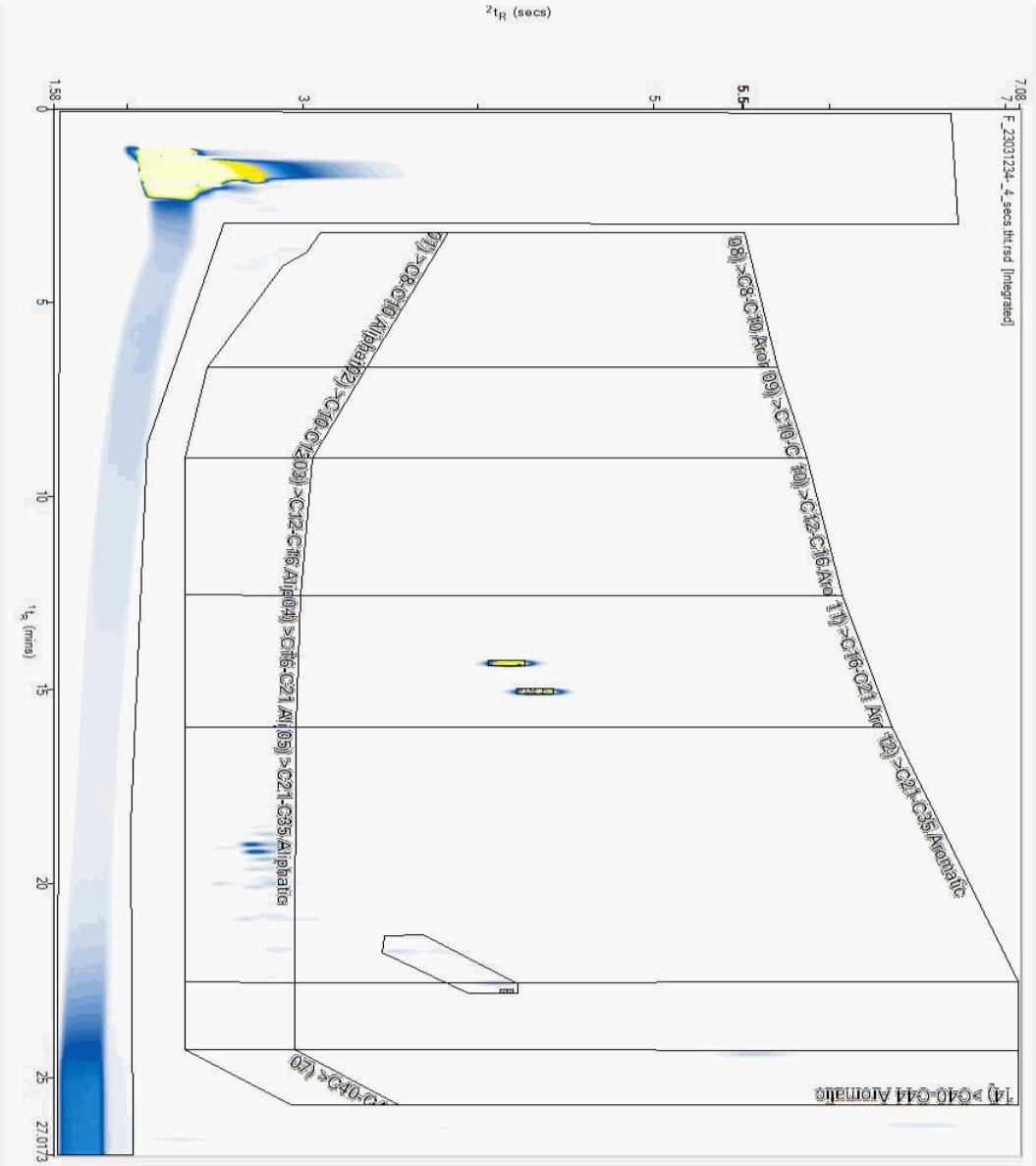
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23031234
Sample ID : TP320

Depth : 1.50 - 1.60

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23031234-_4_secs.tht
Date Acquired   :  15/10/20 07:30:56
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

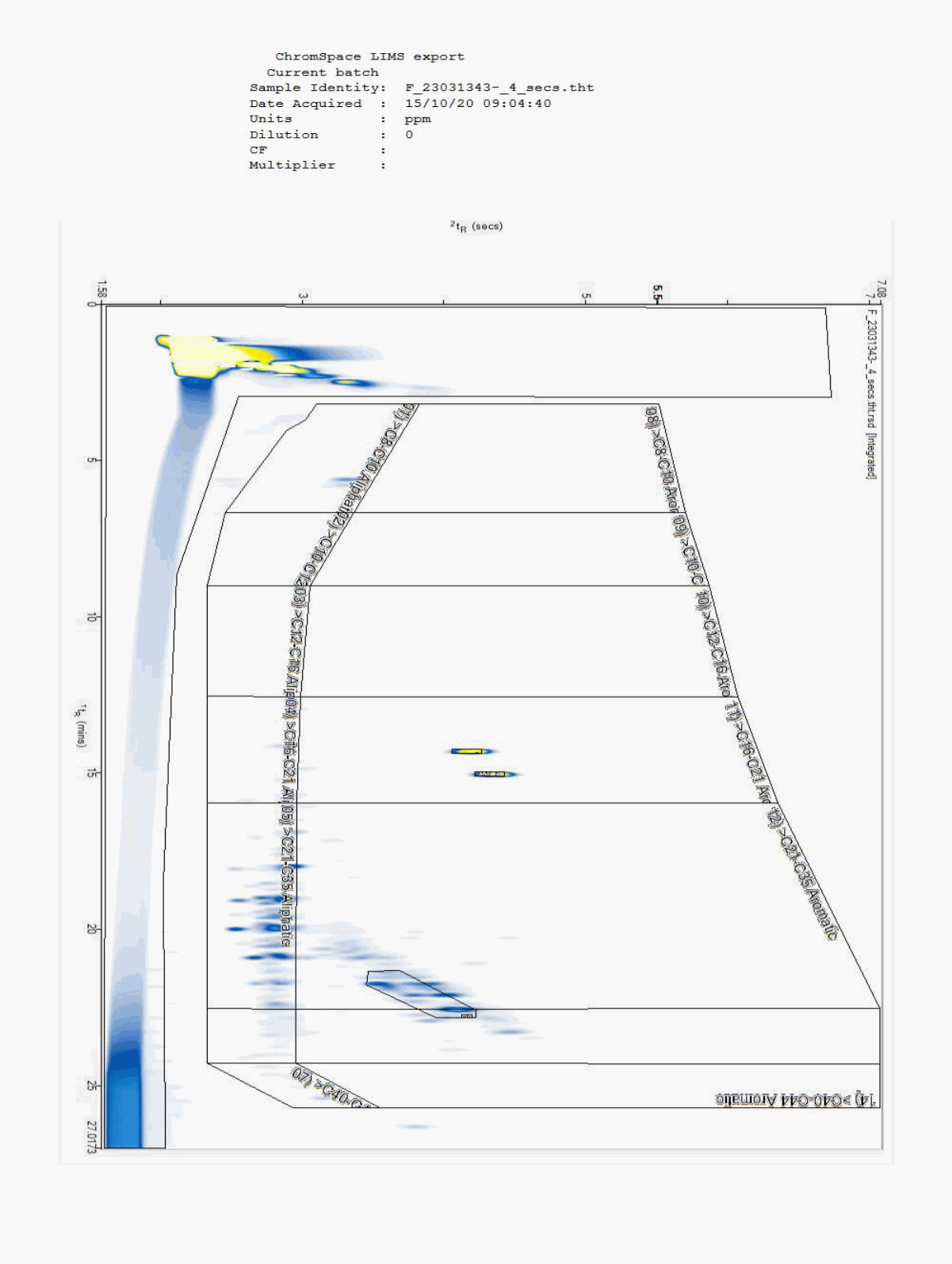


CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23031343 **Sample ID :** TP325 **Depth :** 1.70 - 1.80



CERTIFICATE OF ANALYSIS

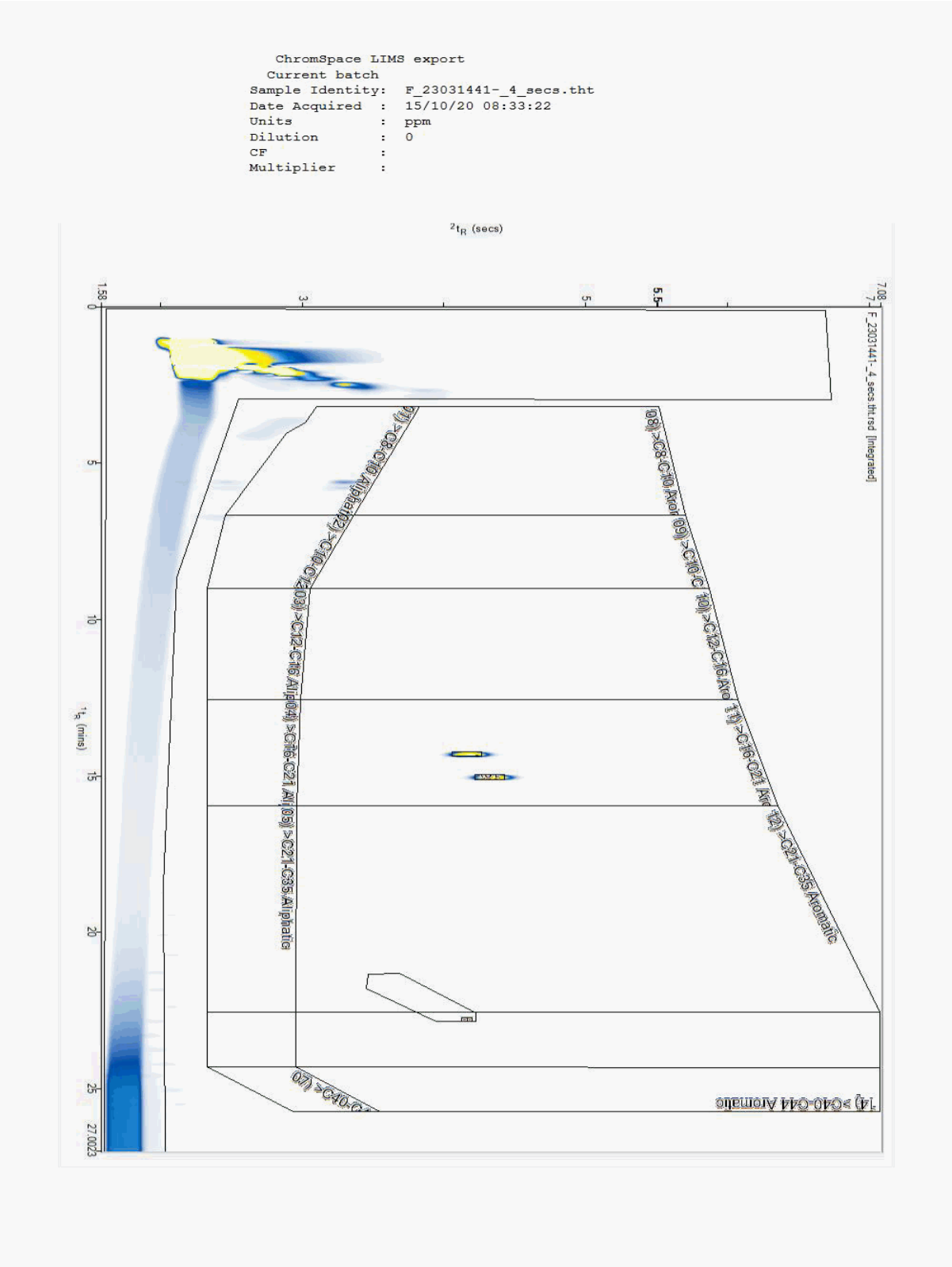
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23031441
Sample ID : TP320

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

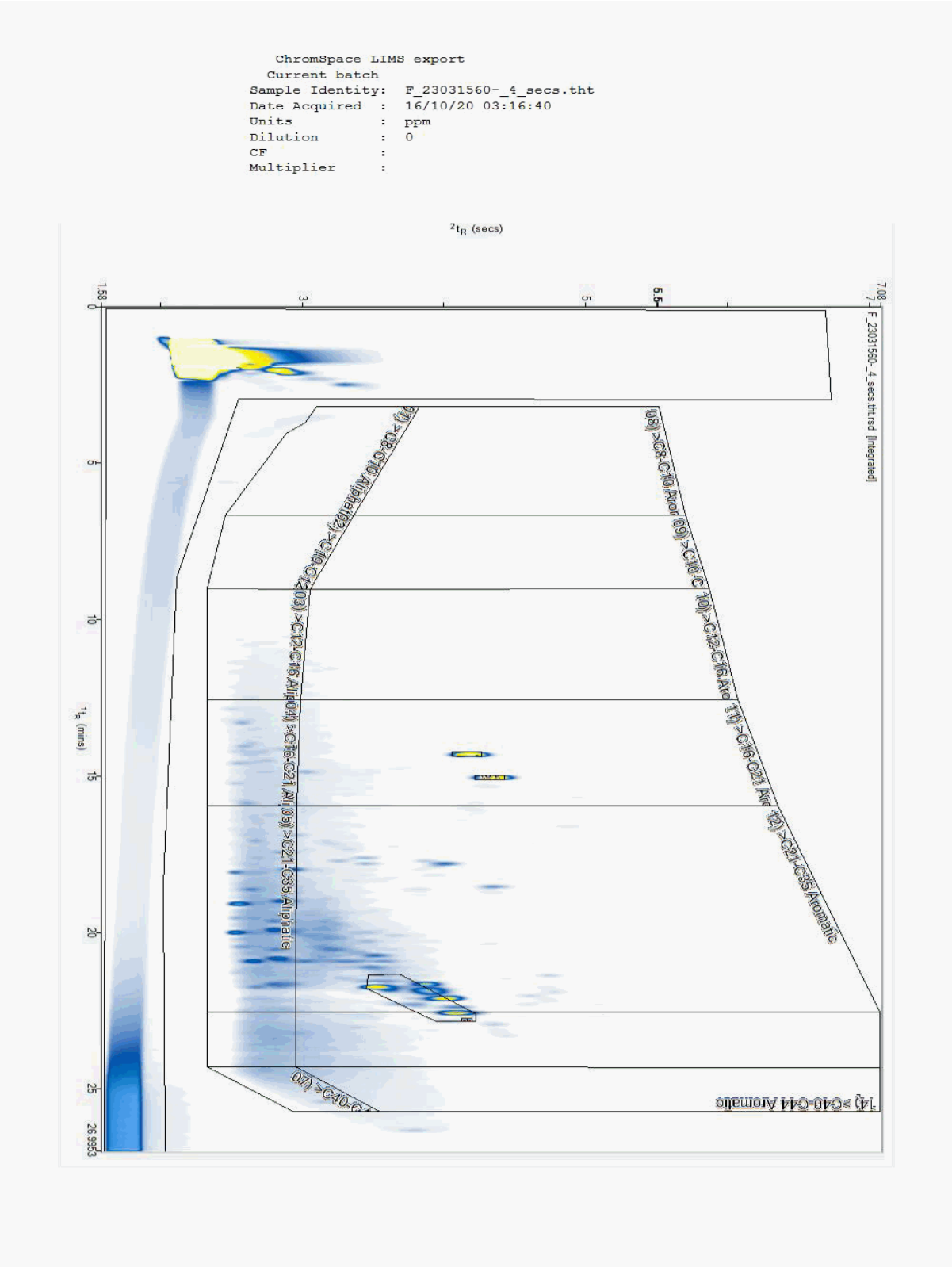
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23031560
Sample ID : BH301

Depth : 1.00 - 1.50



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

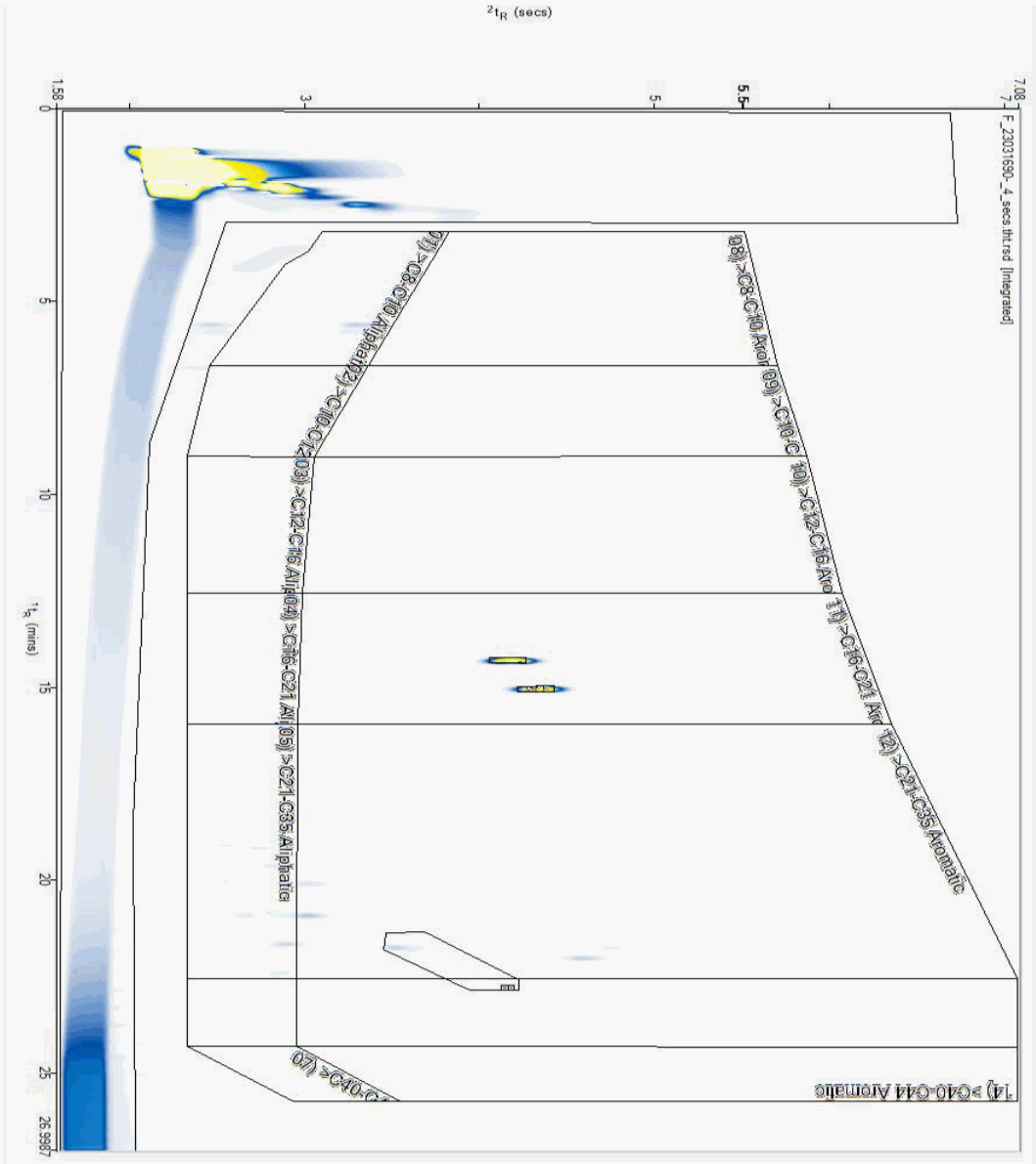
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23031690
Sample ID : BH301

Depth : 2.00 - 2.50

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23031690-_4_secs.tht
Date Acquired   :  15/10/20 09:35:54
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

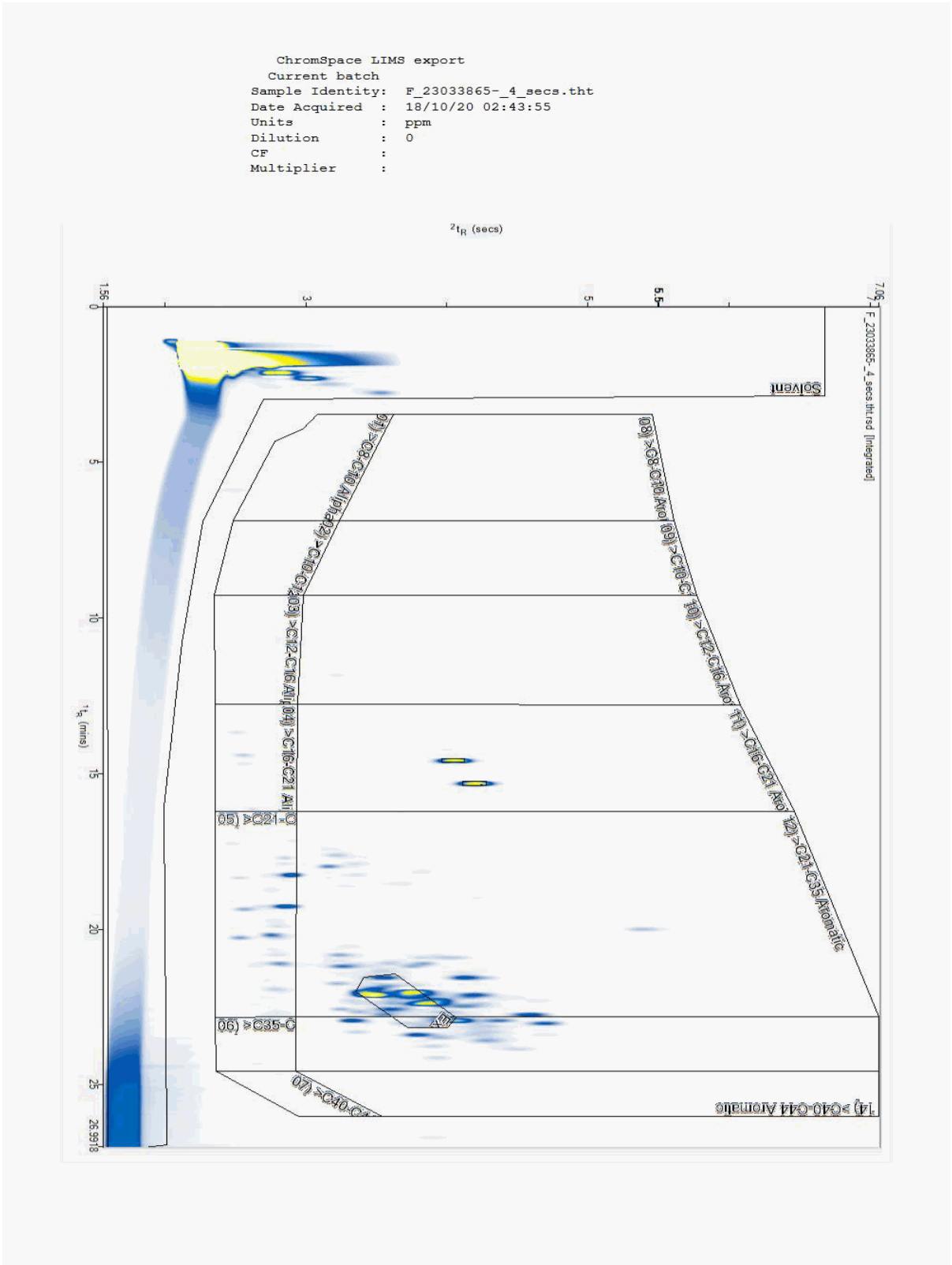


CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23033865 **Sample ID :** BH301 **Depth :** 3.00 - 3.50



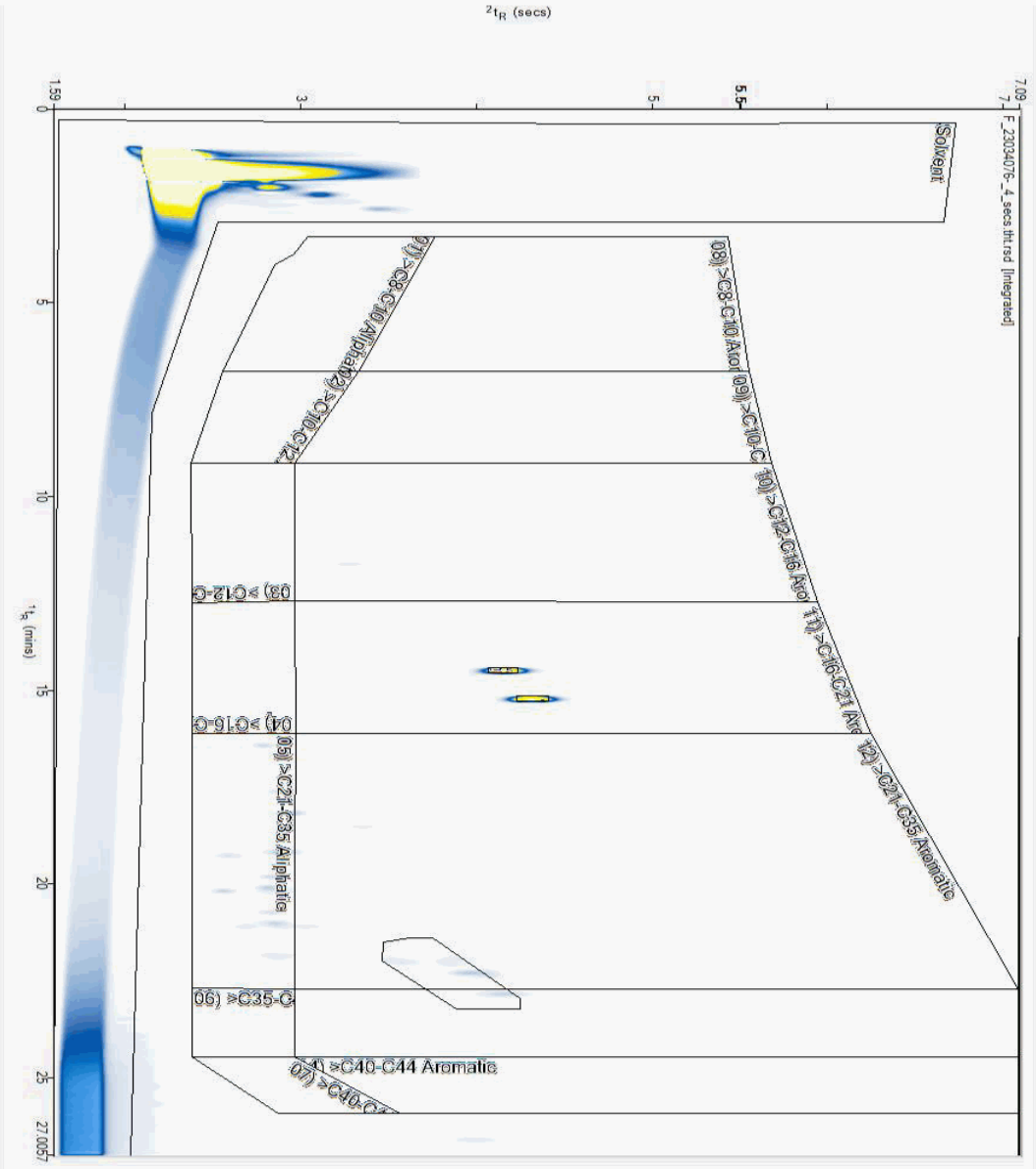
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23034076 **Depth :** 2.80 - 2.90
Sample ID : TP305

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23034076-_4_secs.tht
Date Acquired   :  17/10/20 08:48:47
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



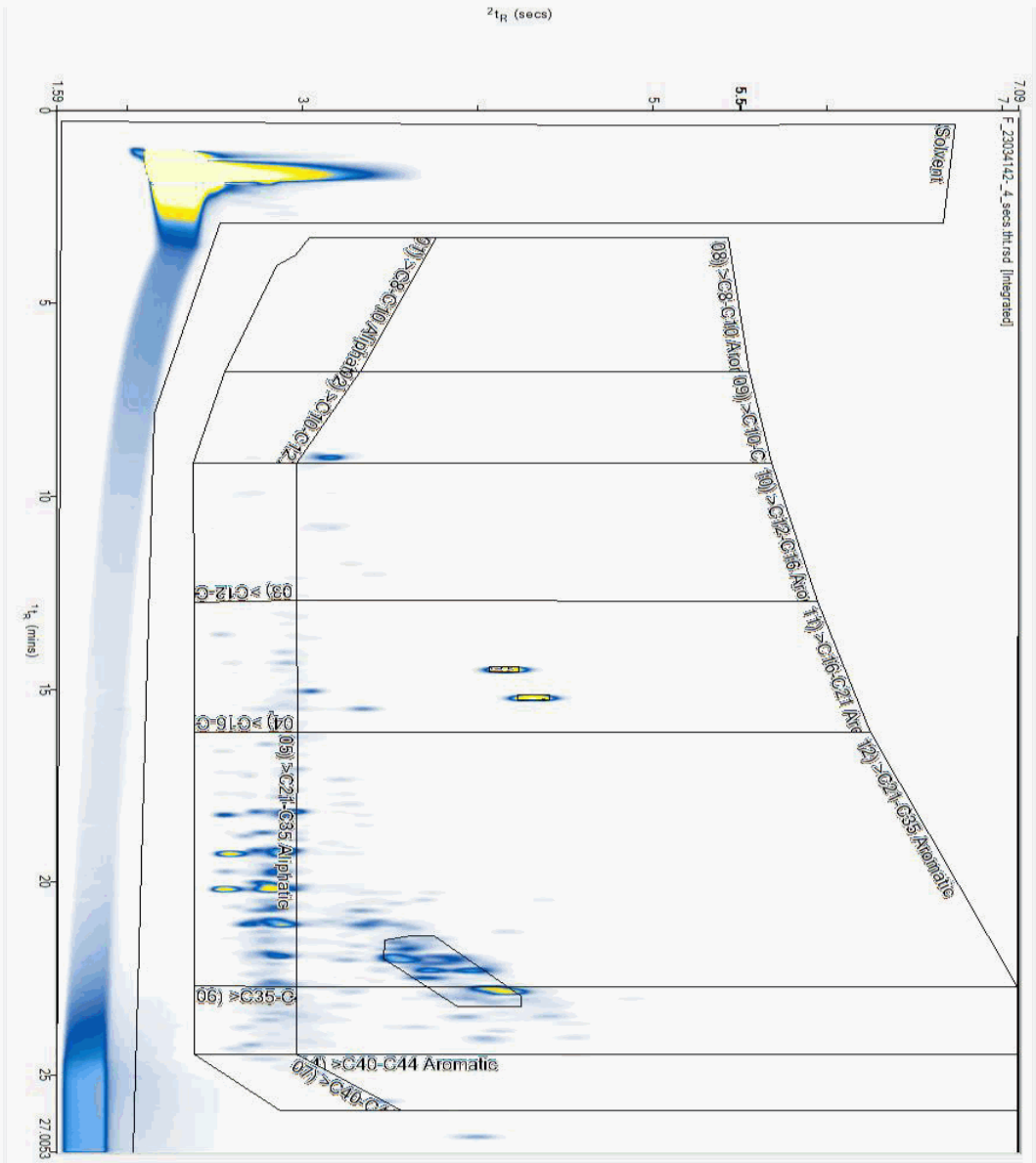
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23034142 **Depth :** 1.90 - 2.00
Sample ID : TP305

ChromSpace LIMS export
Current batch
Sample Identity: F_23034142-_4_secs.tht
Date Acquired : 17/10/20 09:19:16
Units : ppm
Dilution : 0
CF :
Multiplier :



CERTIFICATE OF ANALYSIS

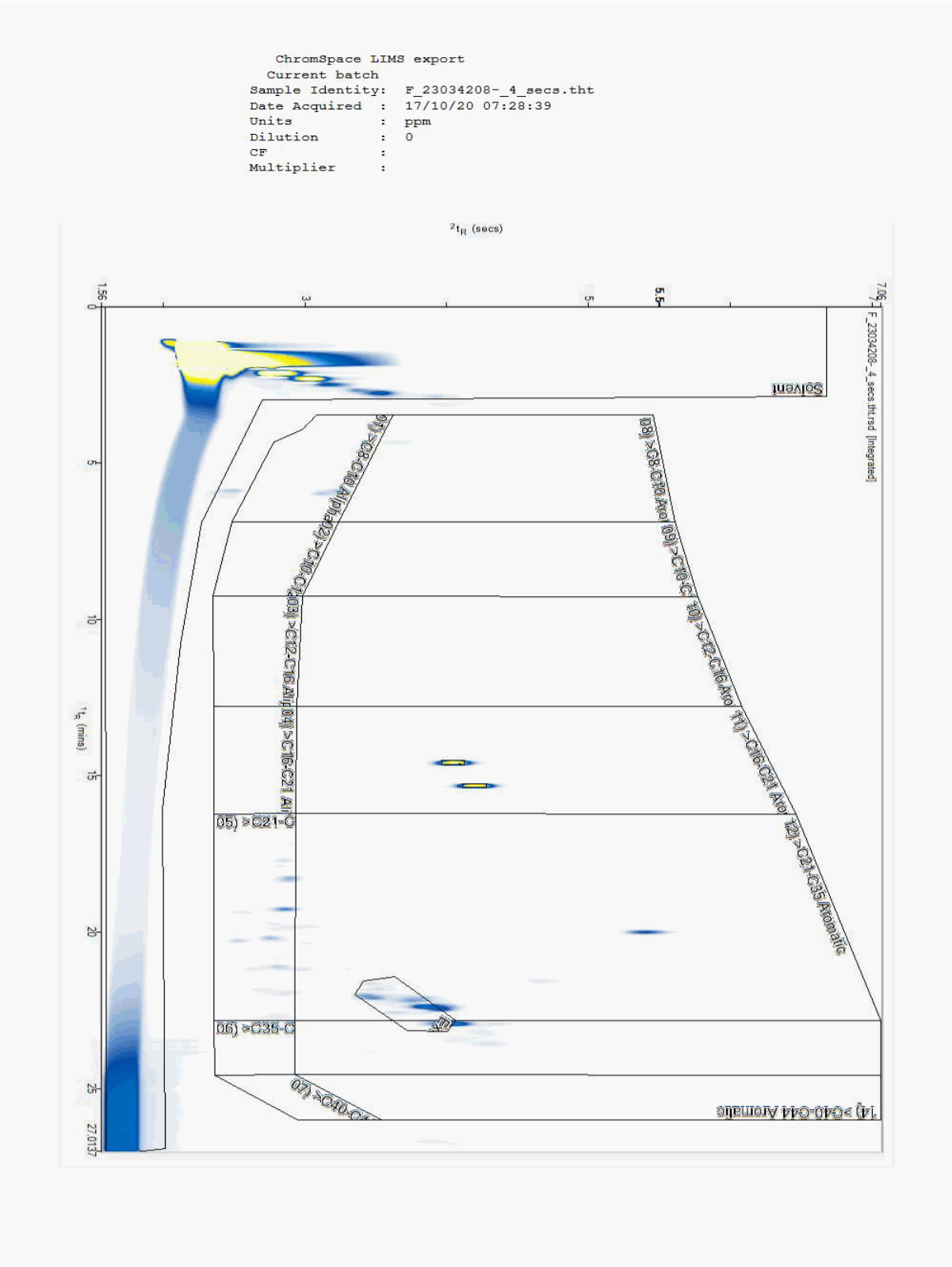
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23034208
Sample ID : TP306

Depth : 2.80



CERTIFICATE OF ANALYSIS

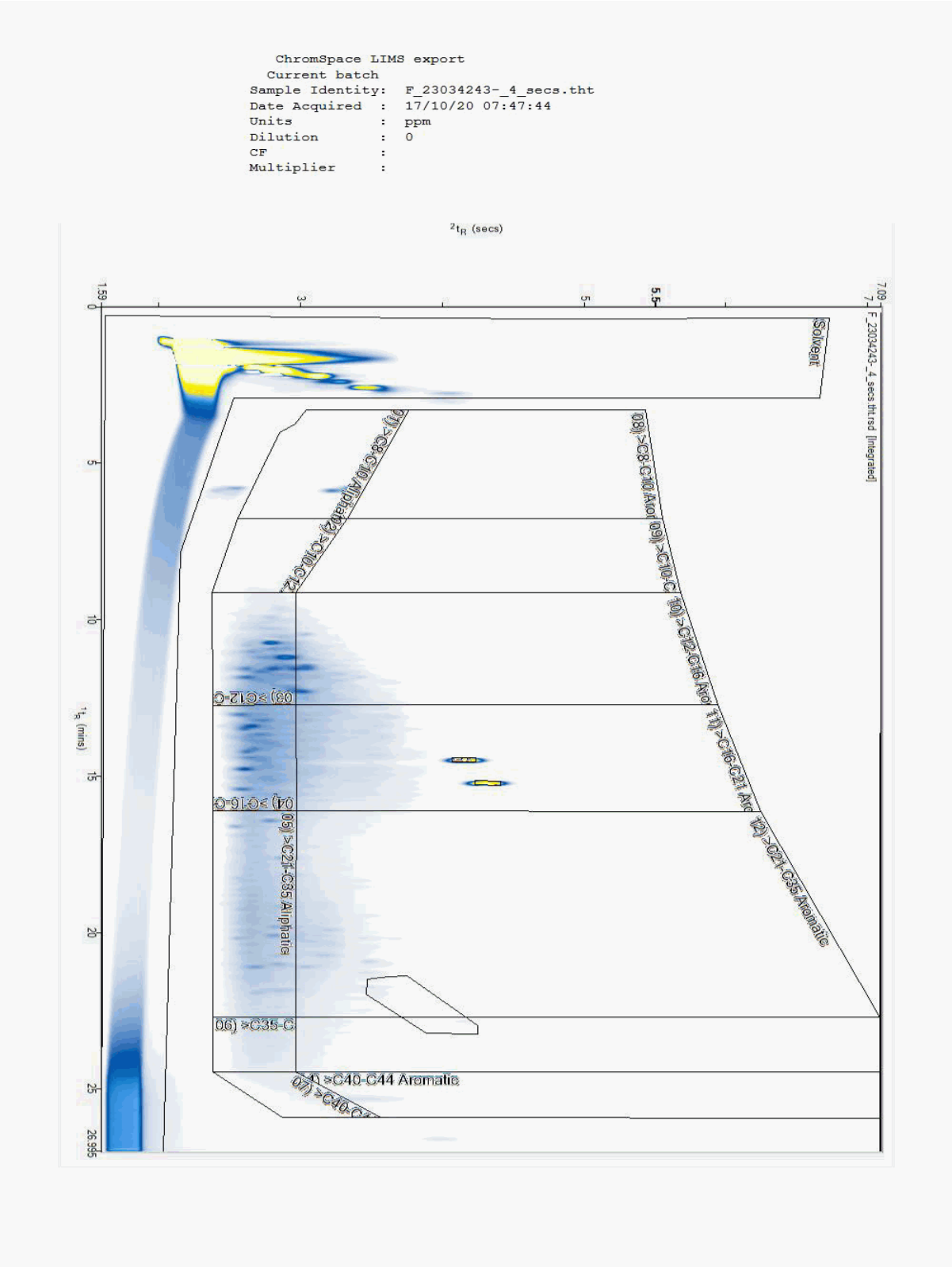
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23034243
Sample ID : TP305

Depth : 0.50 - 0.60



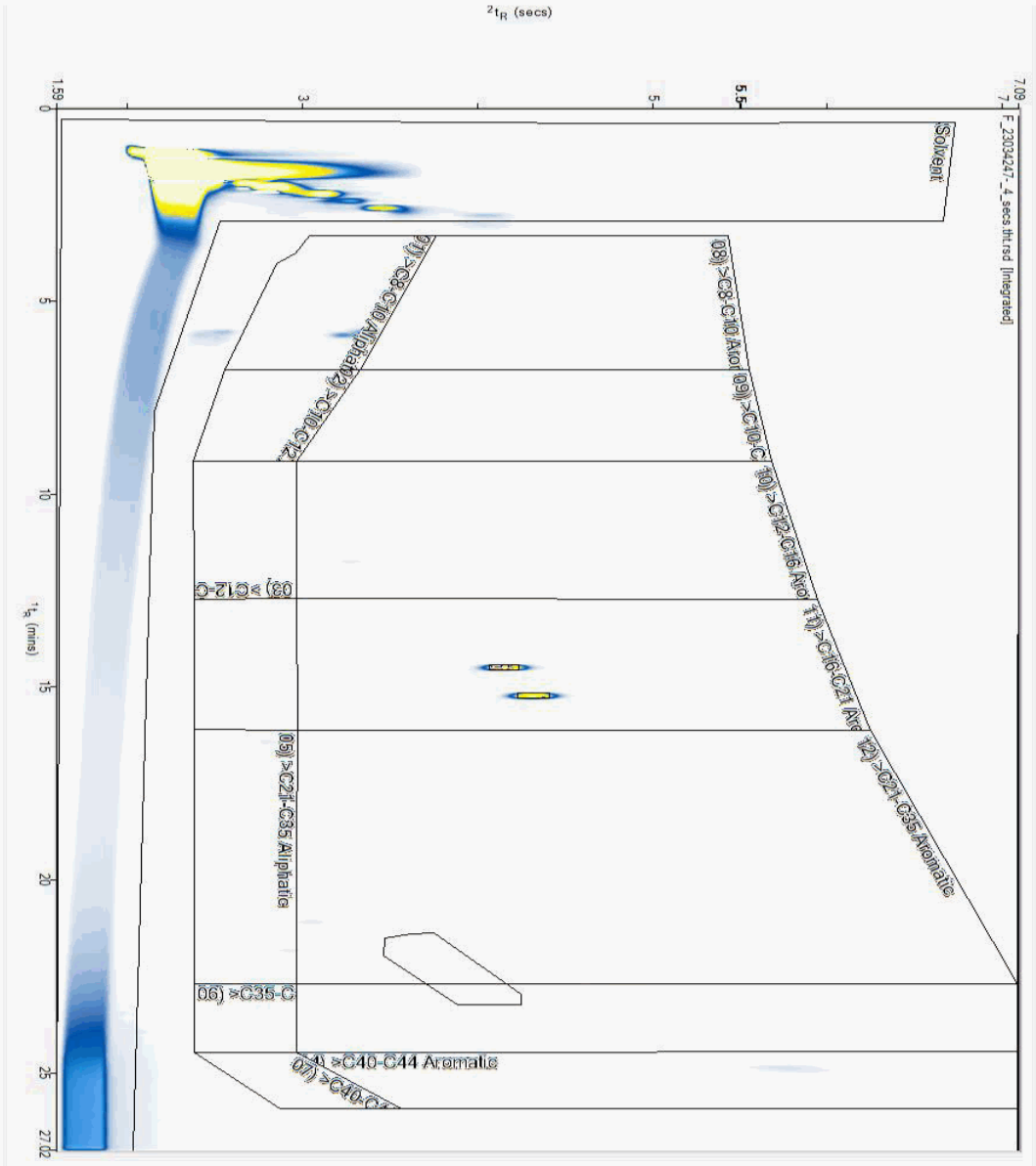
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23034247 **Depth :** 0.90 - 1.00
Sample ID : TP303

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23034247-_4_secs.tht
Date Acquired   :  17/10/20 06:16:02
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



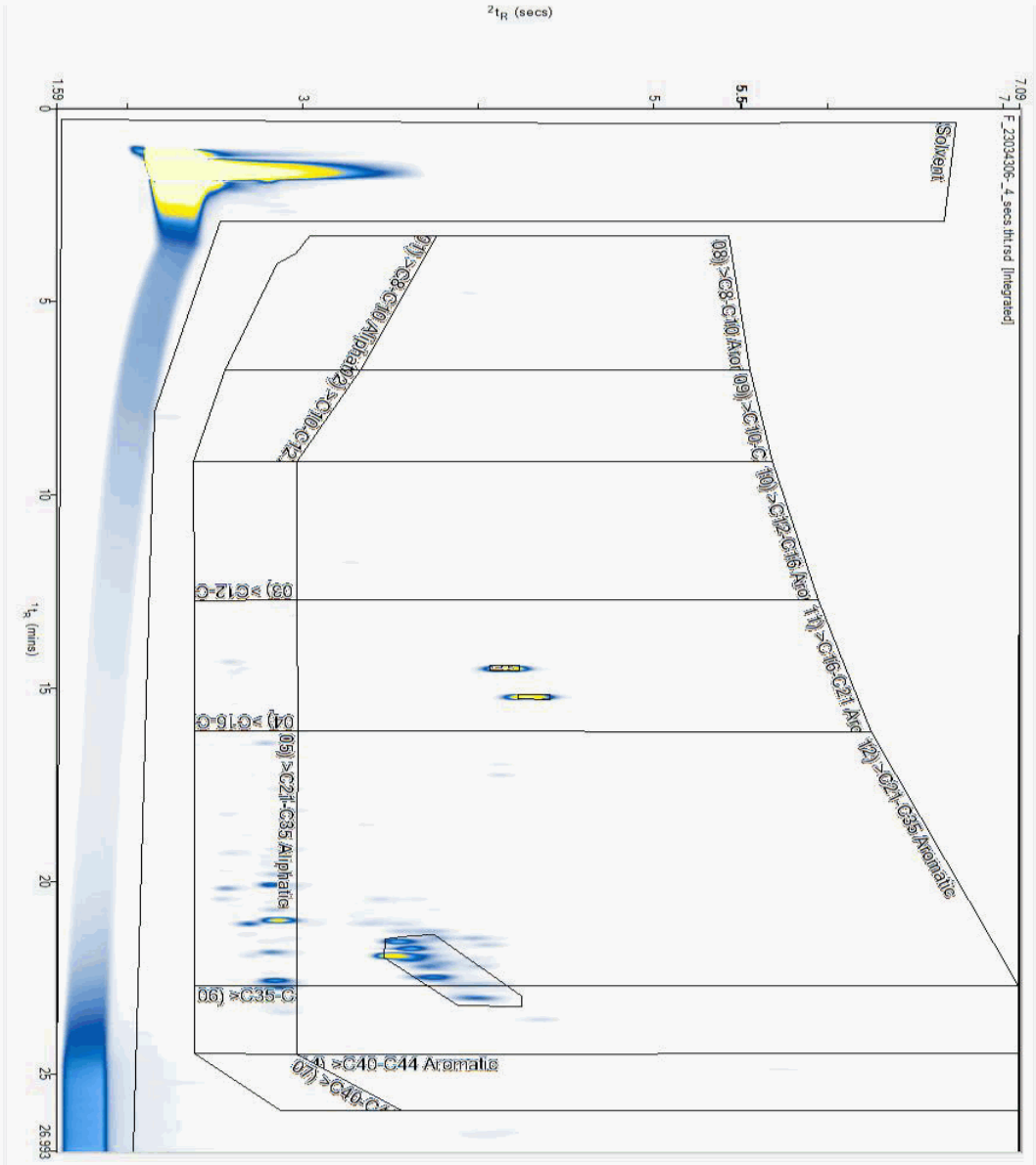
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23034306 **Depth :** 1.40 - 1.50
Sample ID : TP303

ChromSpace LIMS export
Current batch
Sample Identity: F_23034306-_4_secs.tht
Date Acquired : 17/10/20 09:49:47
Units : ppm
Dilution : 0
CF :
Multiplier :



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

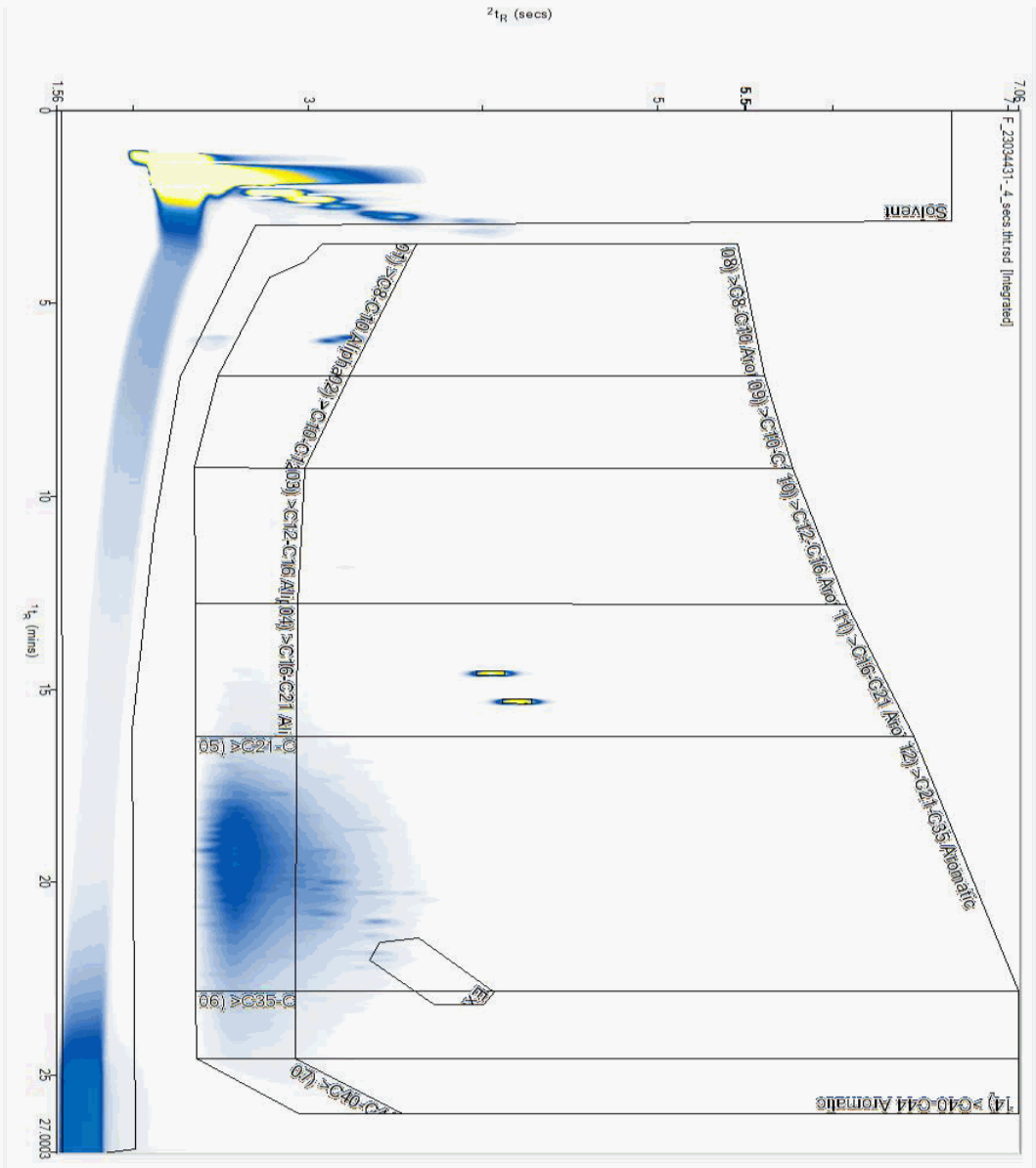
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23034431
Sample ID : TP303

Depth : 0.40 - 0.50

ChromSpace LIMS export
Current batch
Sample Identity: F_23034431-_4_secs.tht
Date Acquired : 17/10/20 08:31:19
Units : ppm
Dilution : 0
CF :
Multiplier :



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

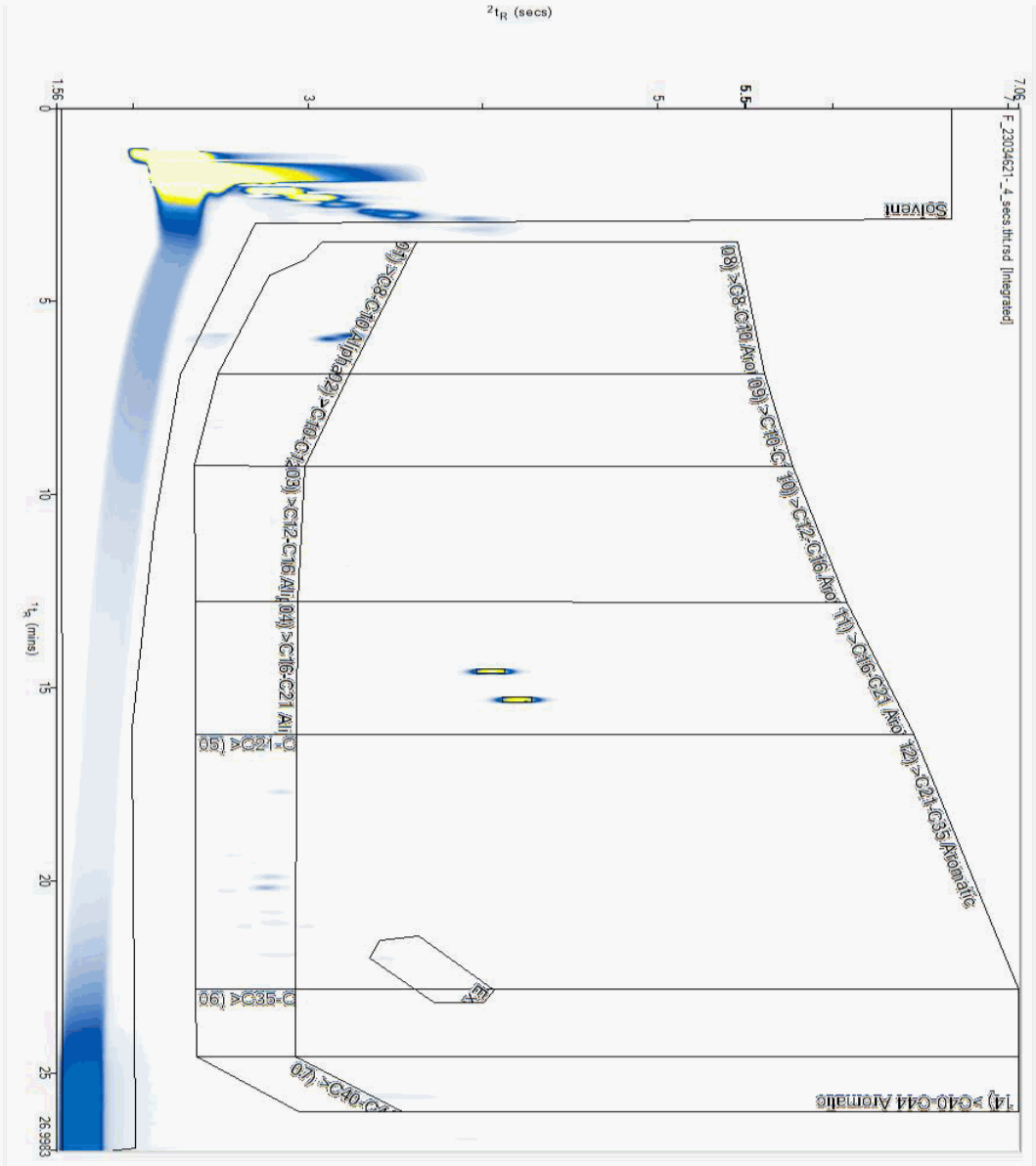
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23034621
Sample ID : TP325

Depth : 0.40 - 0.50

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23034621-_4_secs.tht
Date Acquired   :  17/10/20 06:57:20
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

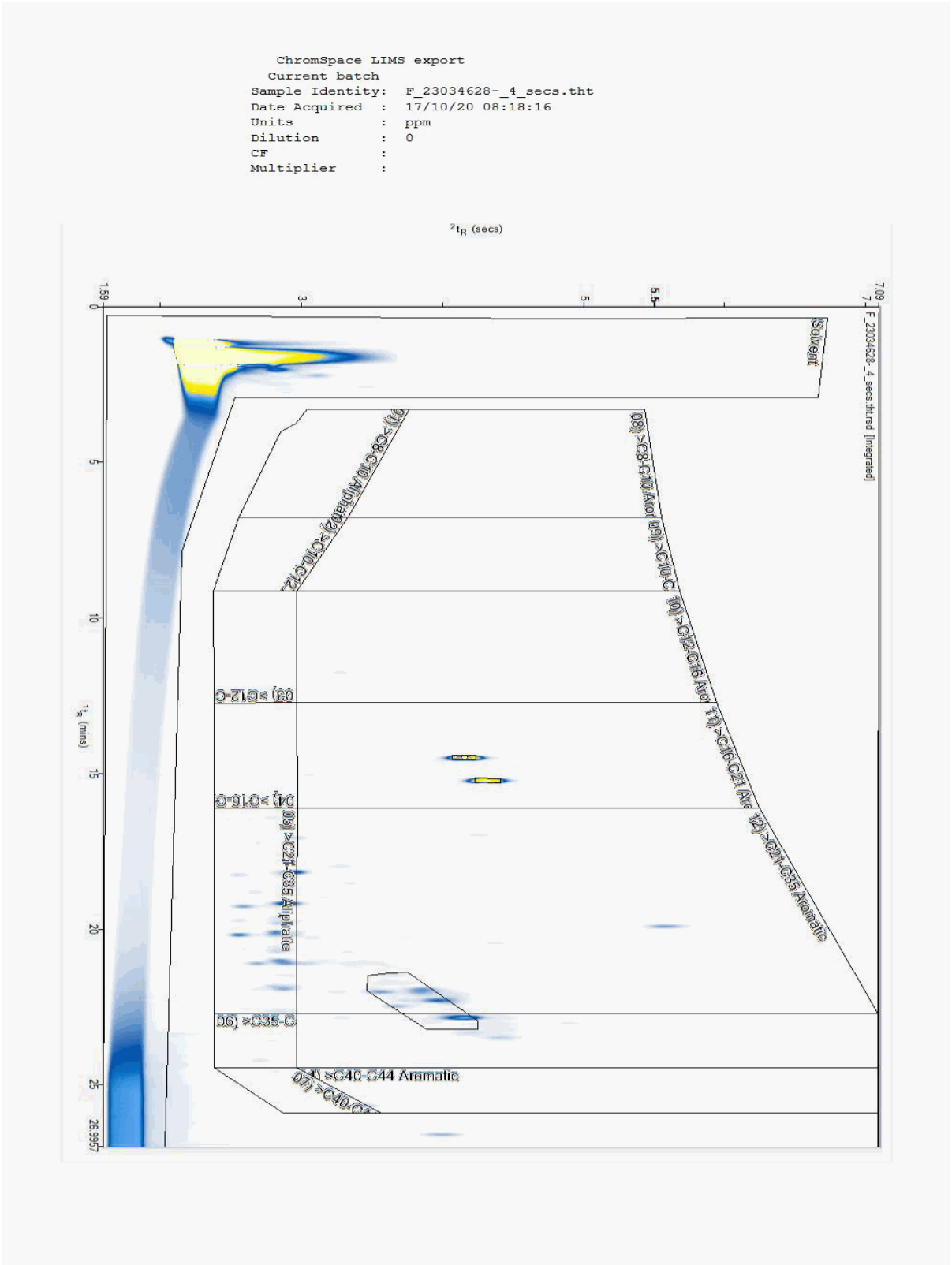


CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23034628 **Sample ID :** TP303 **Depth :** 2.90 - 3.00



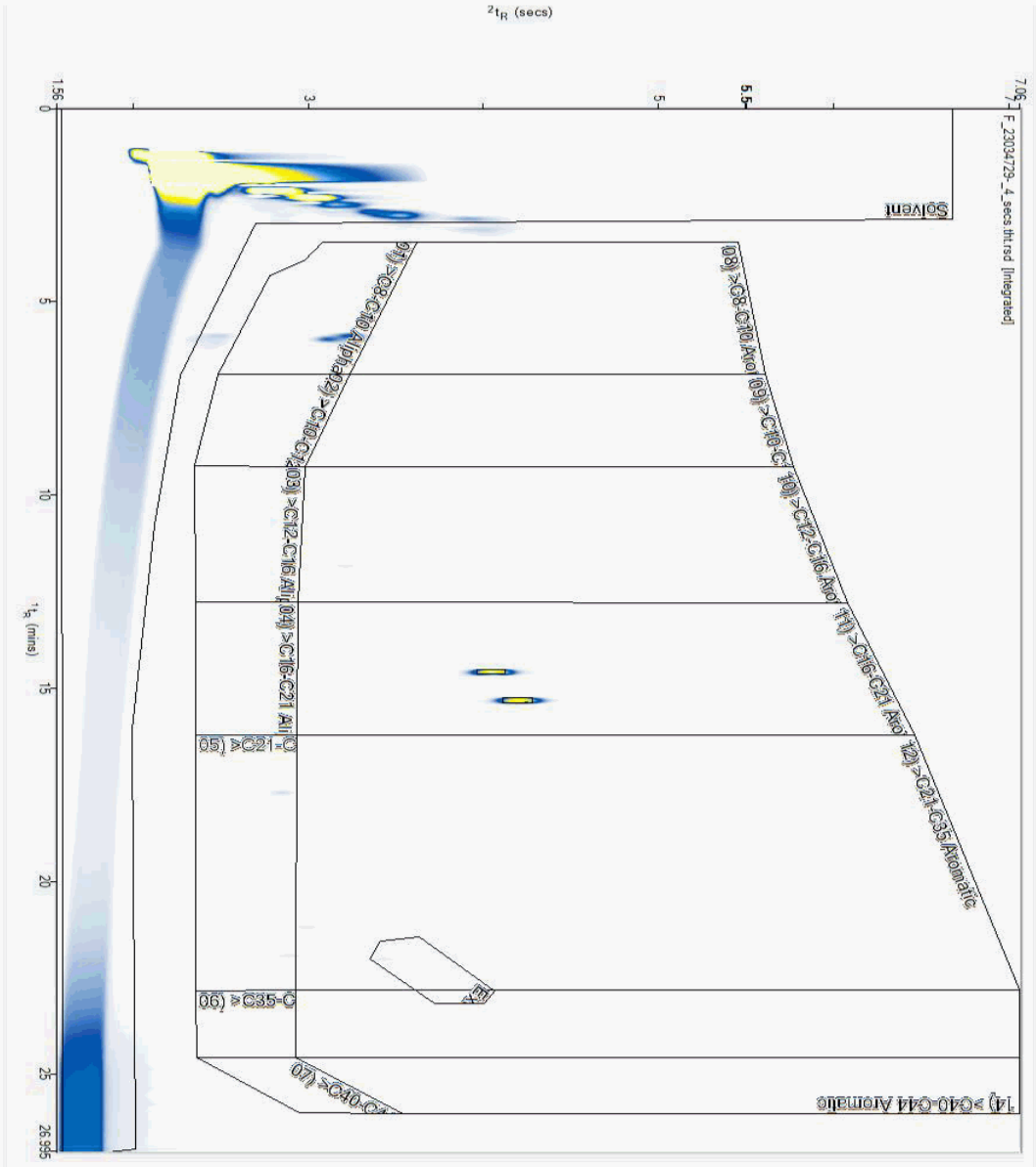
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23034729 **Sample ID :** TP325 **Depth :** 0.90 - 1.00

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23034729-_4_secs.tht
Date Acquired   :  17/10/20 08:00:00
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

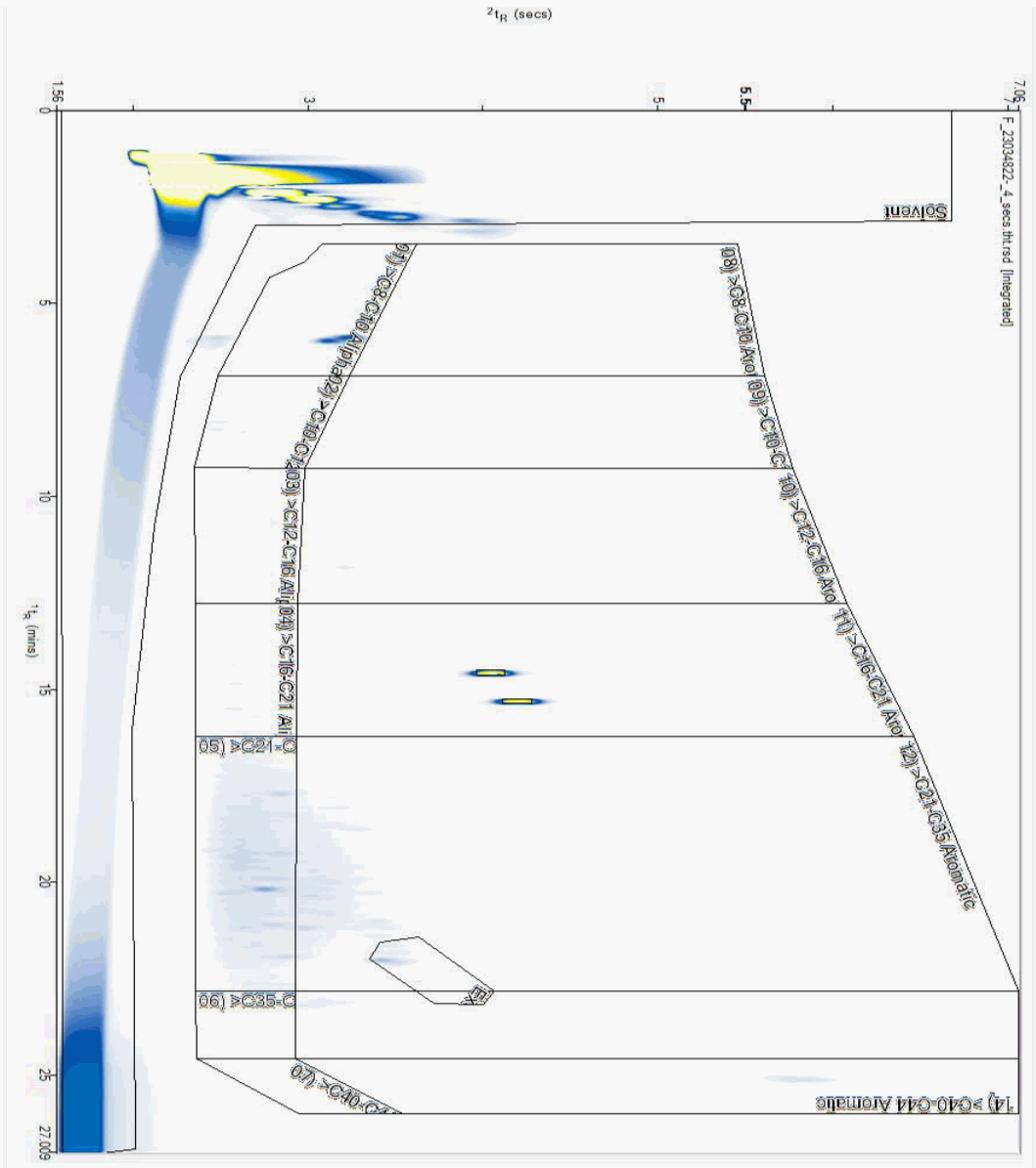
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23034822
Sample ID : TP320

Depth : 0.50 - 0.60

ChromSpace LIMS export
Current batch
Sample Identity: F_23034822-_4_secs.tht
Date Acquired : 17/10/20 05:23:22
Units : ppm
Dilution : 0
CF :
Multiplier :

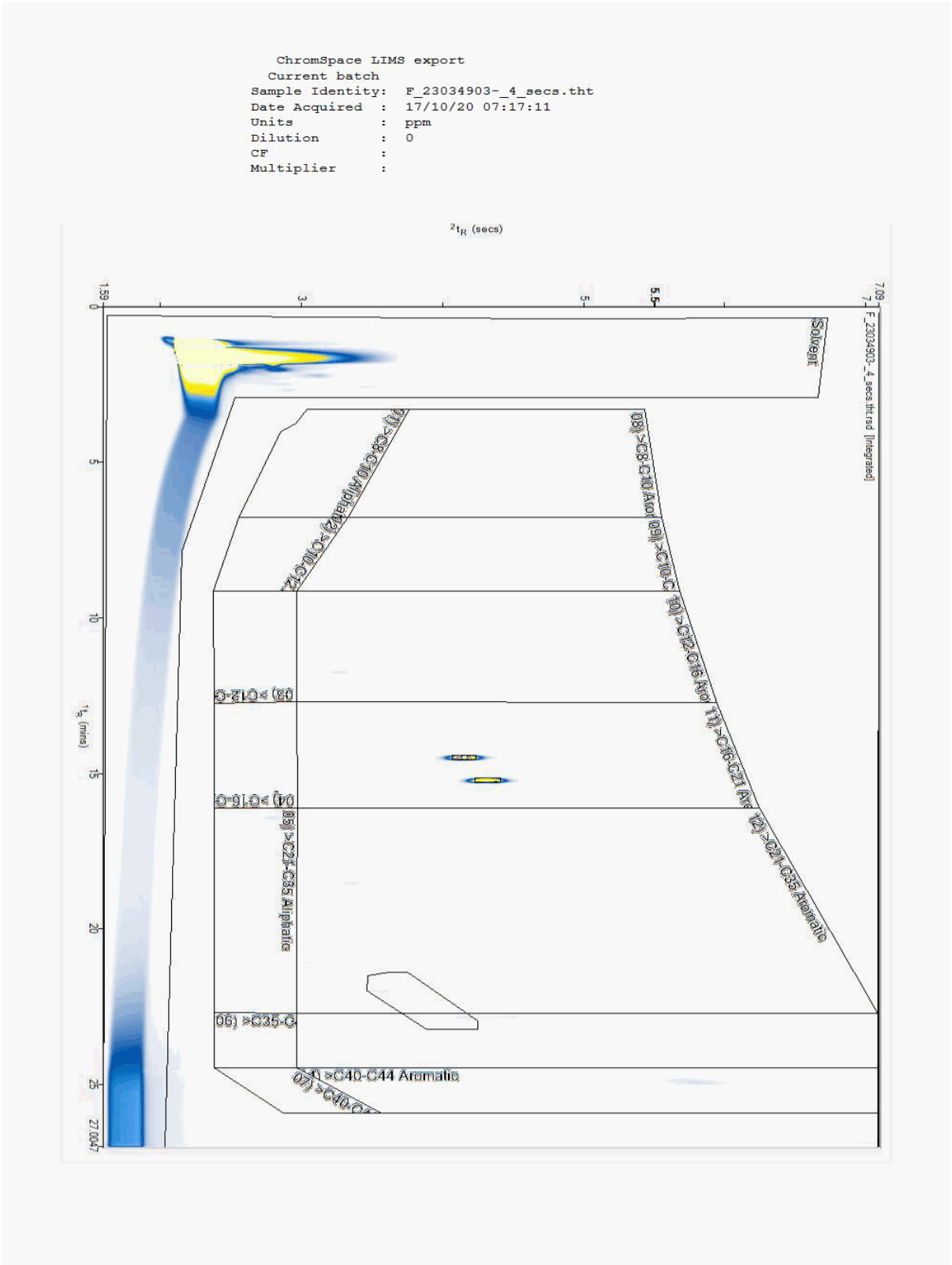


CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23034903 **Sample ID :** TP325 **Depth :** 2.80 - 2.90

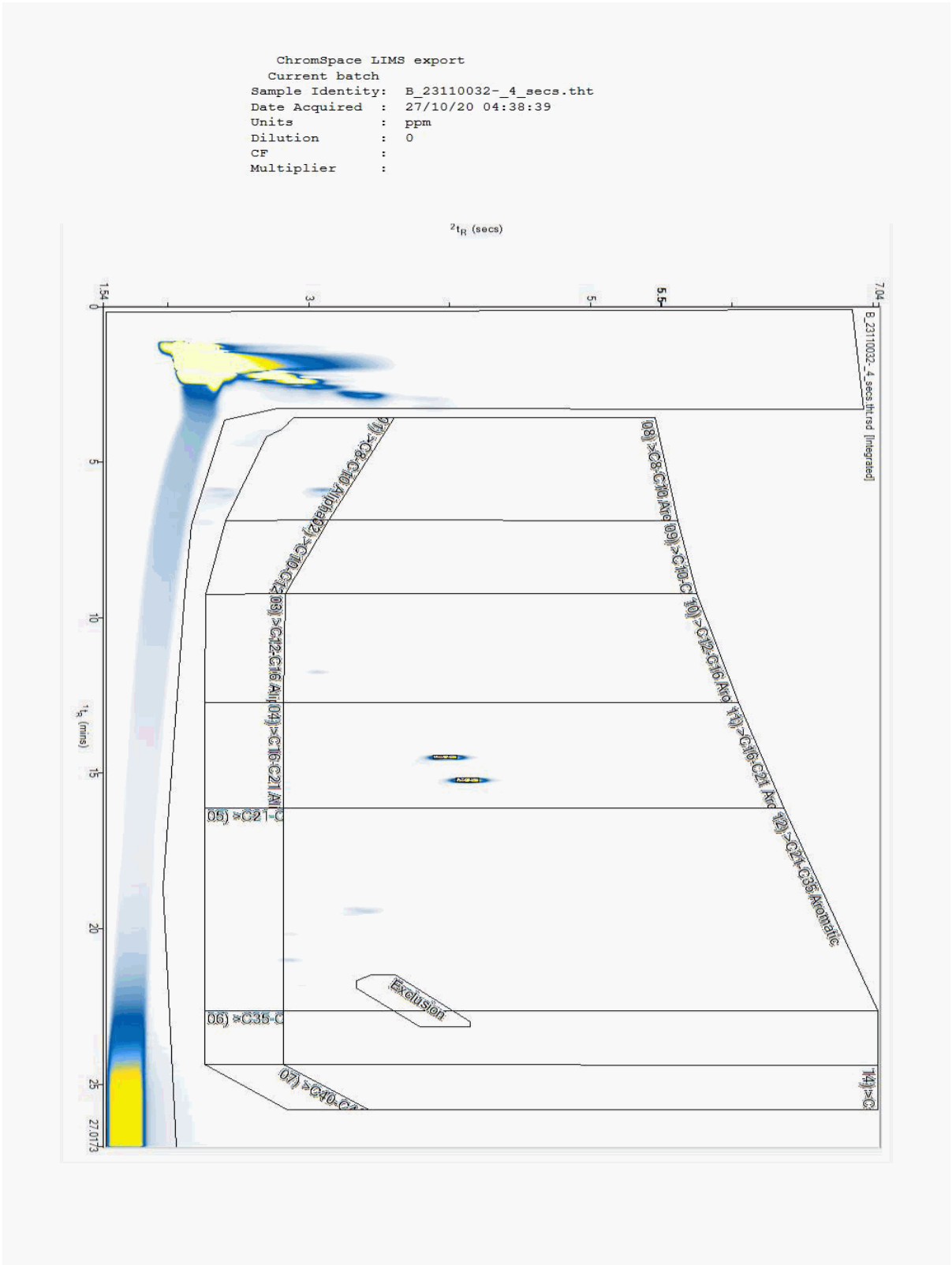


CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23110032 **Sample ID :** TP313 **Depth :** 1.10 - 1.20



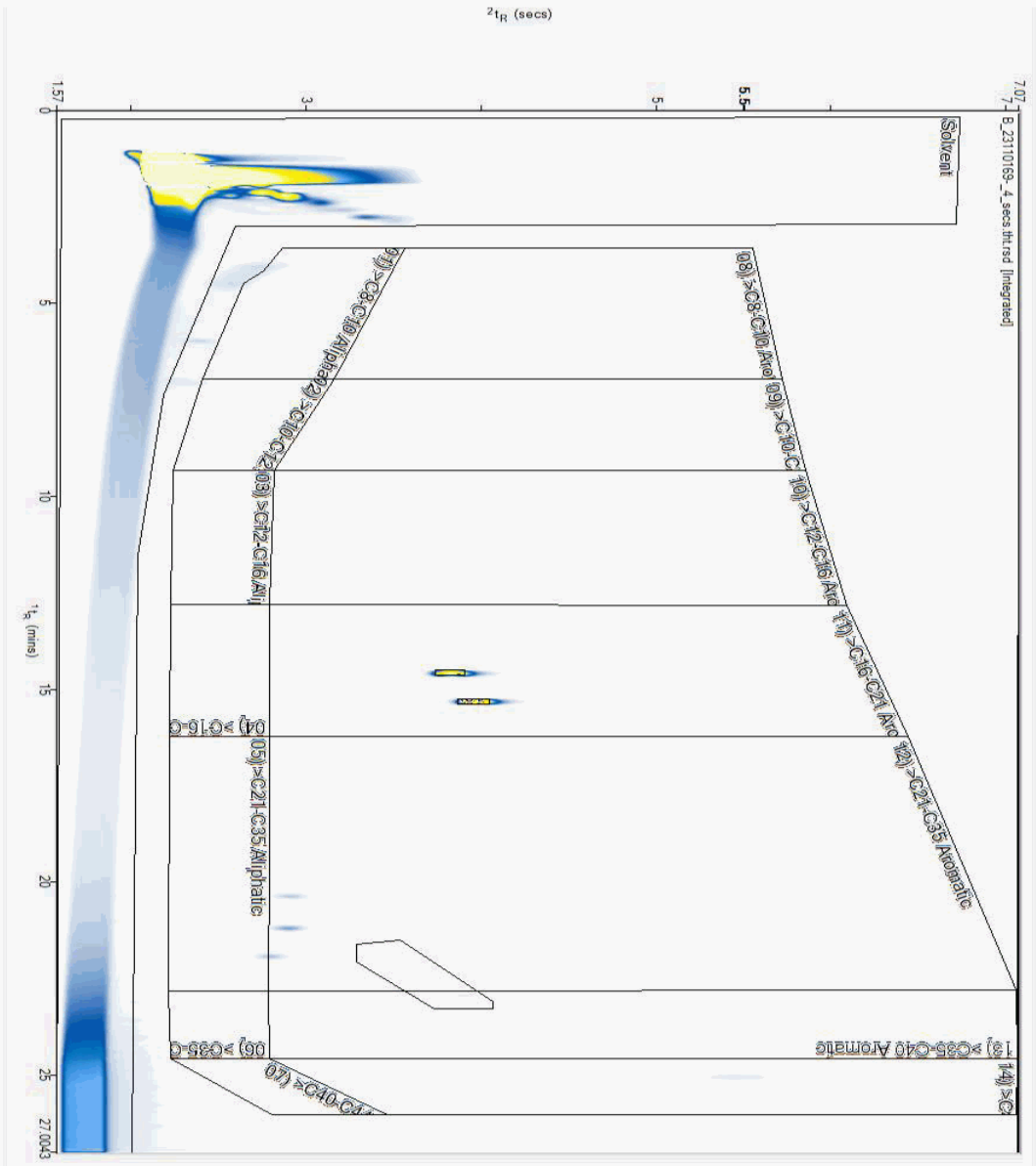
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23110169 **Sample ID :** TP318 **Depth :** 2.00 - 2.10

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23110169-_4_secs.tht
Date Acquired   :  26/10/20 05:51:07
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



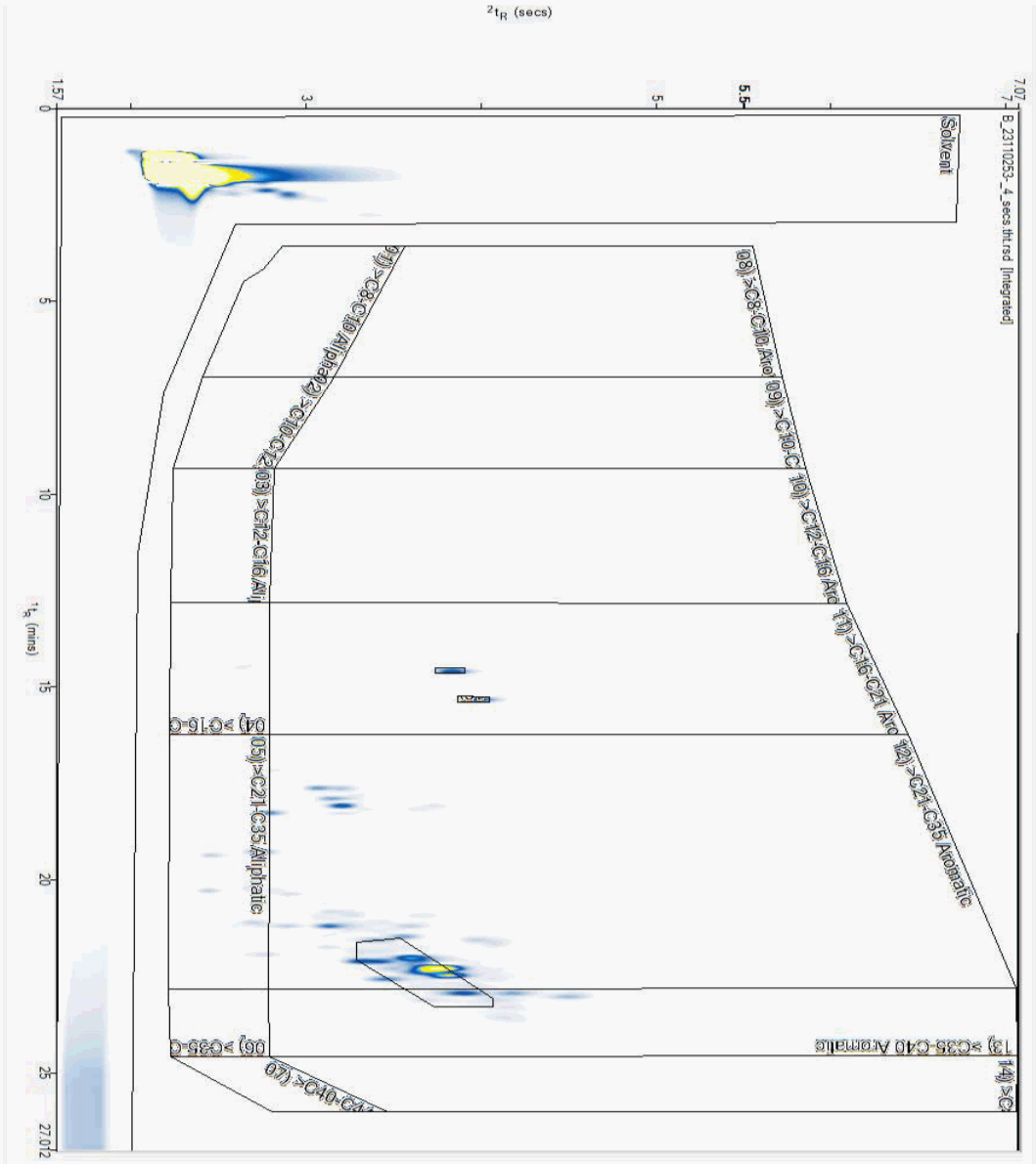
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23110253 **Depth :** 3.50 - 3.60
Sample ID : TP318

ChromSpace LIMS export
Current batch
Sample Identity: B_23110253-_4_secs.tht
Date Acquired : 27/10/20 01:30:40
Units : ppm
Dilution : 0
CF :
Multiplier :



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

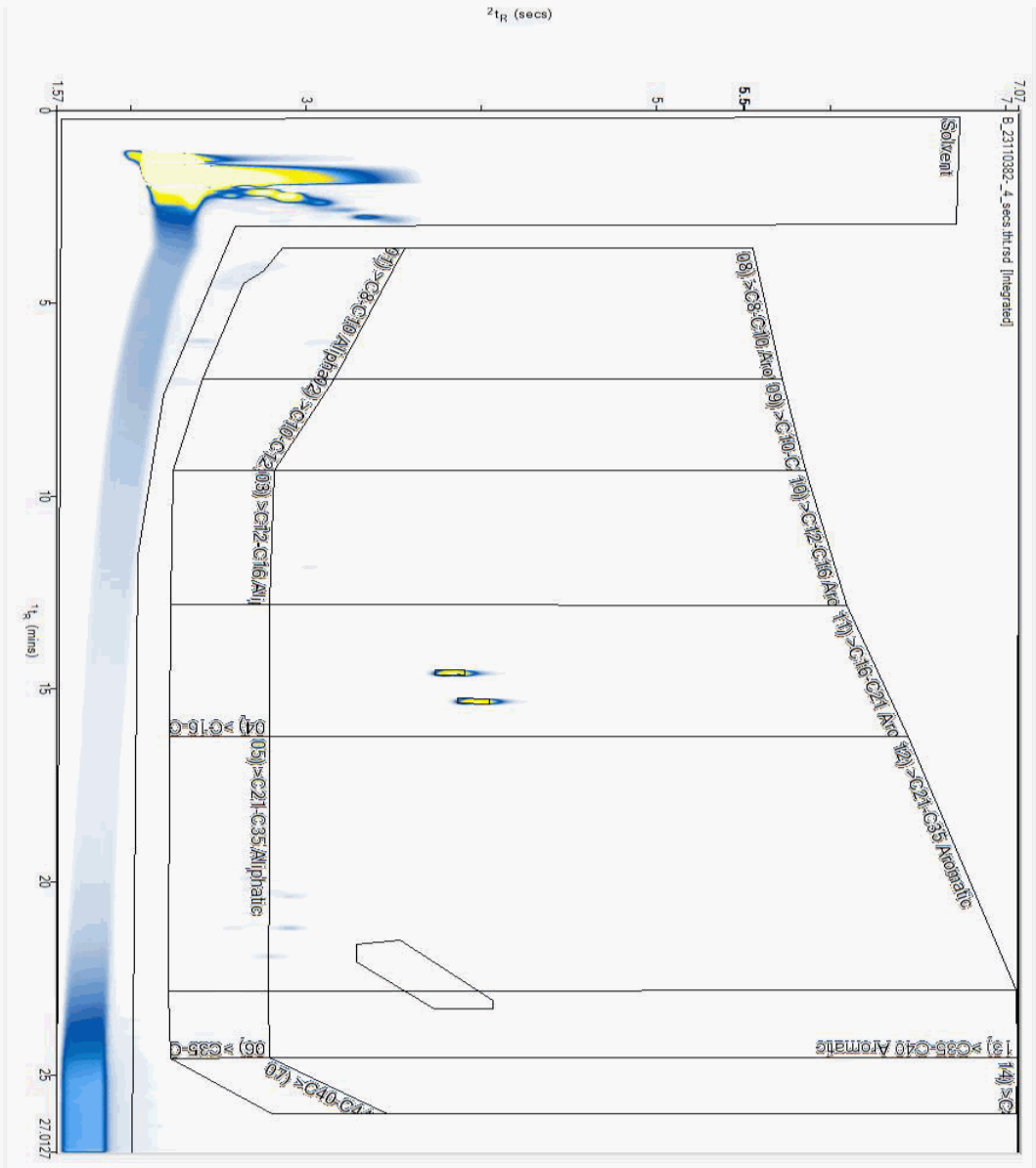
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23110382
Sample ID : TP318

Depth : 0.50 - 0.60

ChromSpace LIMS export
Current batch
Sample Identity: B_23110382-_4_secs.tht
Date Acquired : 26/10/20 07:23:03
Units : ppm
Dilution : 0
CF :
Multiplier :



CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

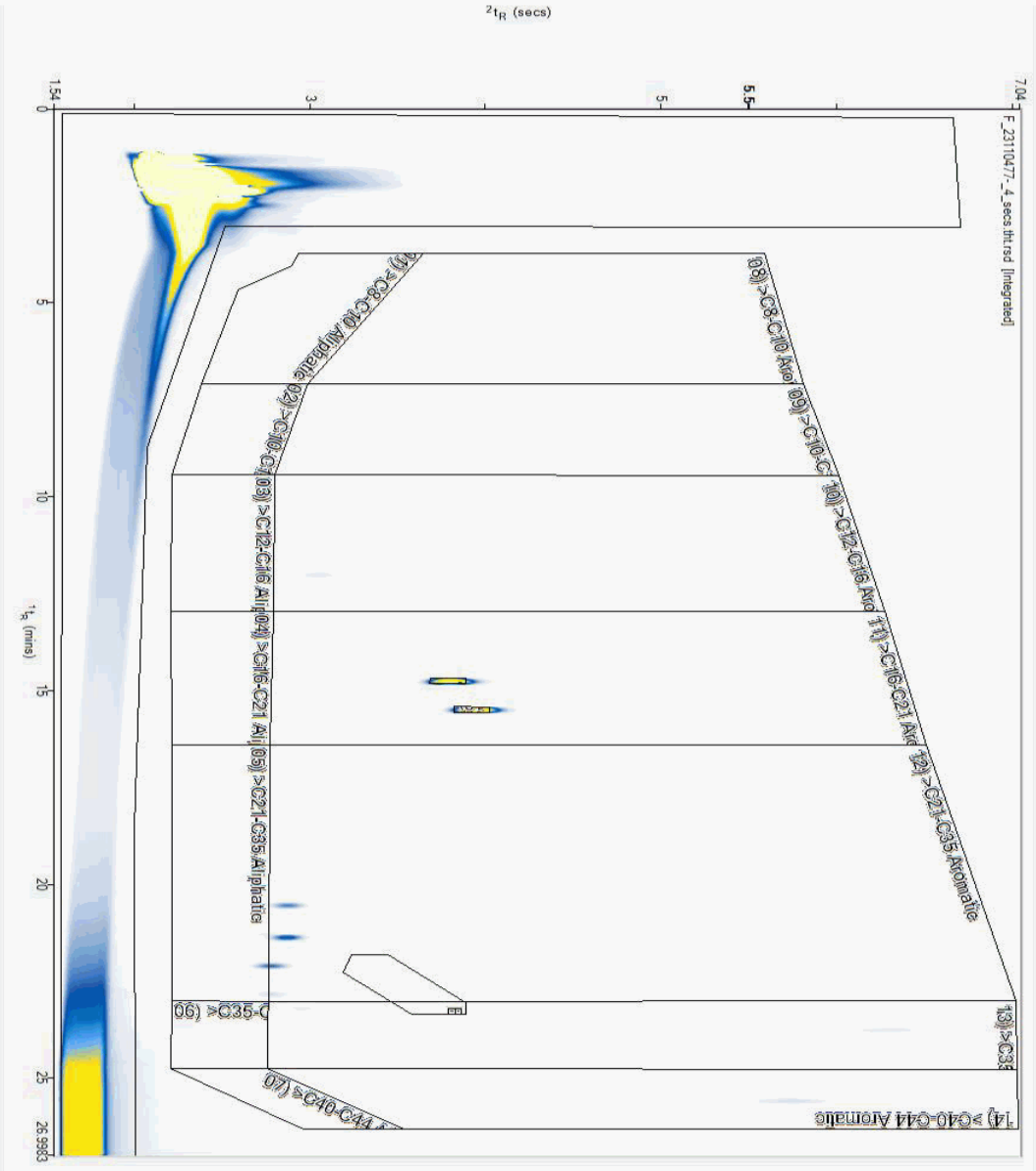
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23110477
Sample ID : TP318

Depth : 0.90 - 1.00

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23110477-_4_secs.tht
Date Acquired   :  26/10/20 07:34:52
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



CERTIFICATE OF ANALYSIS

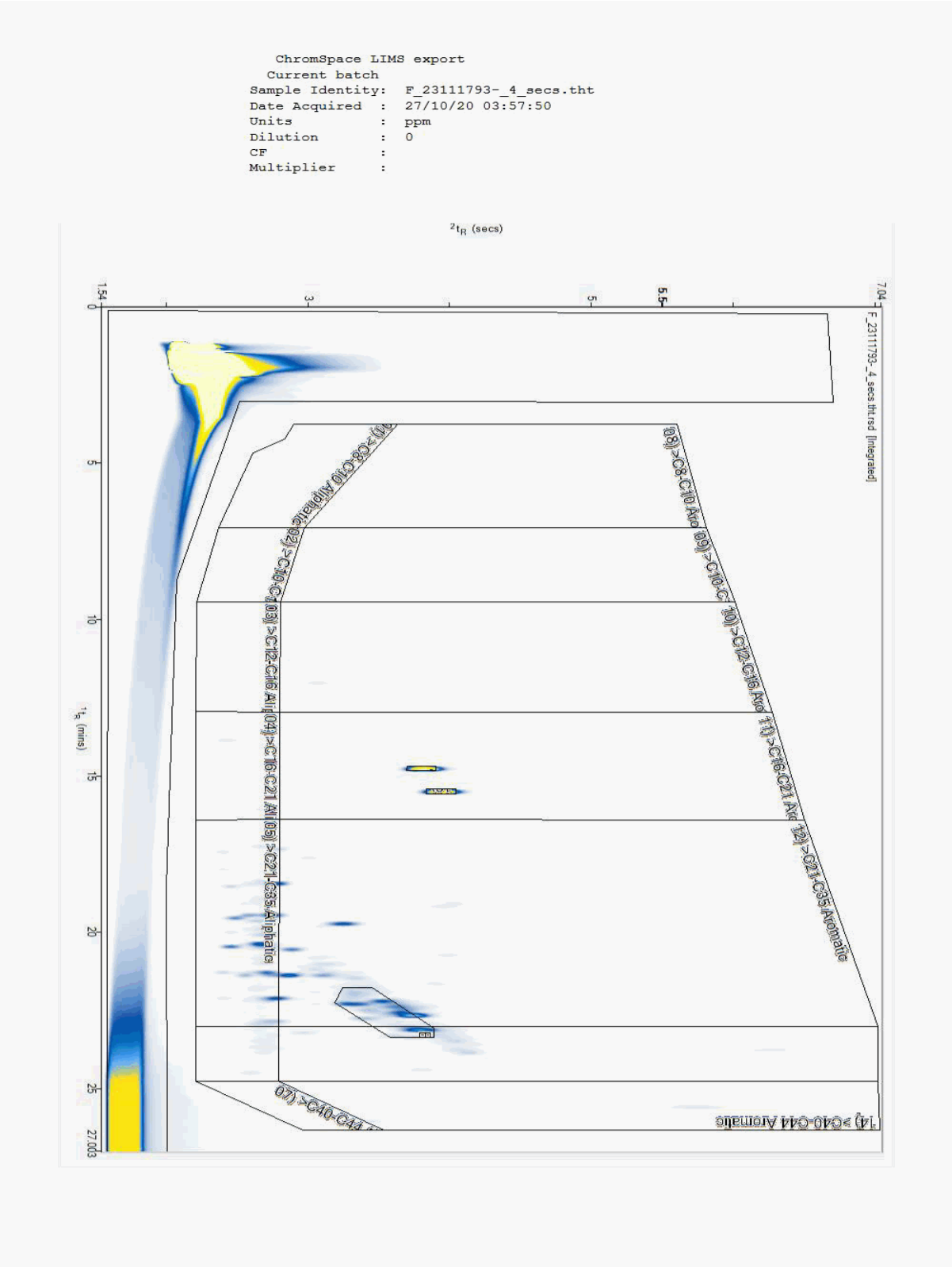
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23111793
Sample ID : TP313

Depth : 1.60 - 1.70



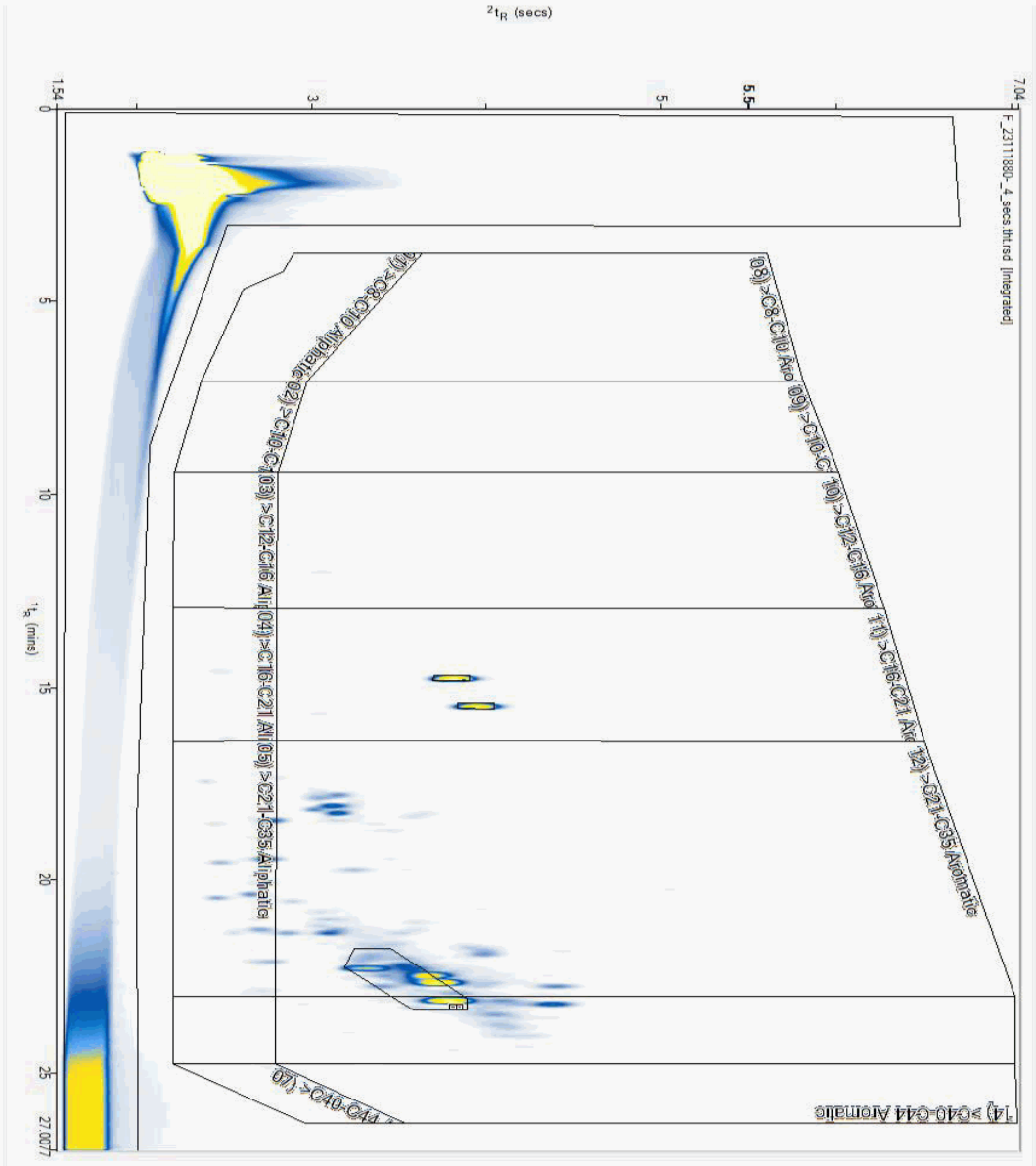
CERTIFICATE OF ANALYSIS

SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23111880 **Depth :** 2.70 - 2.80
Sample ID : TP313

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23111880-_4_secs.tht
Date Acquired   :  27/10/20 06:34:49
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



CERTIFICATE OF ANALYSIS

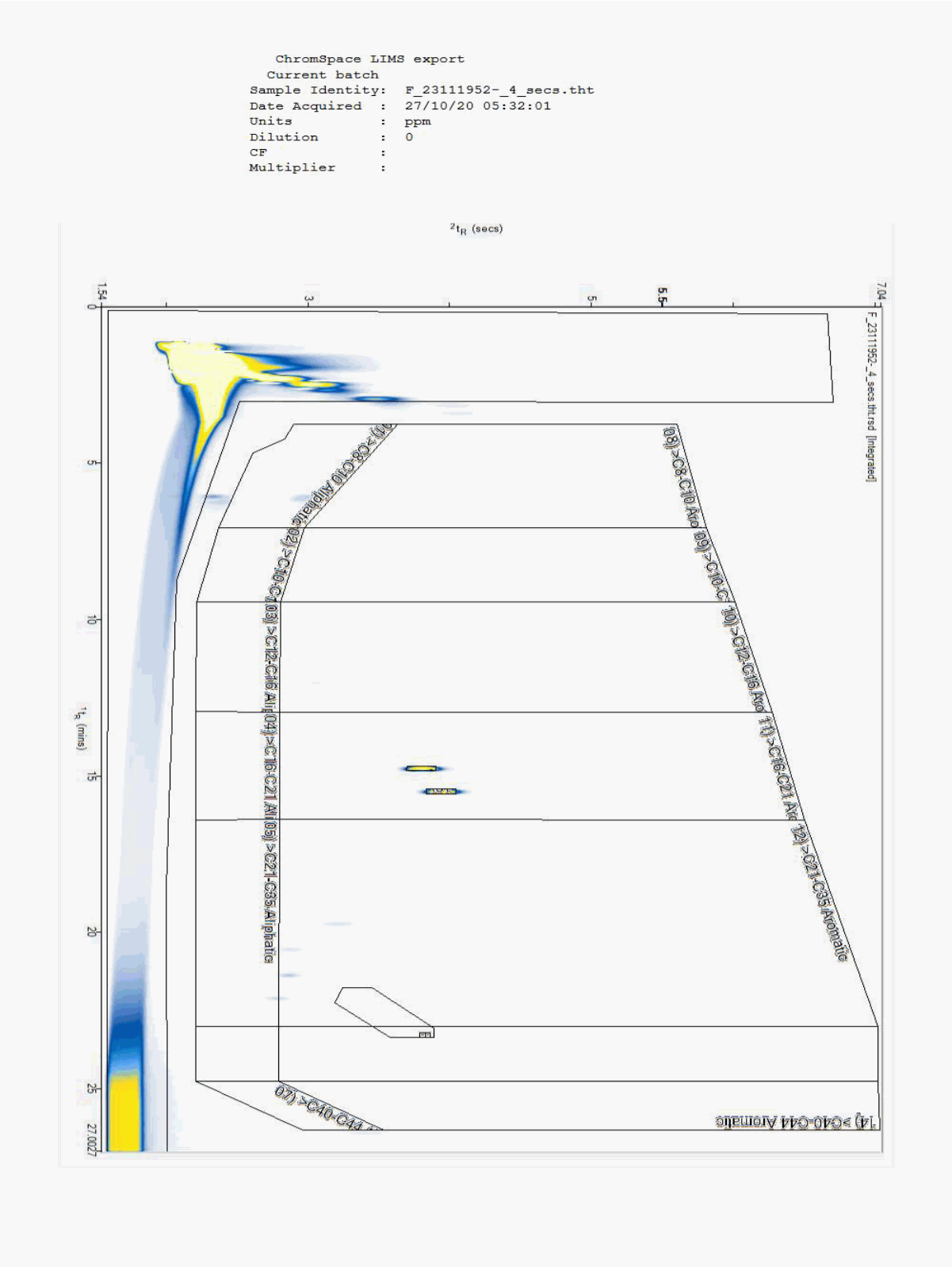
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23111952
Sample ID : TP313

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

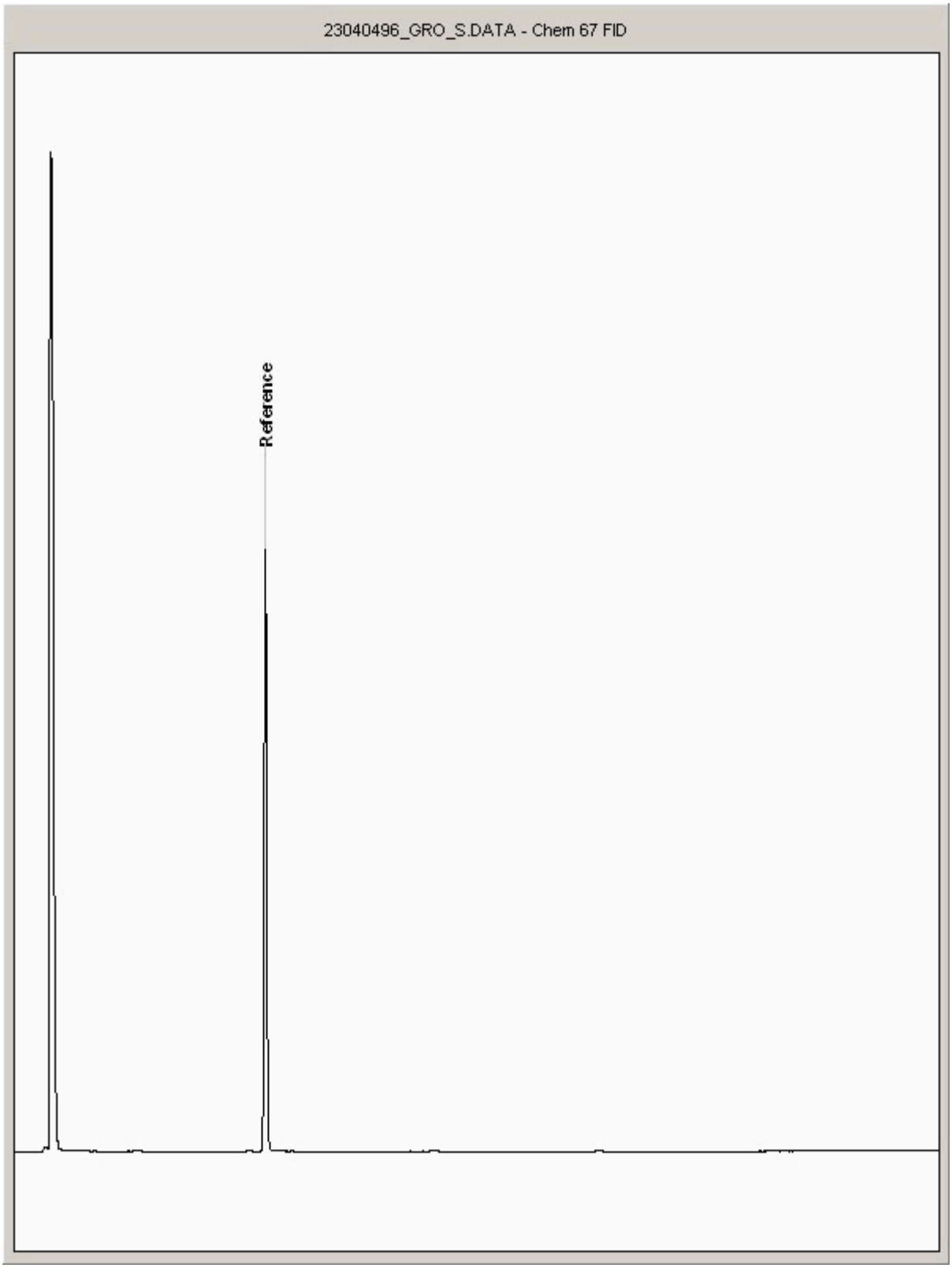
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040496
Sample ID : TP325

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

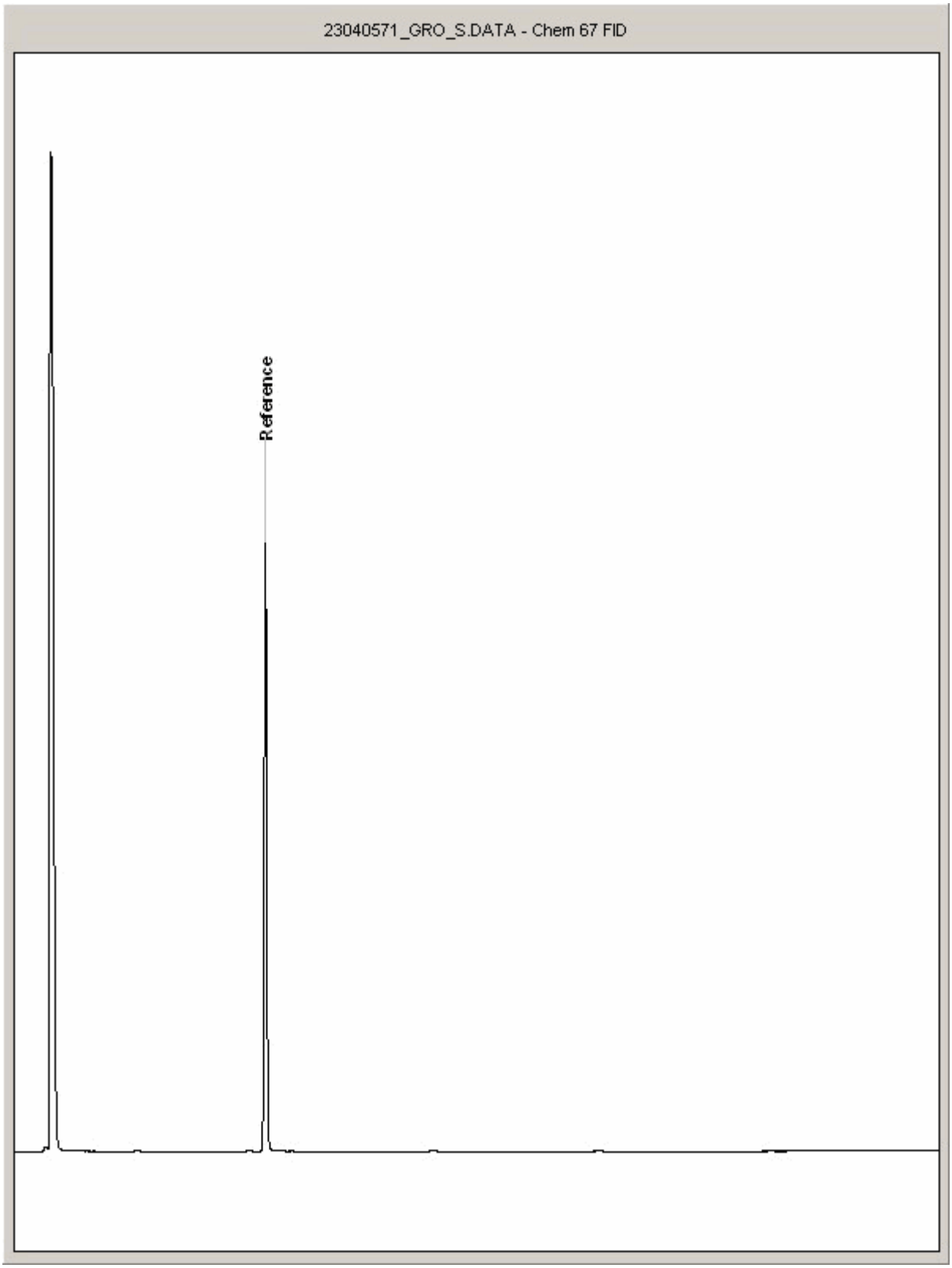
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040571
Sample ID : TP320

Depth : 2.50 - 2.60



CERTIFICATE OF ANALYSIS

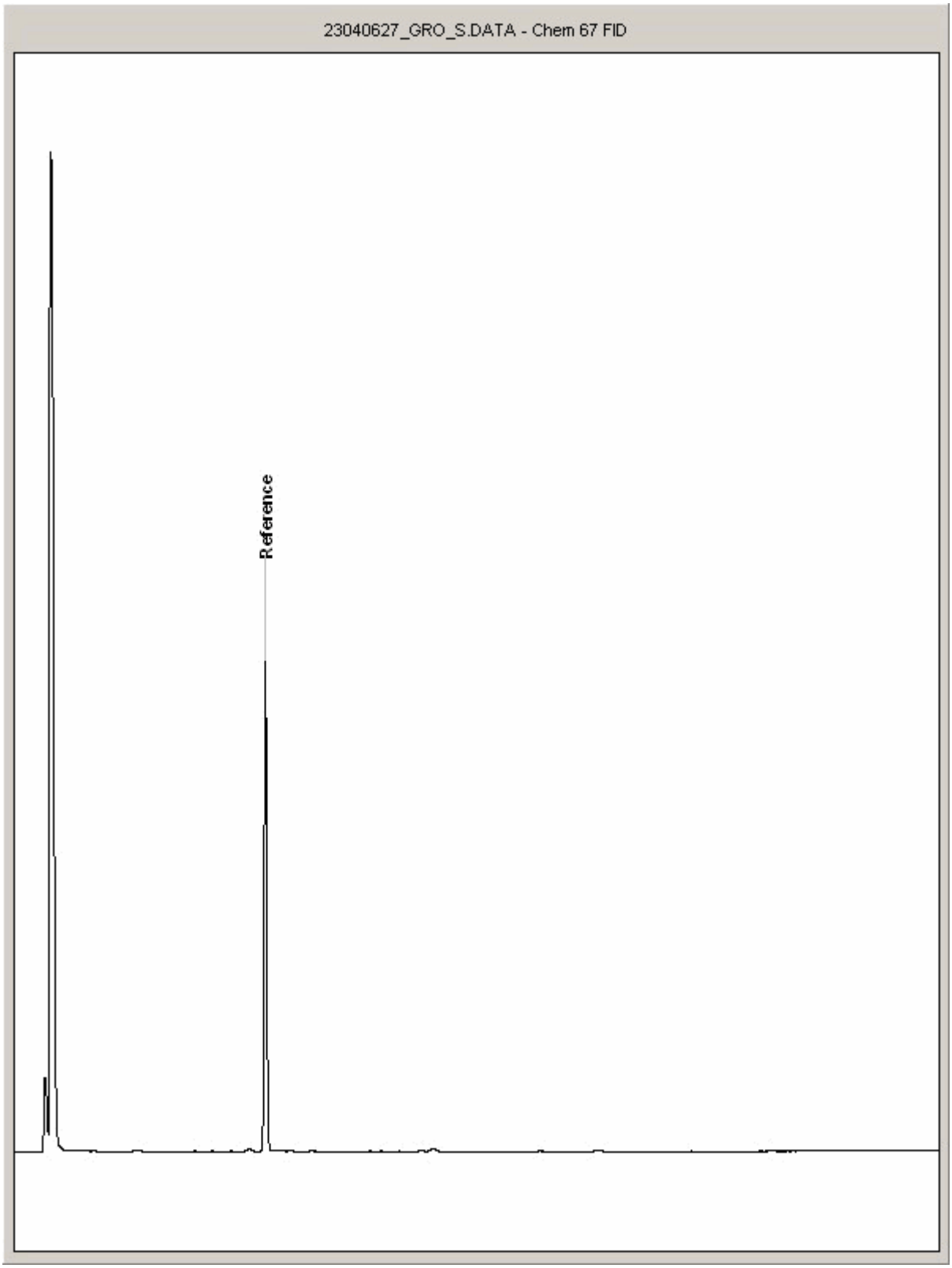
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040627
Sample ID : TP320

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

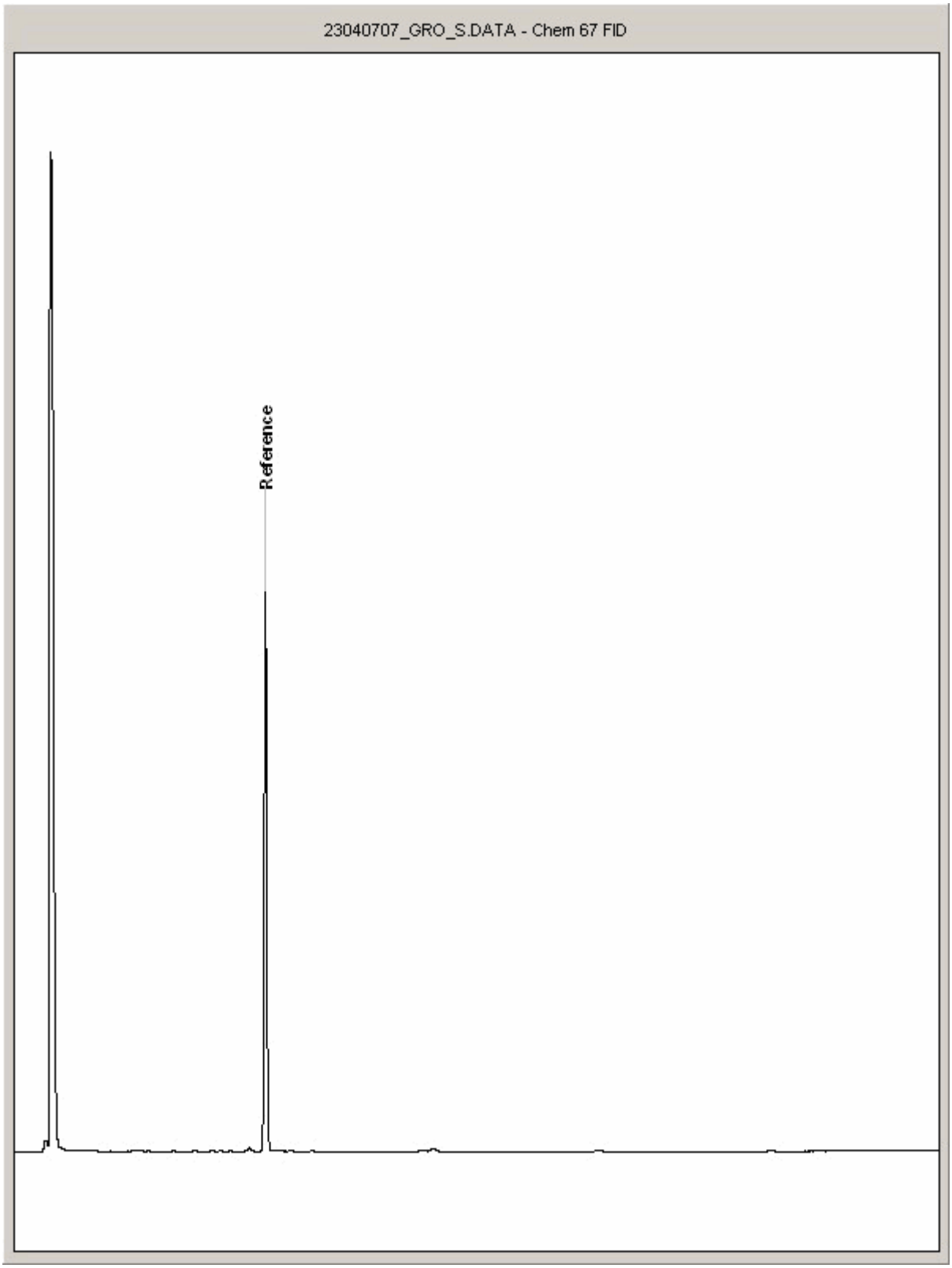
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040707
Sample ID : TP325

Depth : 1.70 - 1.80



CERTIFICATE OF ANALYSIS

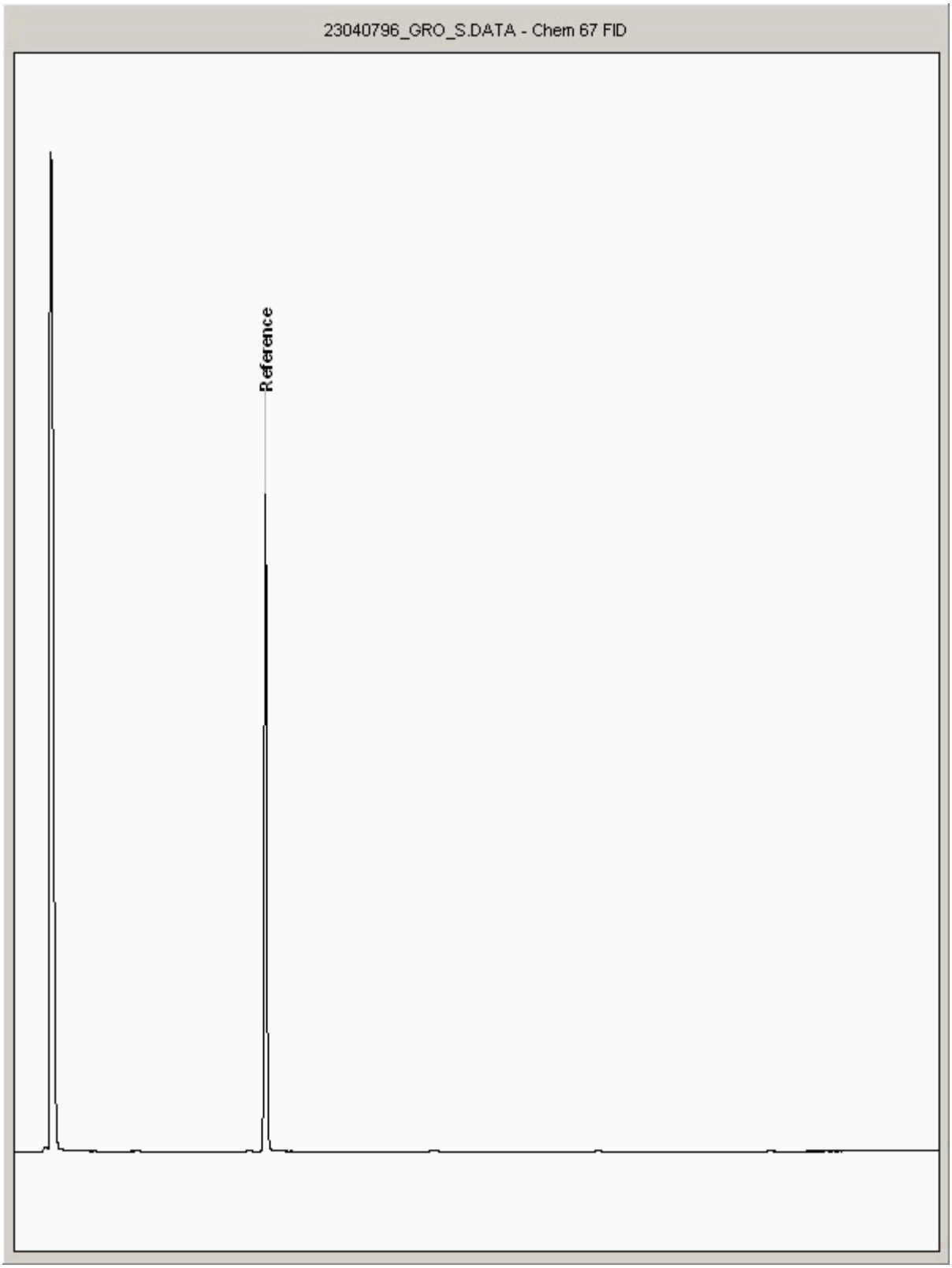
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040796
Sample ID : TP325

Depth : 2.80 - 2.90



CERTIFICATE OF ANALYSIS

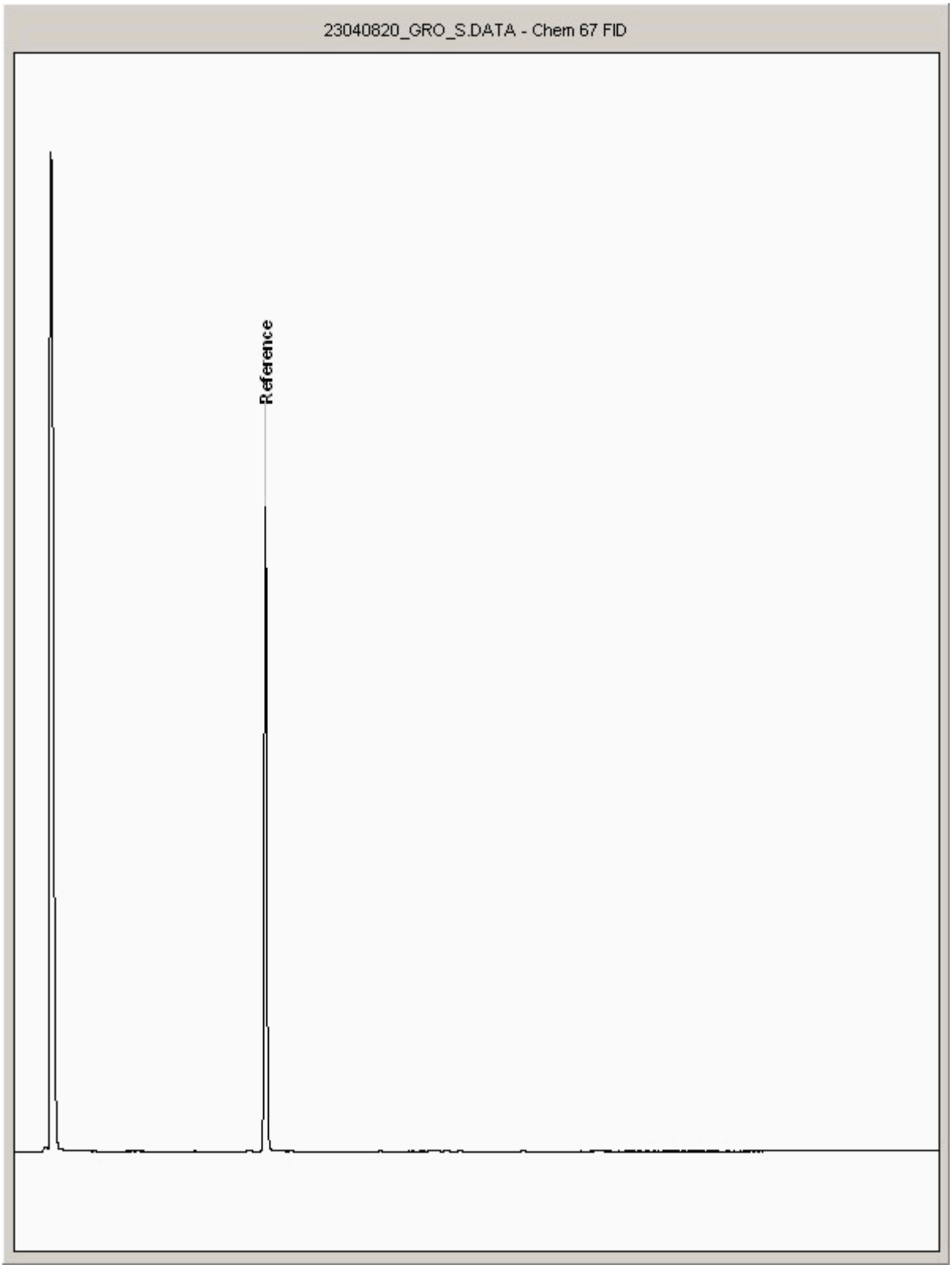
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040820
Sample ID : TP320

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

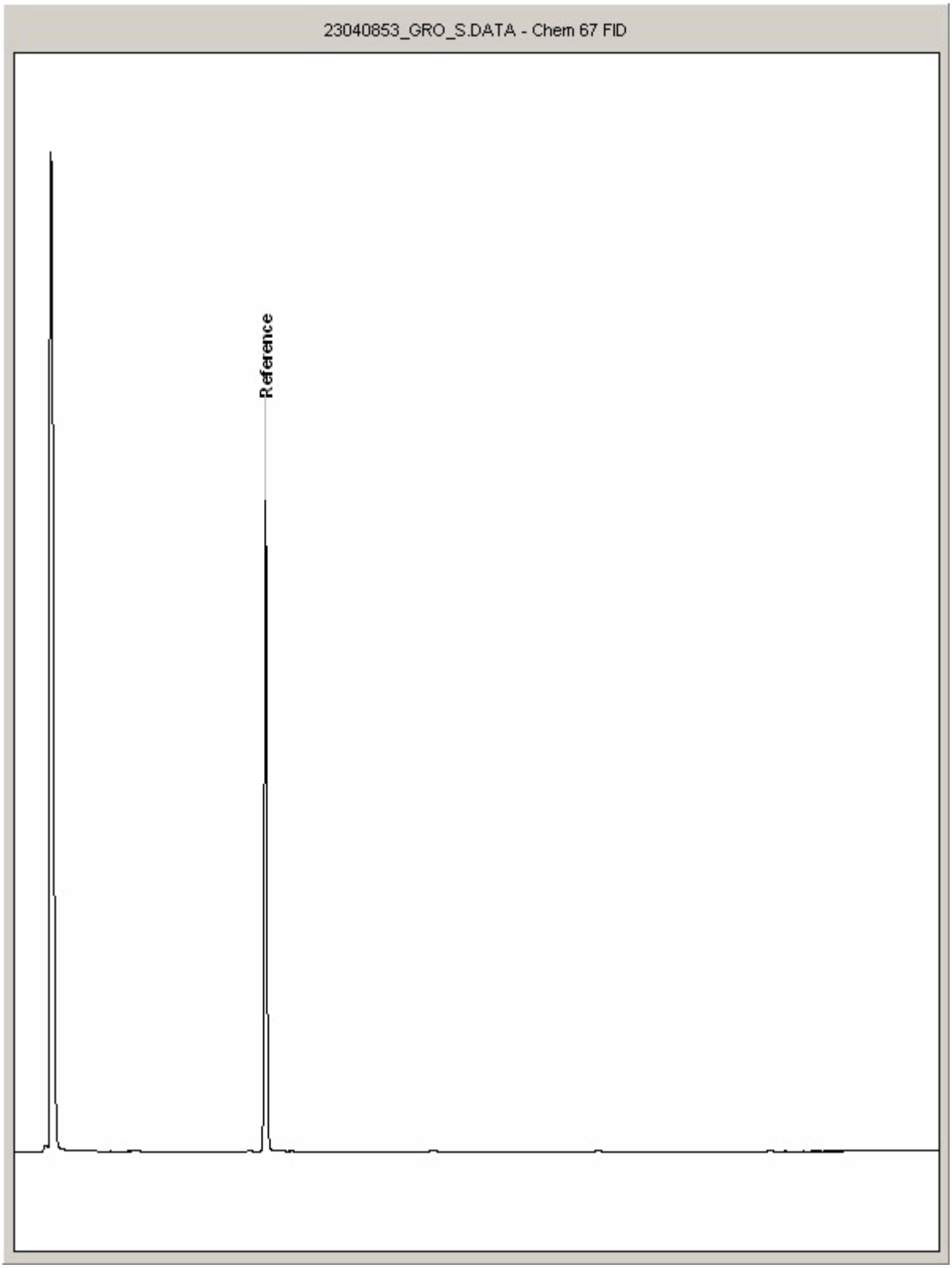
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040853
Sample ID : TP303

Depth : 2.90 - 3.00



CERTIFICATE OF ANALYSIS

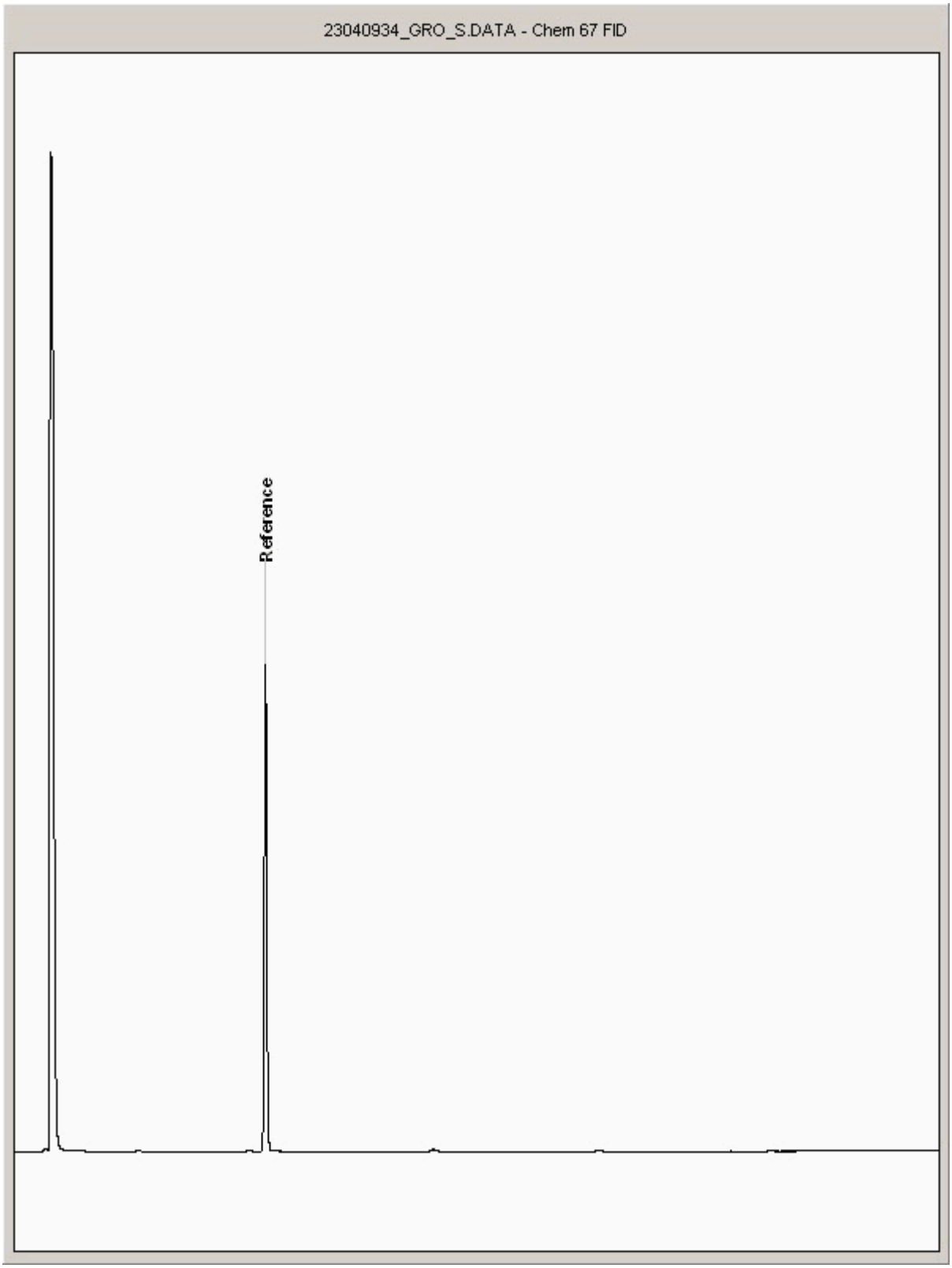
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040934
Sample ID : TP303

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

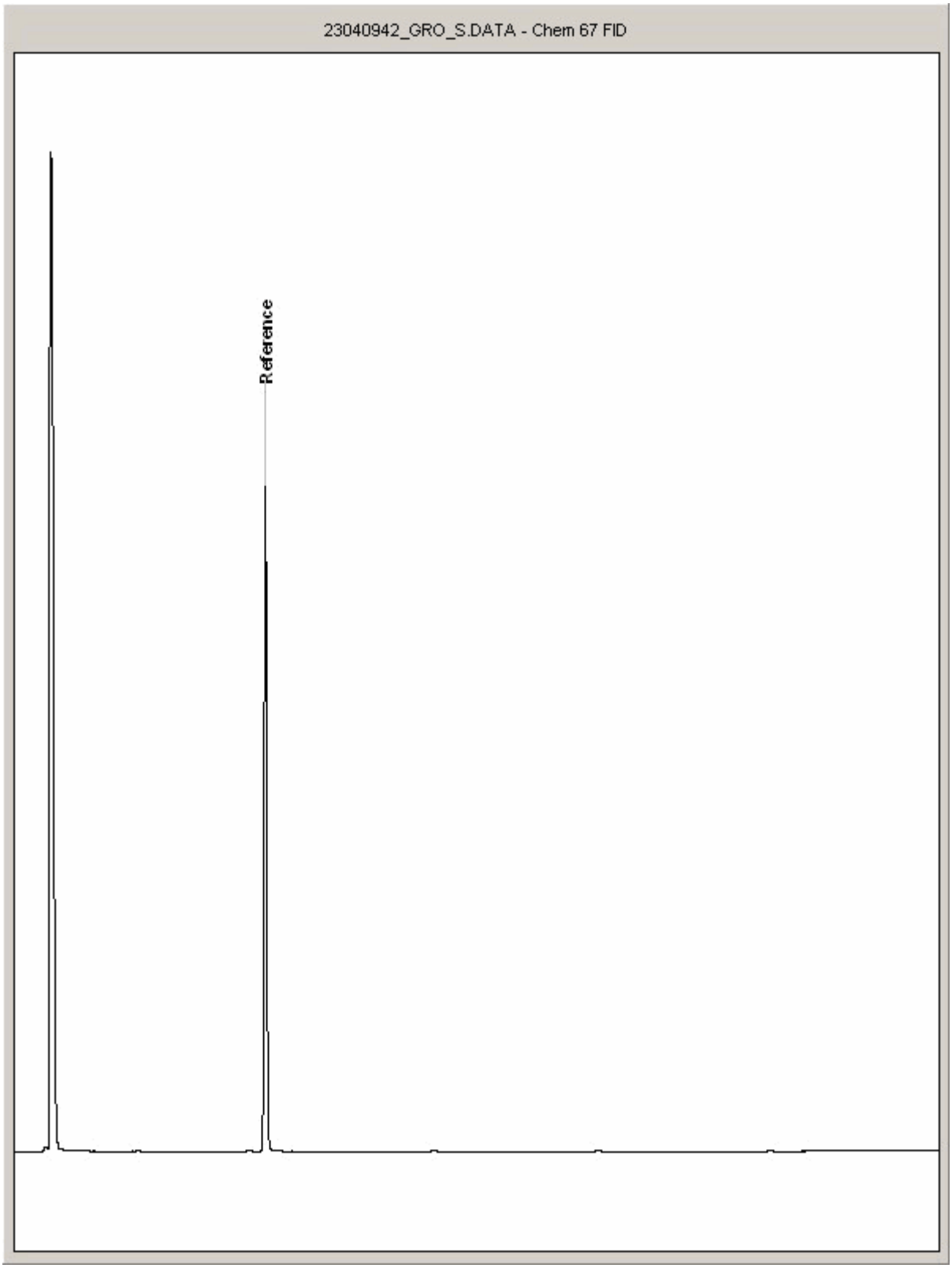
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040942
Sample ID : TP305

Depth : 2.80 - 2.90



CERTIFICATE OF ANALYSIS

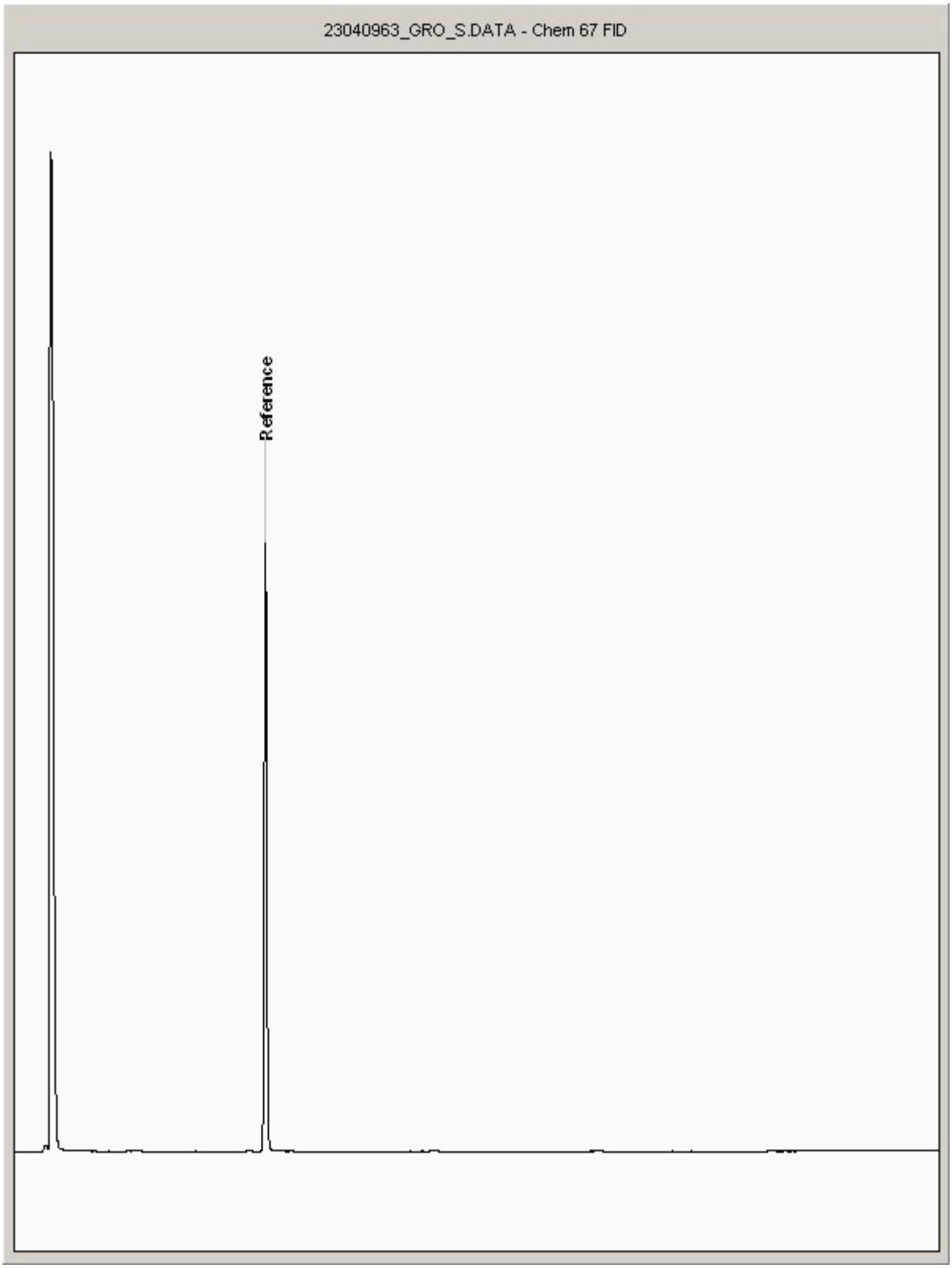
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040963
Sample ID : TP305

Depth : 0.90 - 1.00



CERTIFICATE OF ANALYSIS

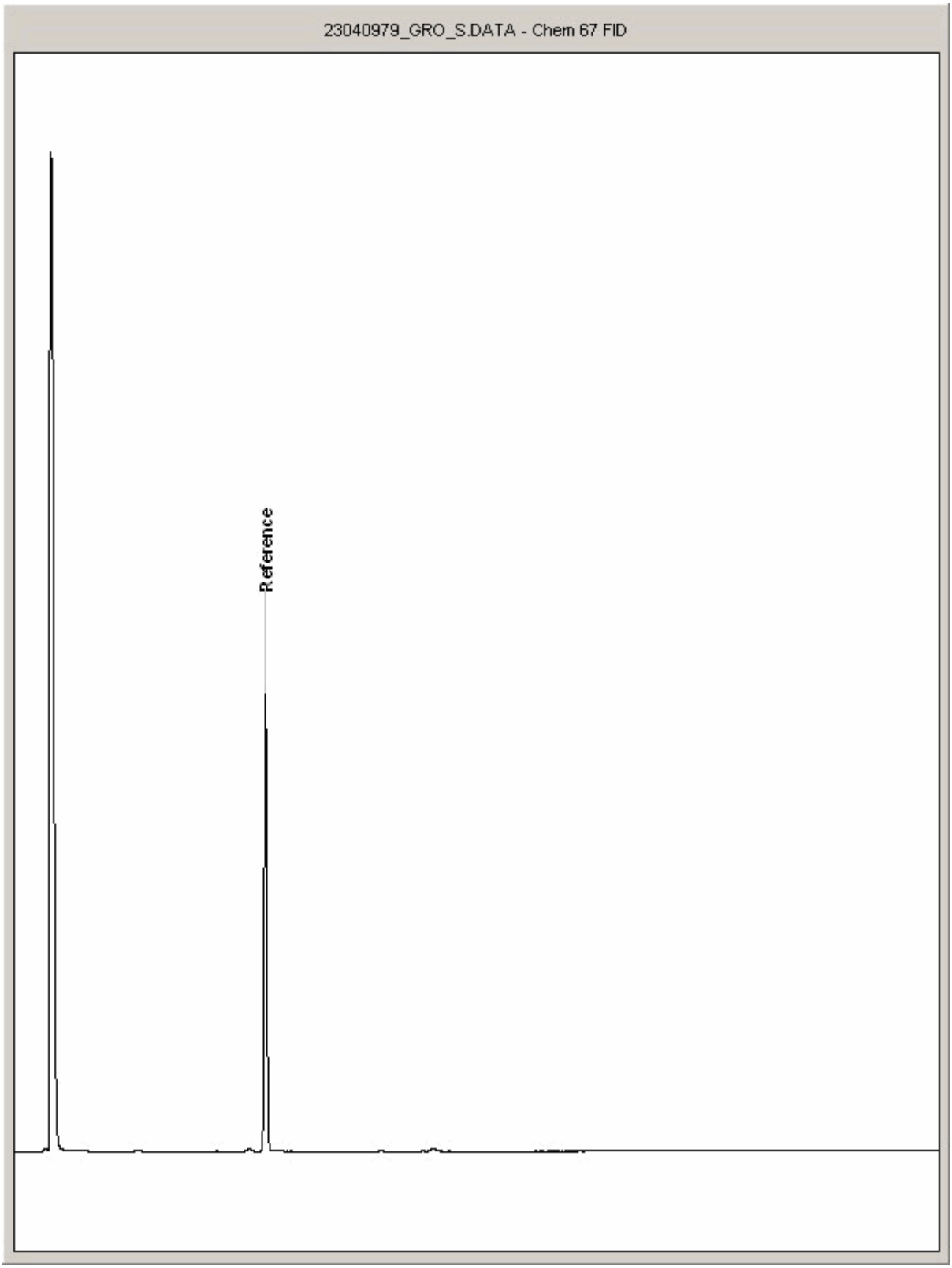
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23040979
Sample ID : TP303

Depth : 1.40 - 1.50



CERTIFICATE OF ANALYSIS

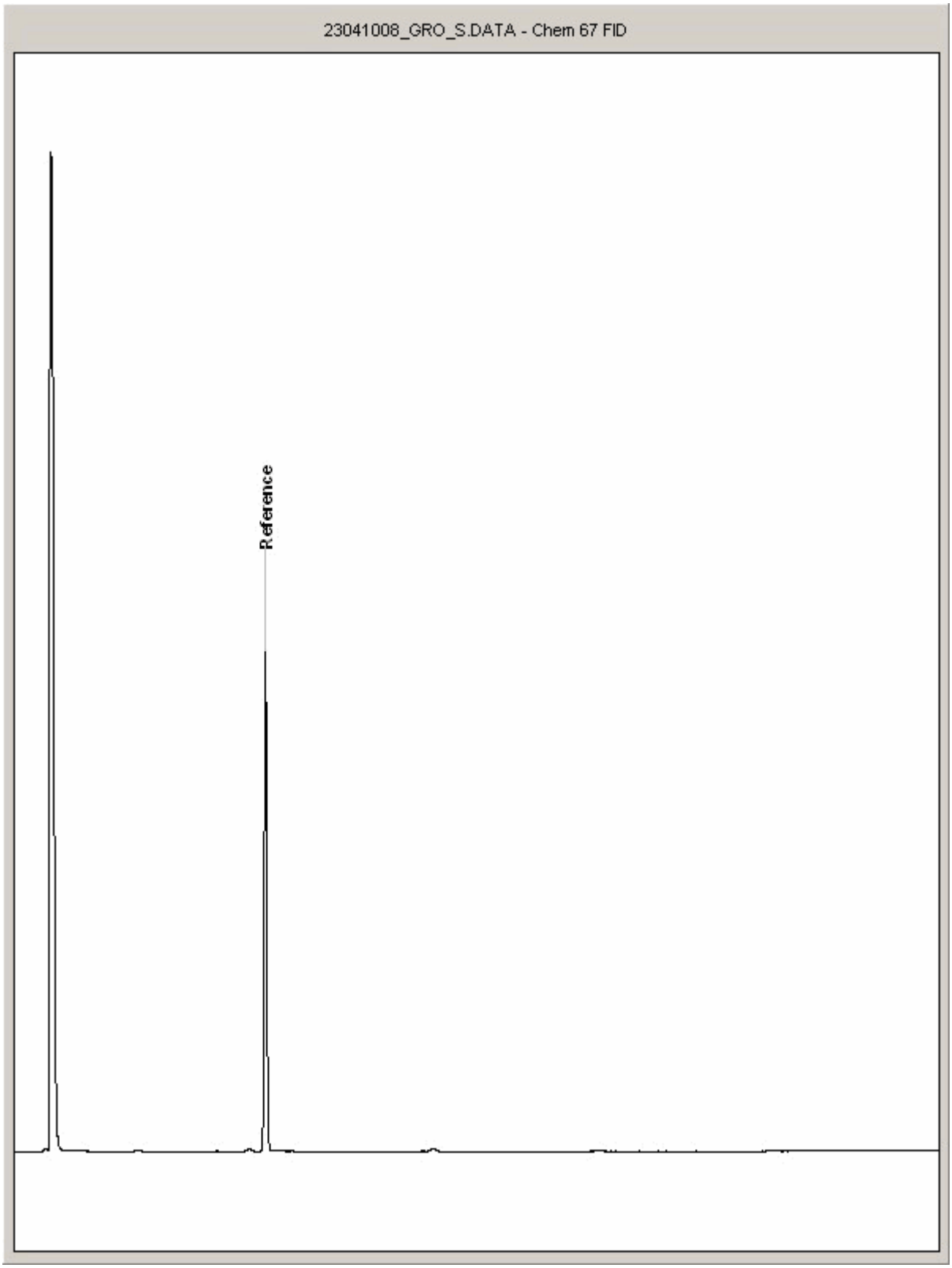
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041008
Sample ID : TP303

Depth : 0.90 - 1.00



CERTIFICATE OF ANALYSIS

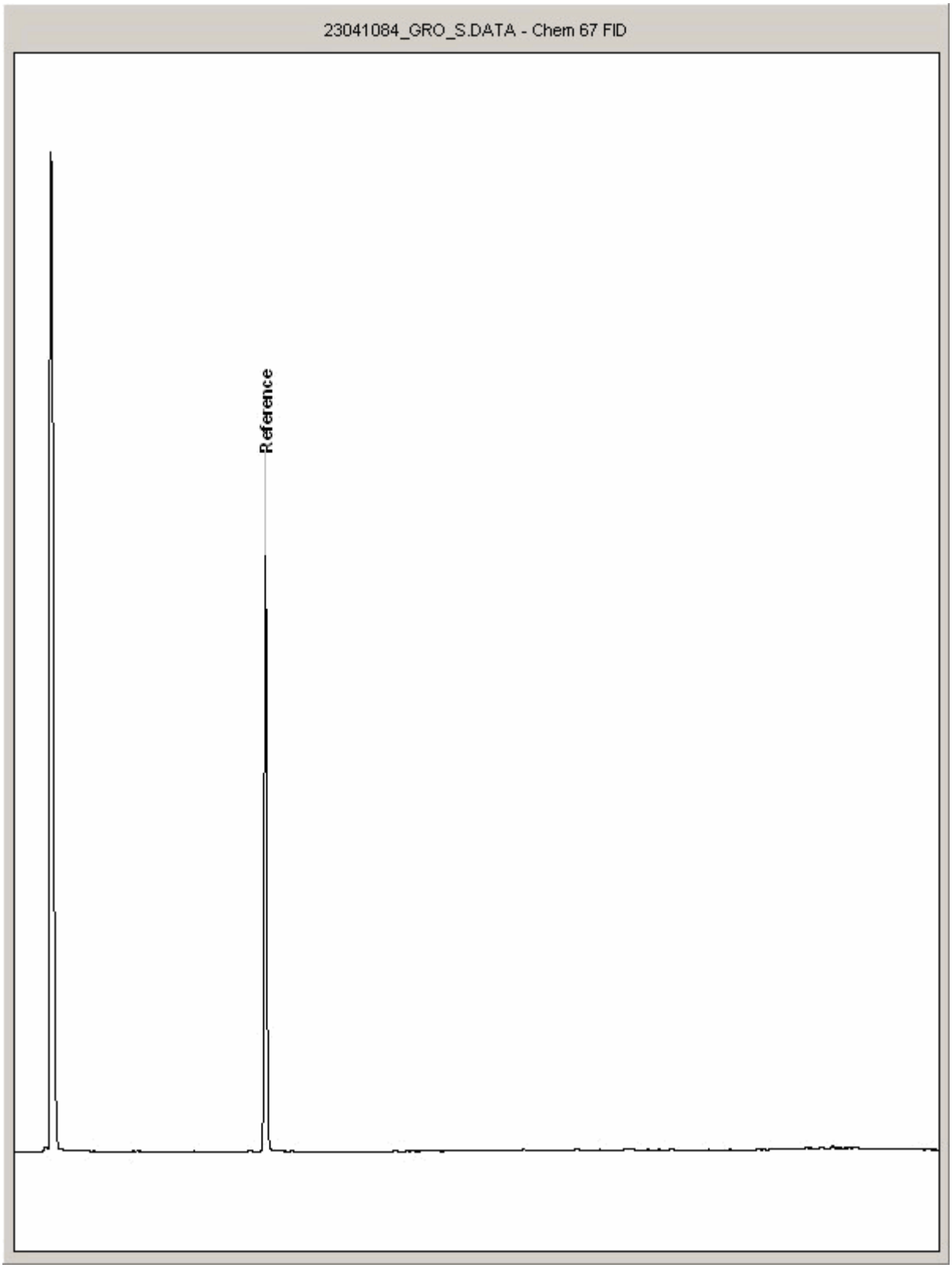
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041084
Sample ID : TP305

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

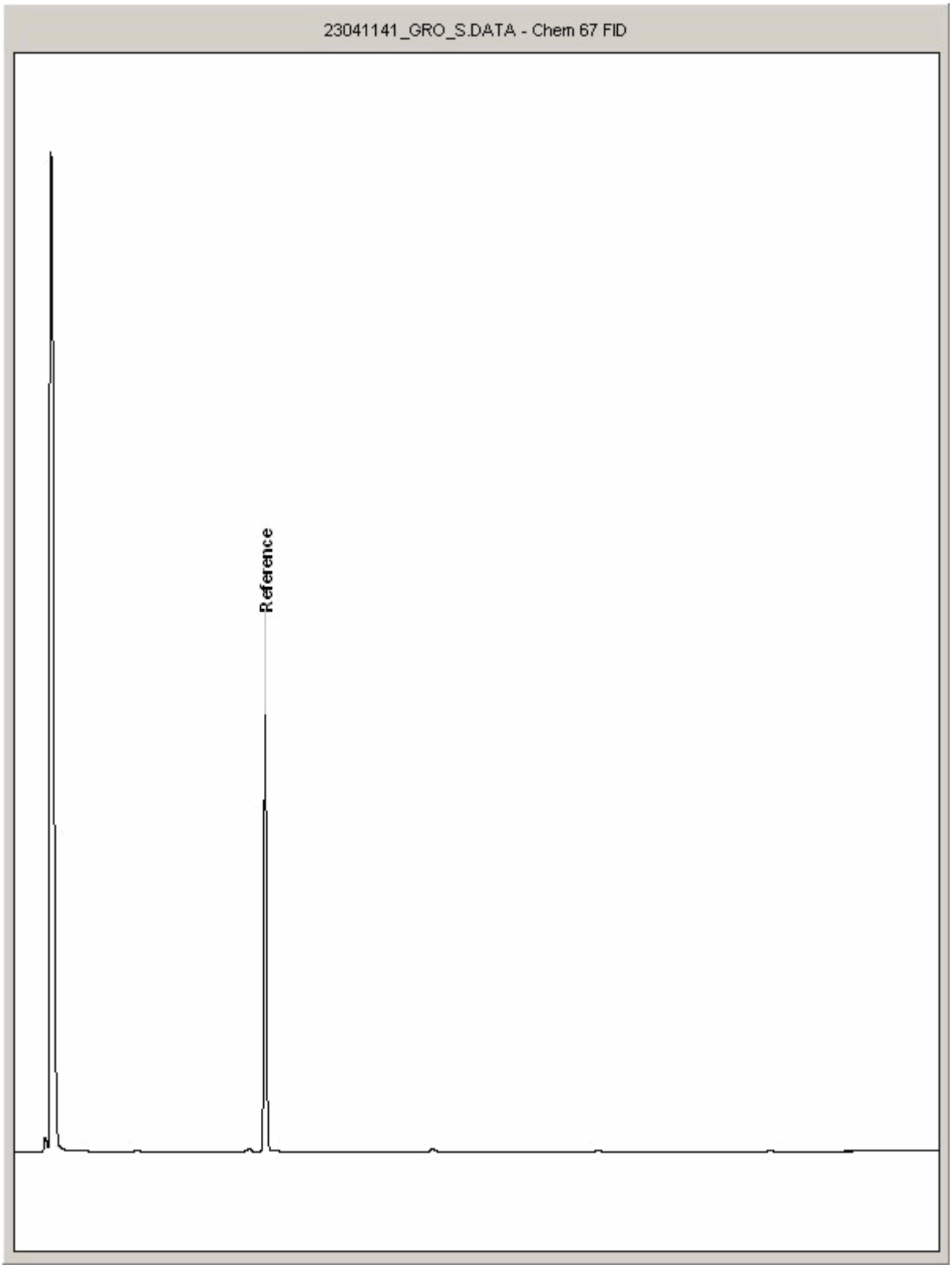
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041141
Sample ID : TP306

Depth : 2.80



CERTIFICATE OF ANALYSIS

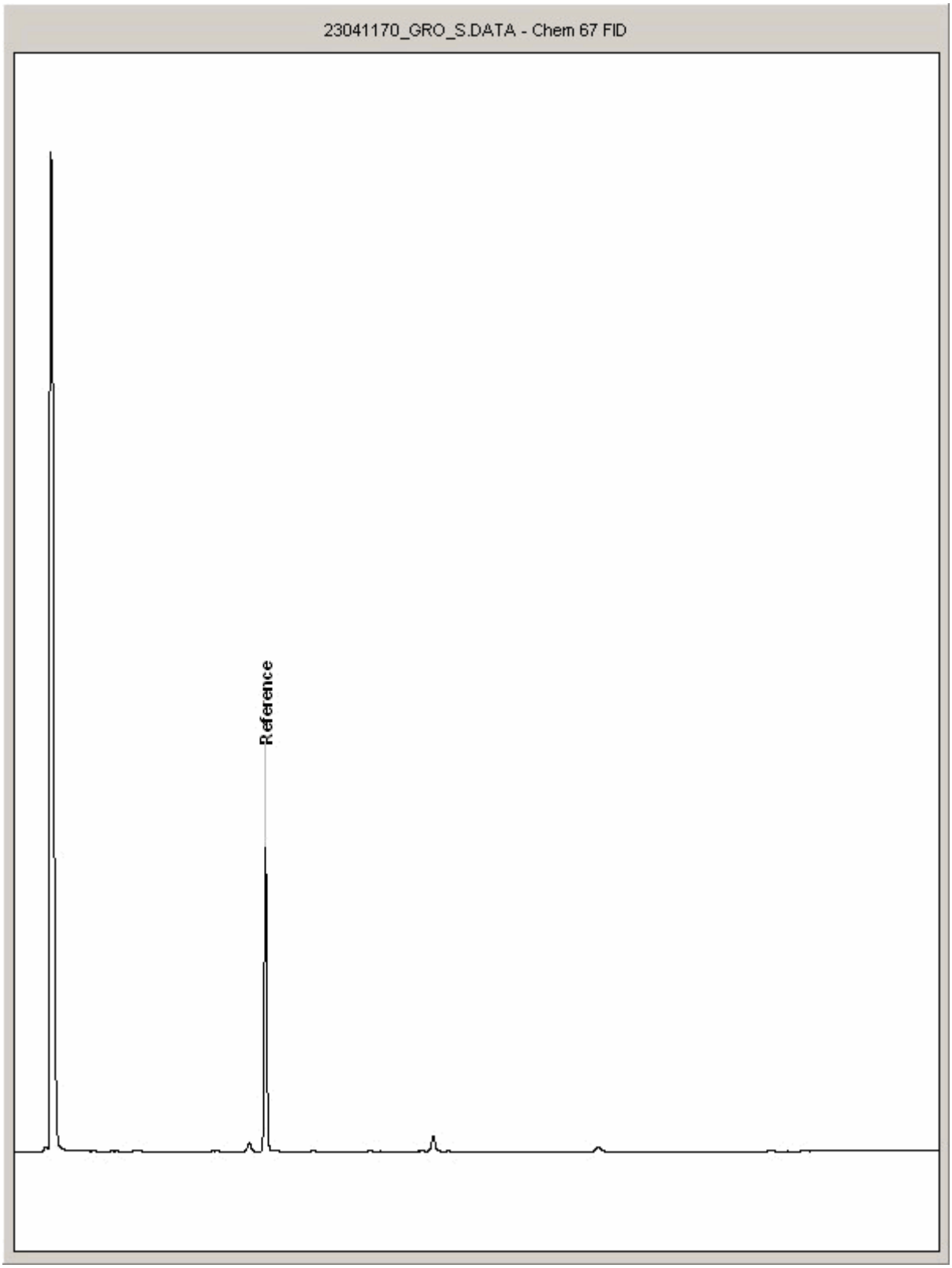
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041170
Sample ID : BH301

Depth : 3.00 - 3.50



CERTIFICATE OF ANALYSIS

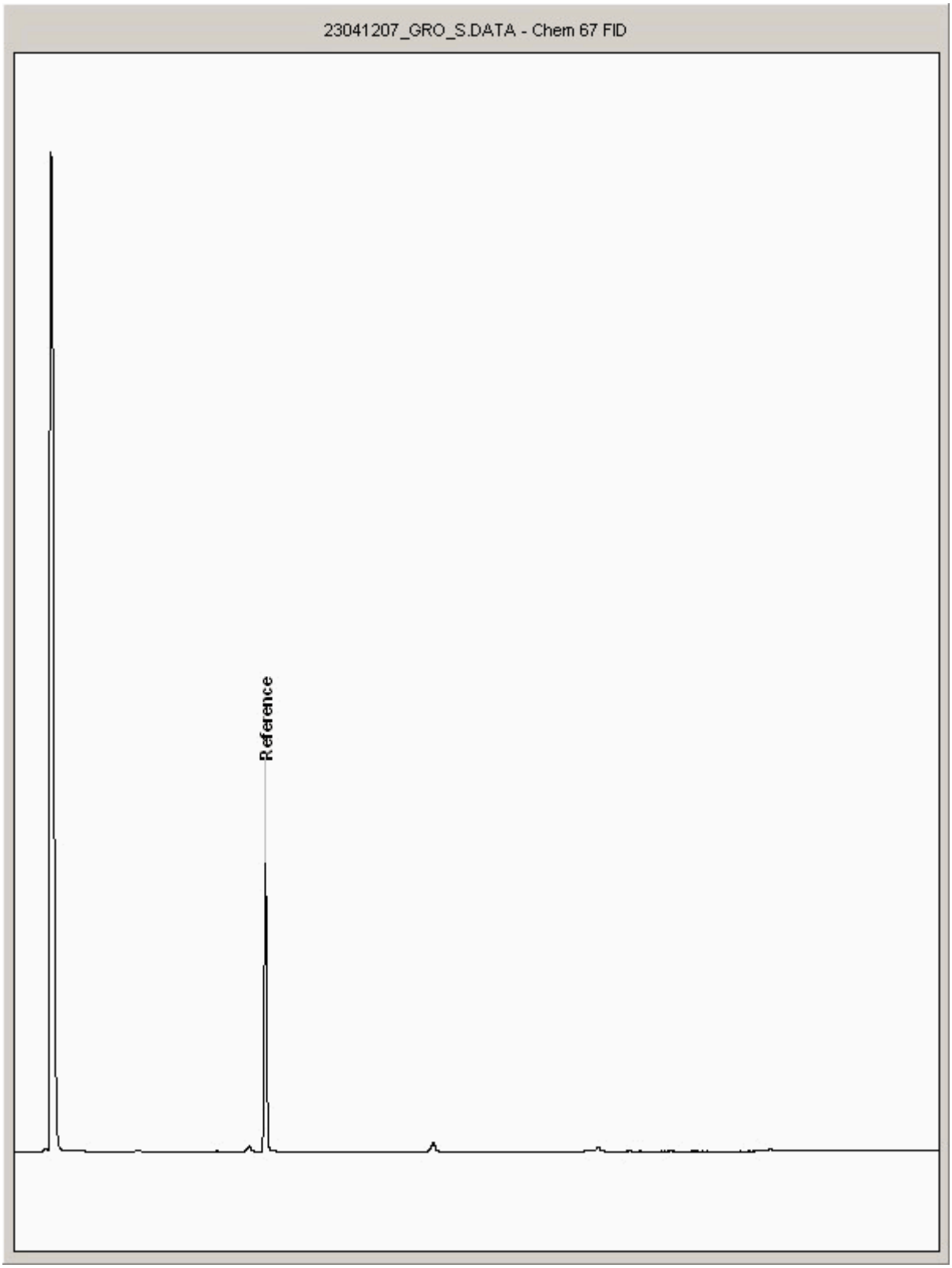
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041207
Sample ID : TP306

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

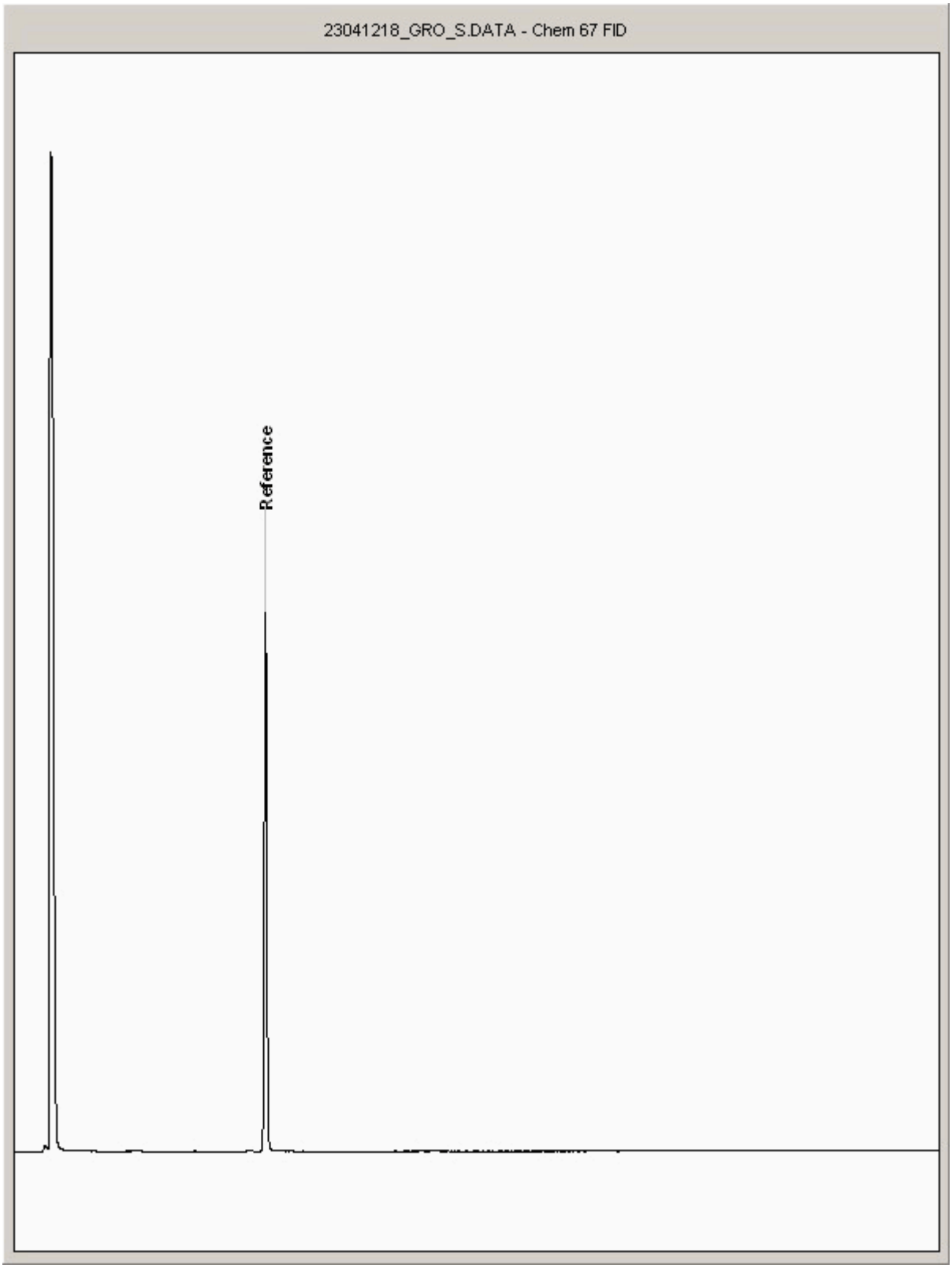
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Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041218
Sample ID : TP306

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

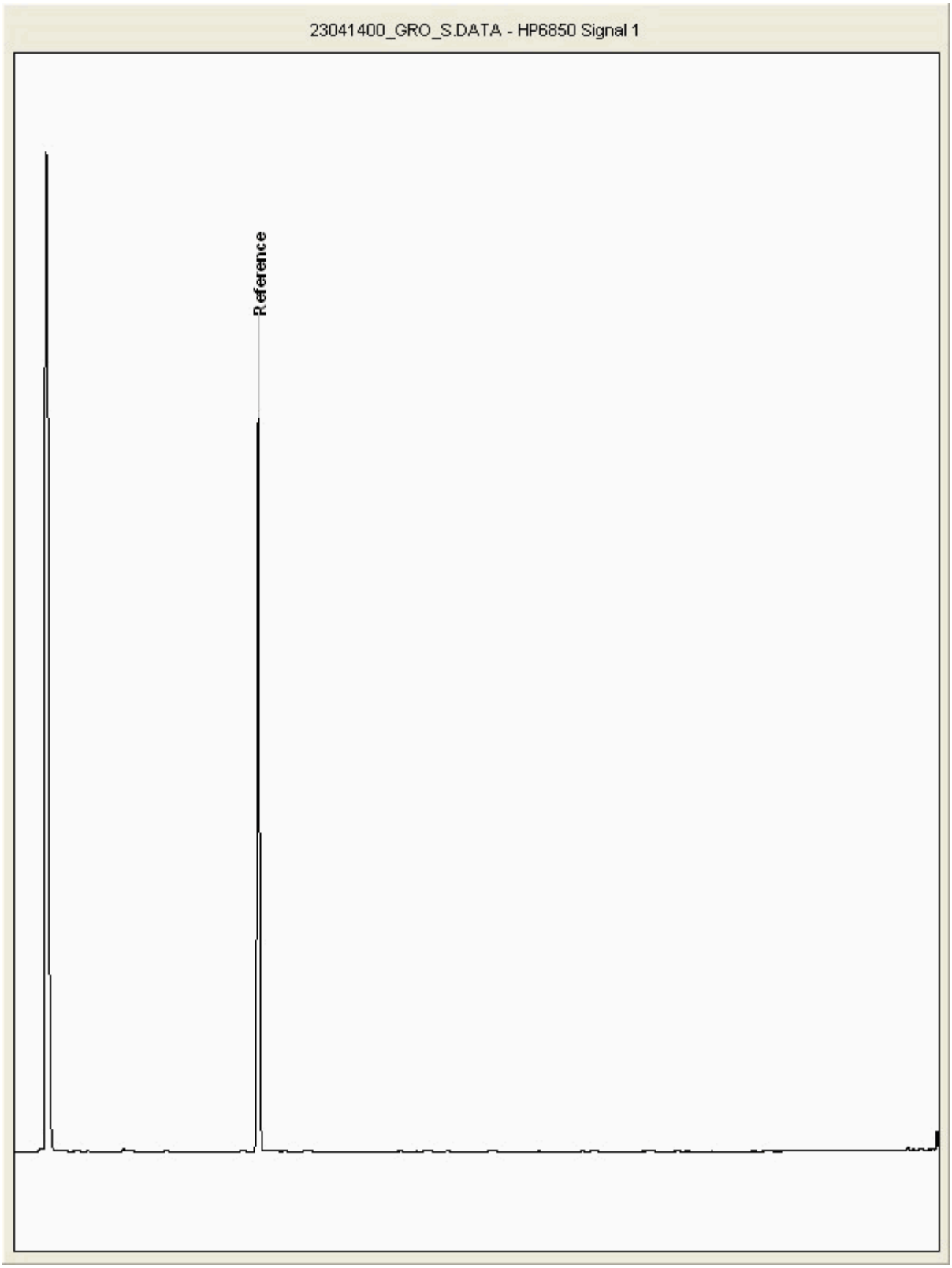
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041400
Sample ID : TP320

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

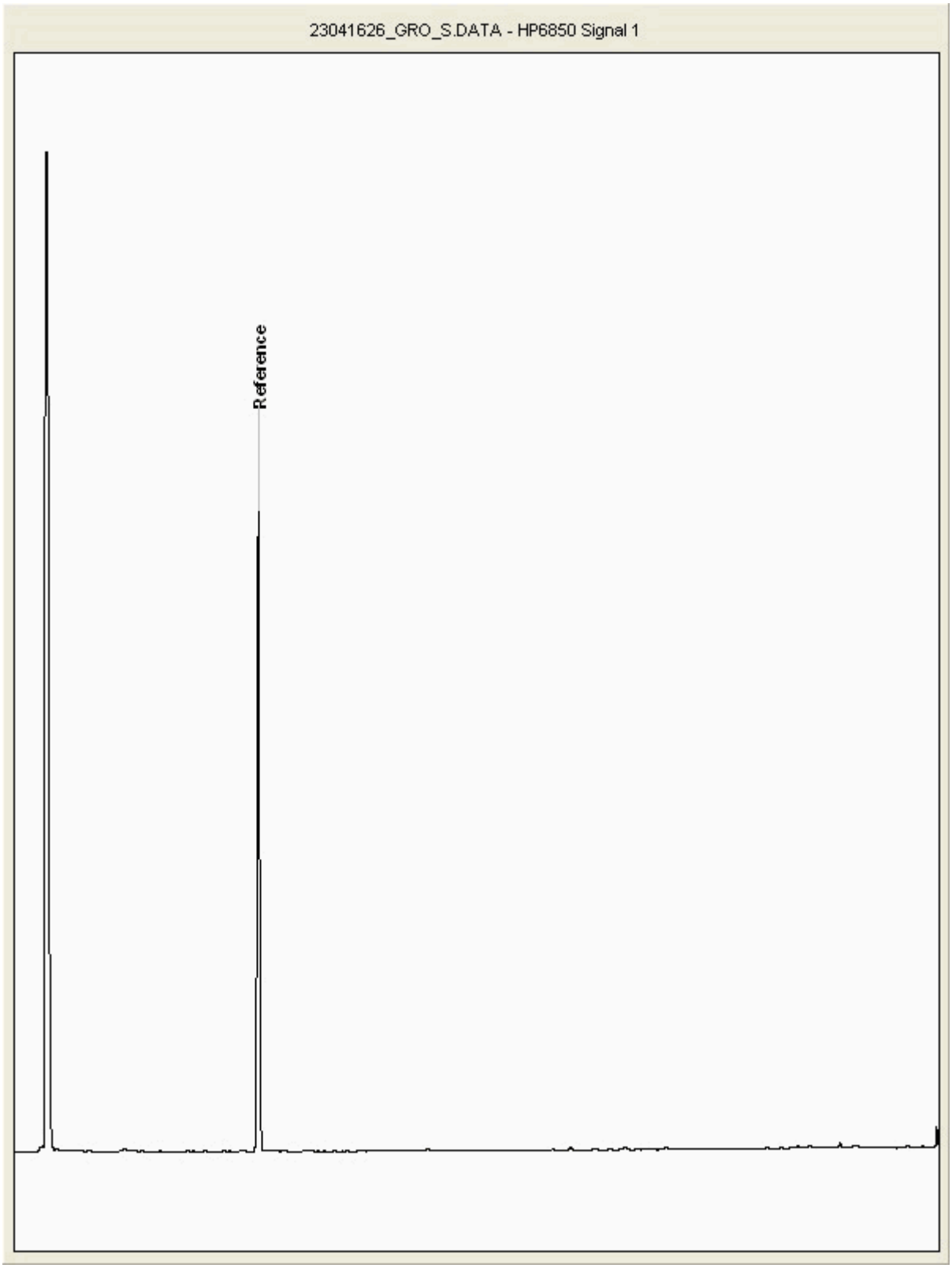
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041626
Sample ID : BH301

Depth : 1.00 - 1.50



CERTIFICATE OF ANALYSIS

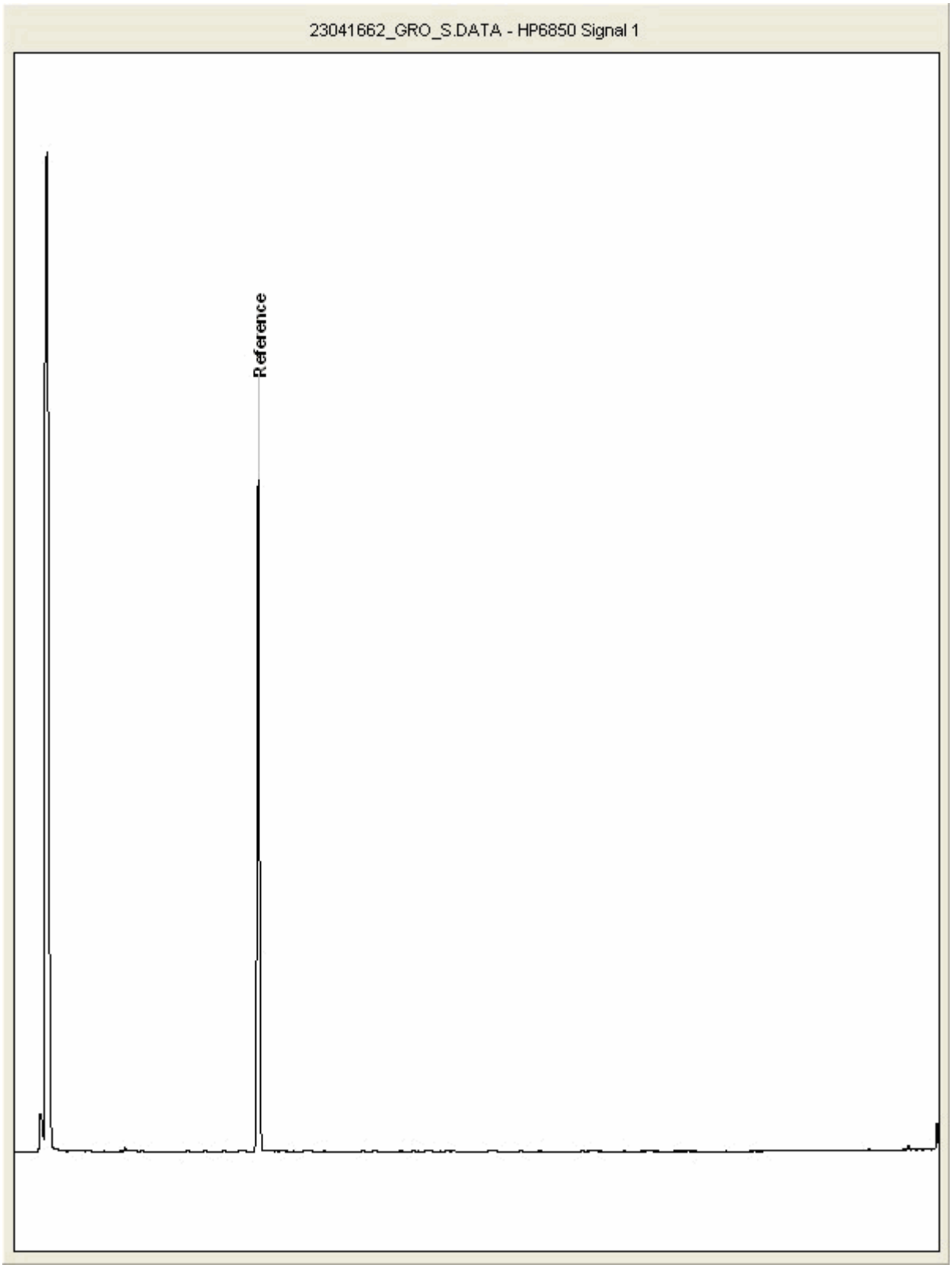
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041662
Sample ID : TP306

Depth : 1.80 - 1.90



CERTIFICATE OF ANALYSIS

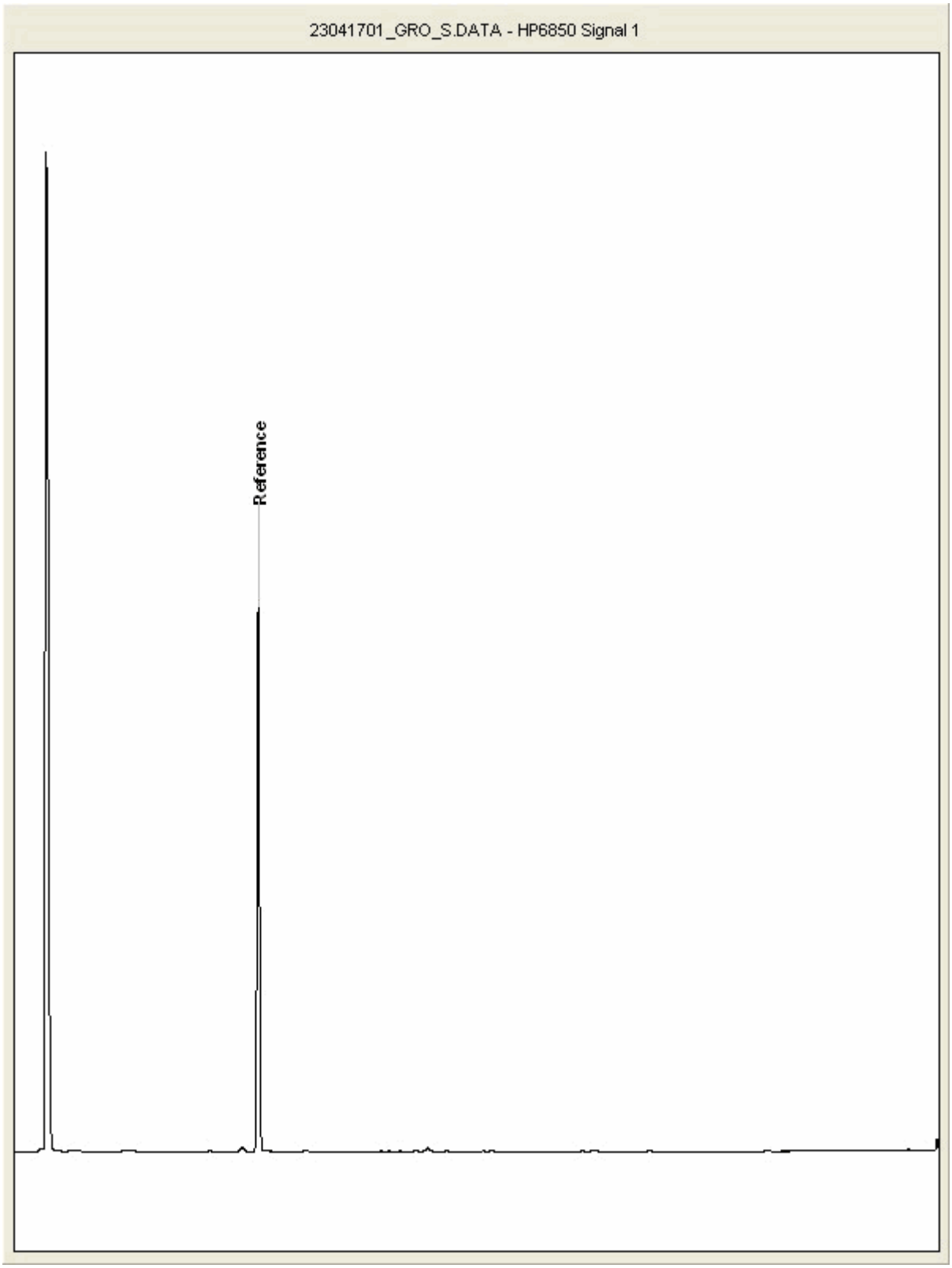
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23041701
Sample ID : BH301

Depth : 2.00 - 2.50



CERTIFICATE OF ANALYSIS

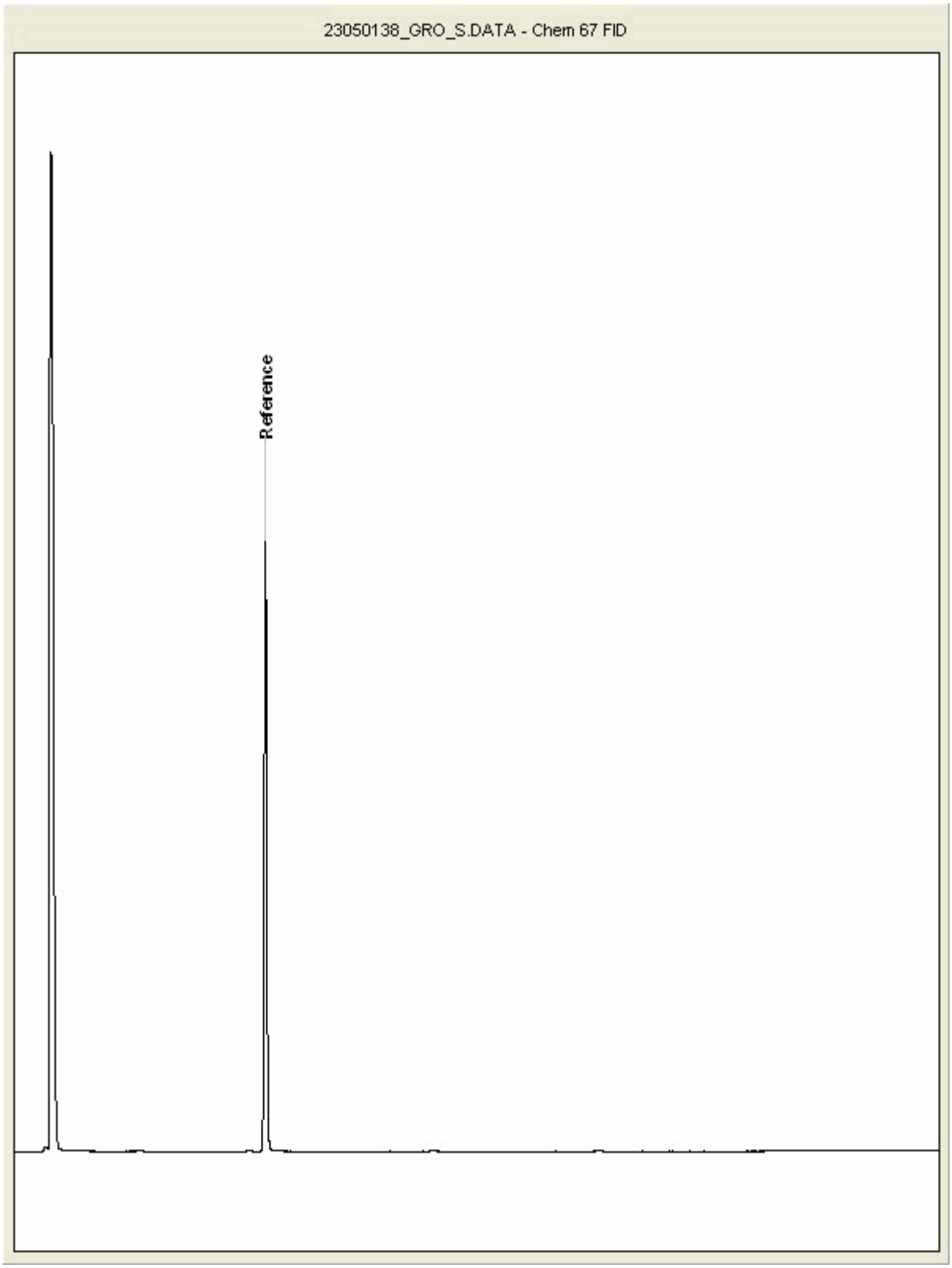
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23050138
Sample ID : TP325

Depth : 0.90 - 1.00



CERTIFICATE OF ANALYSIS

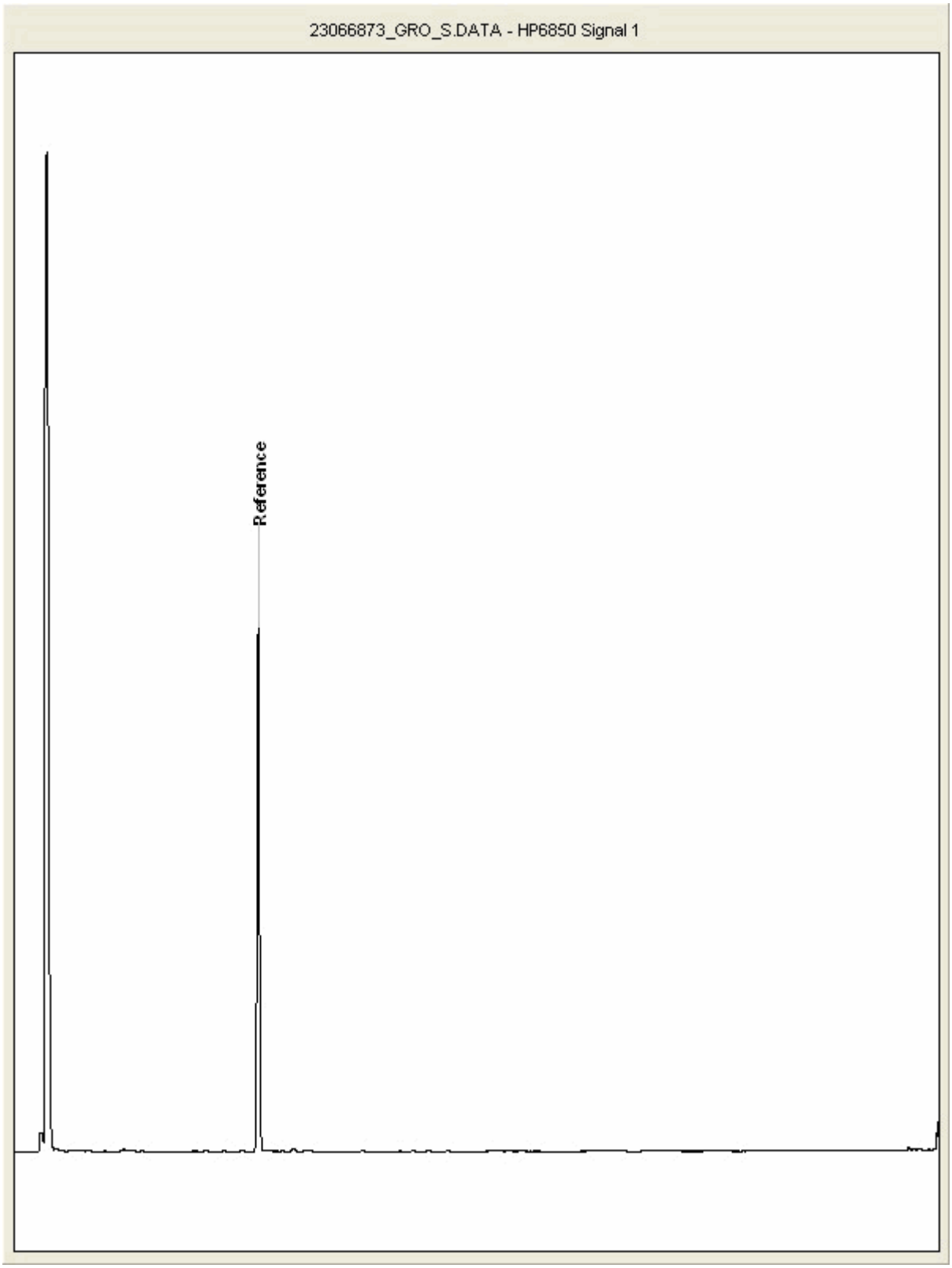
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23066873
Sample ID : TP305

Depth : 1.90 - 2.00



CERTIFICATE OF ANALYSIS

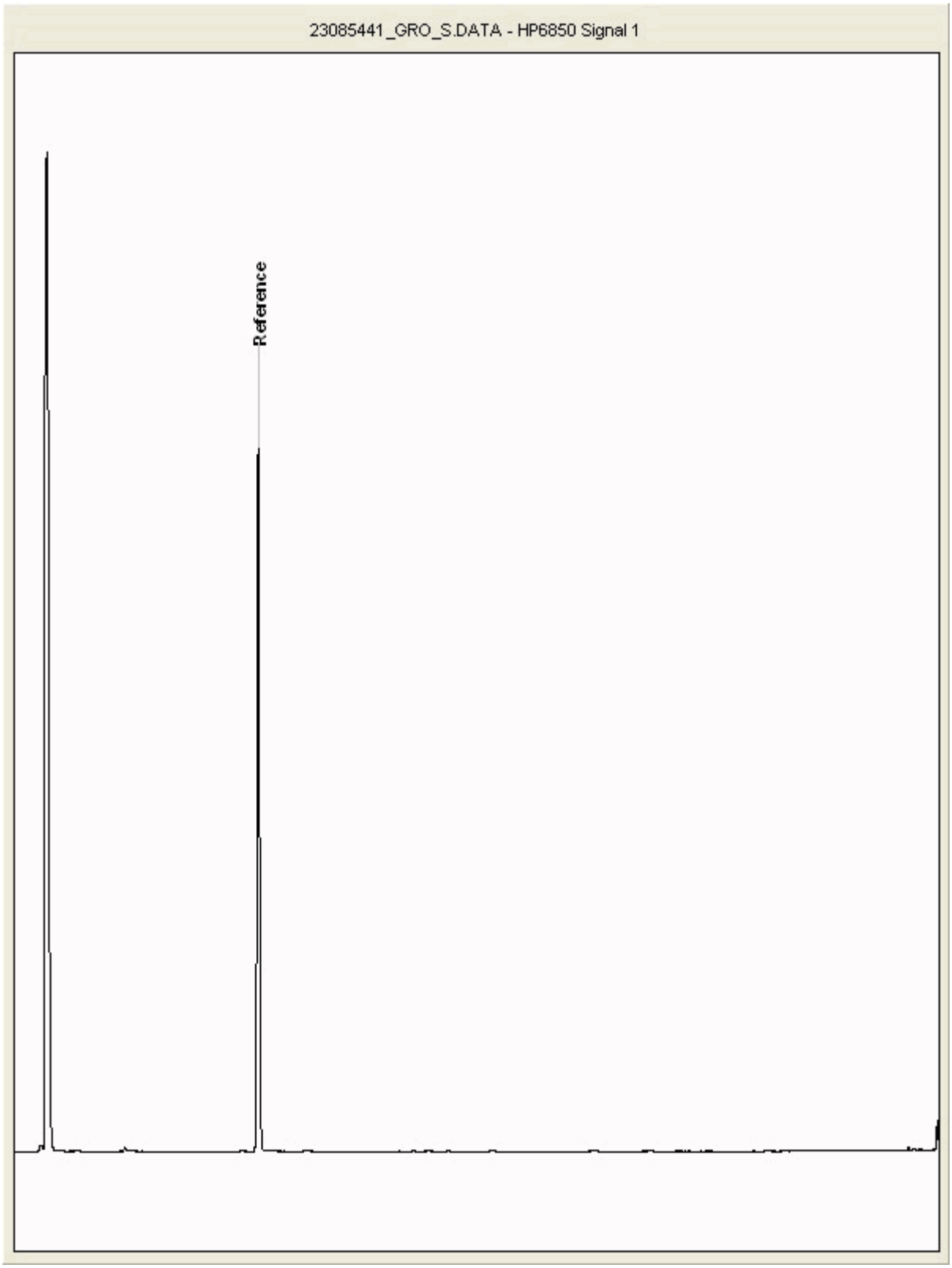
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23085441
Sample ID : TP313

Depth : 2.70 - 2.80



CERTIFICATE OF ANALYSIS

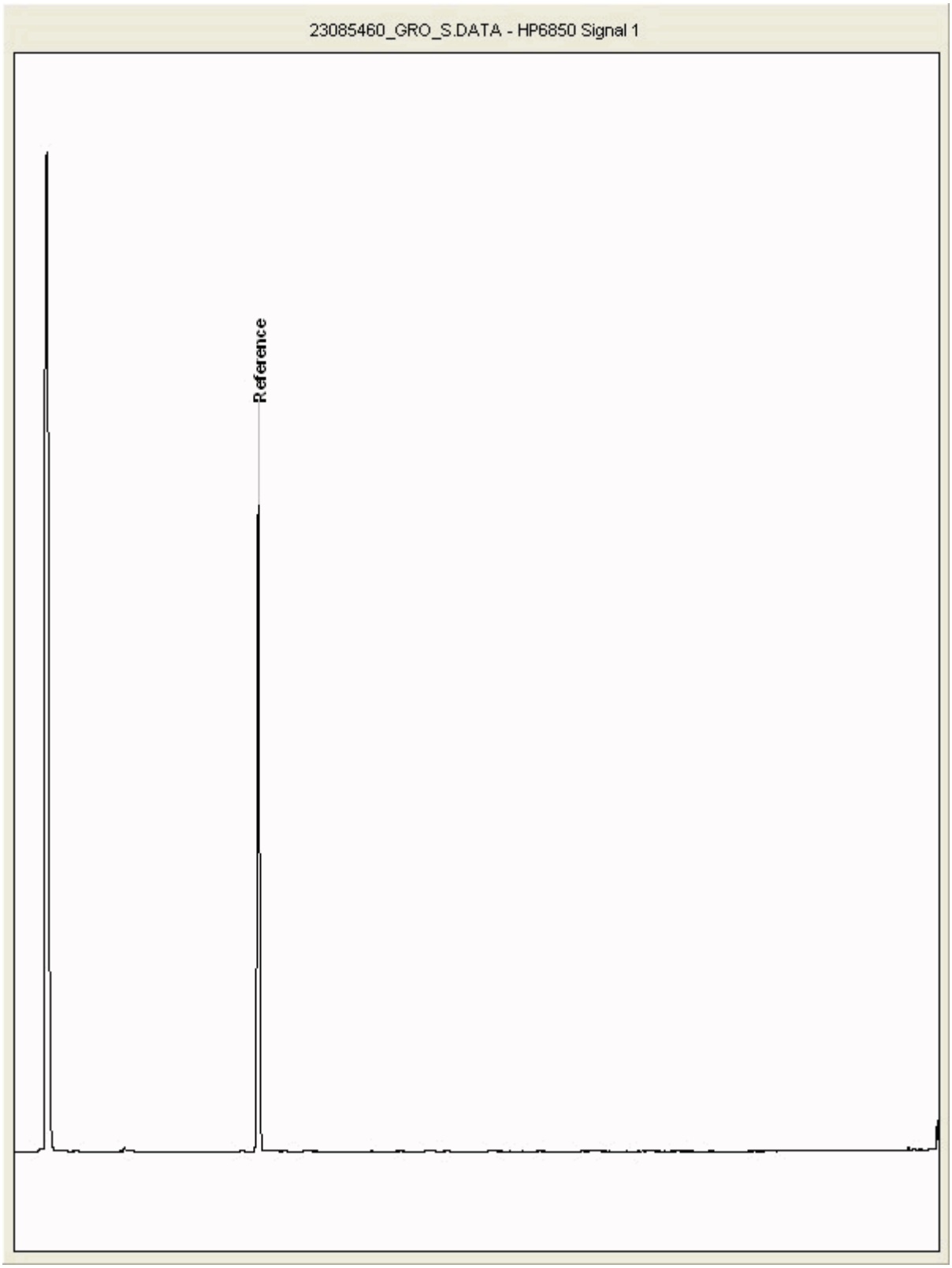
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23085460
Sample ID : TP313

Depth : 1.10 - 1.20



CERTIFICATE OF ANALYSIS

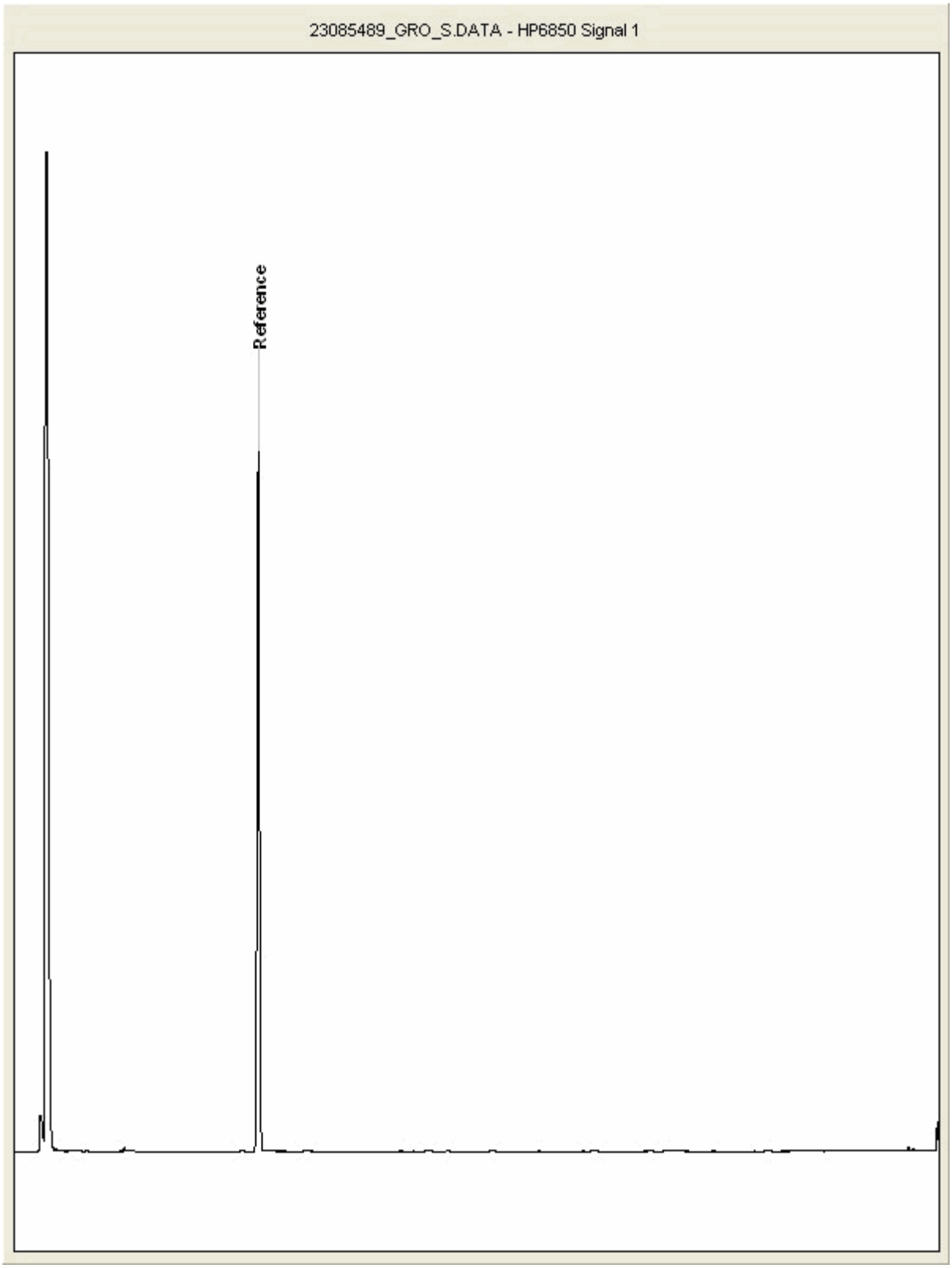
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23085489
Sample ID : TP318

Depth : 2.00 - 2.10



CERTIFICATE OF ANALYSIS

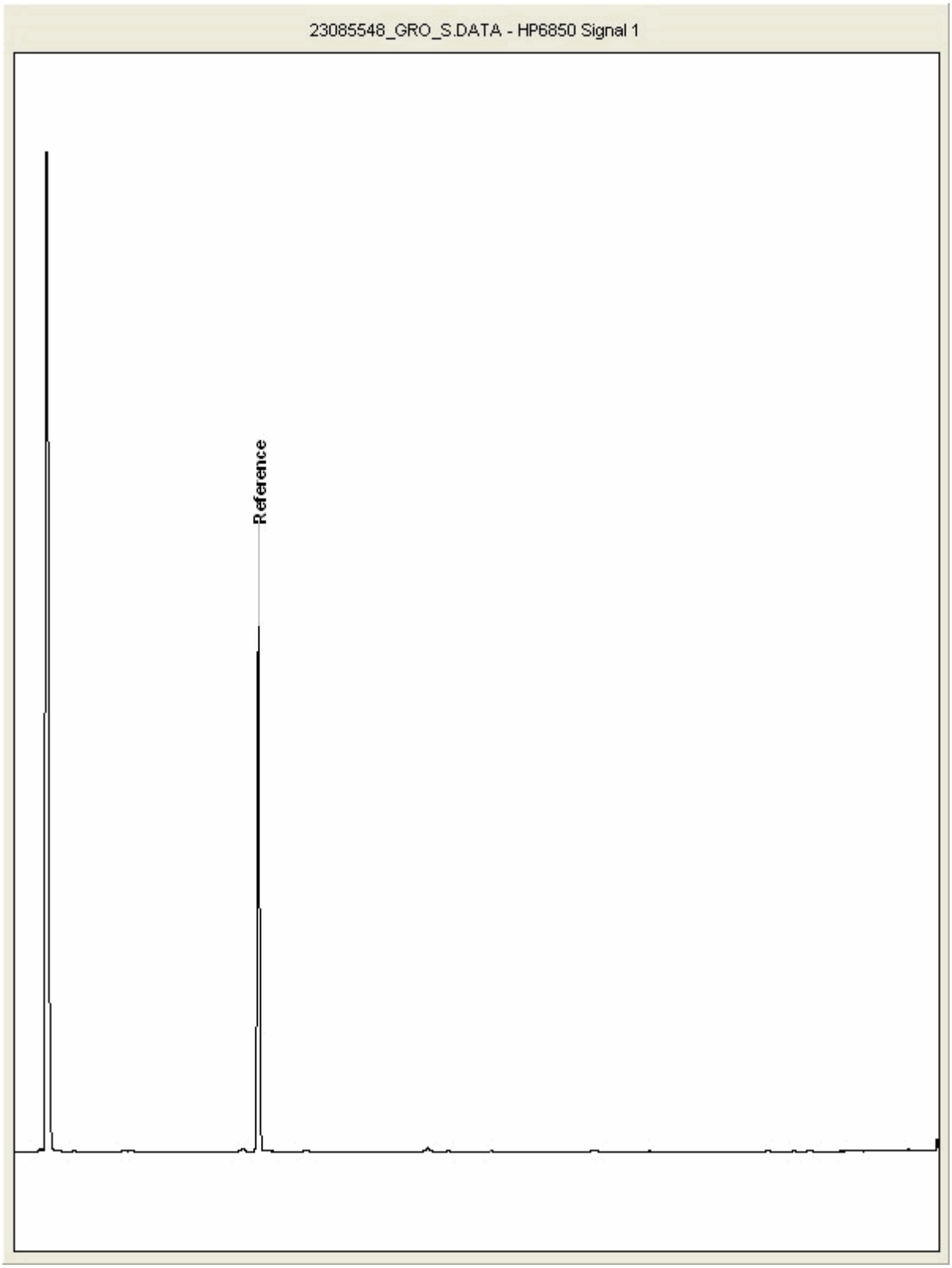
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23085548
Sample ID : TP318

Depth : 0.90 - 1.00



CERTIFICATE OF ANALYSIS

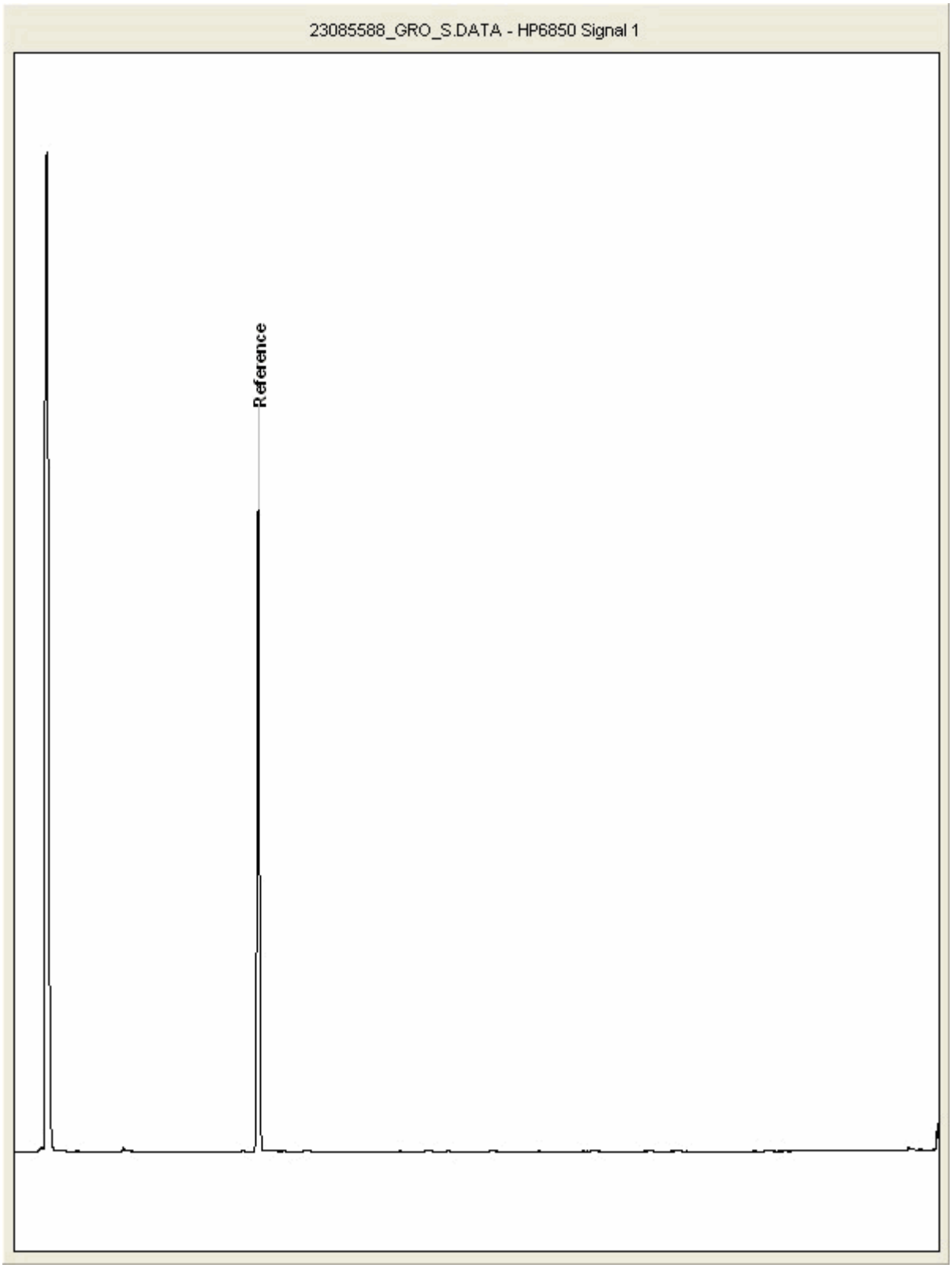
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23085588
Sample ID : TP313

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

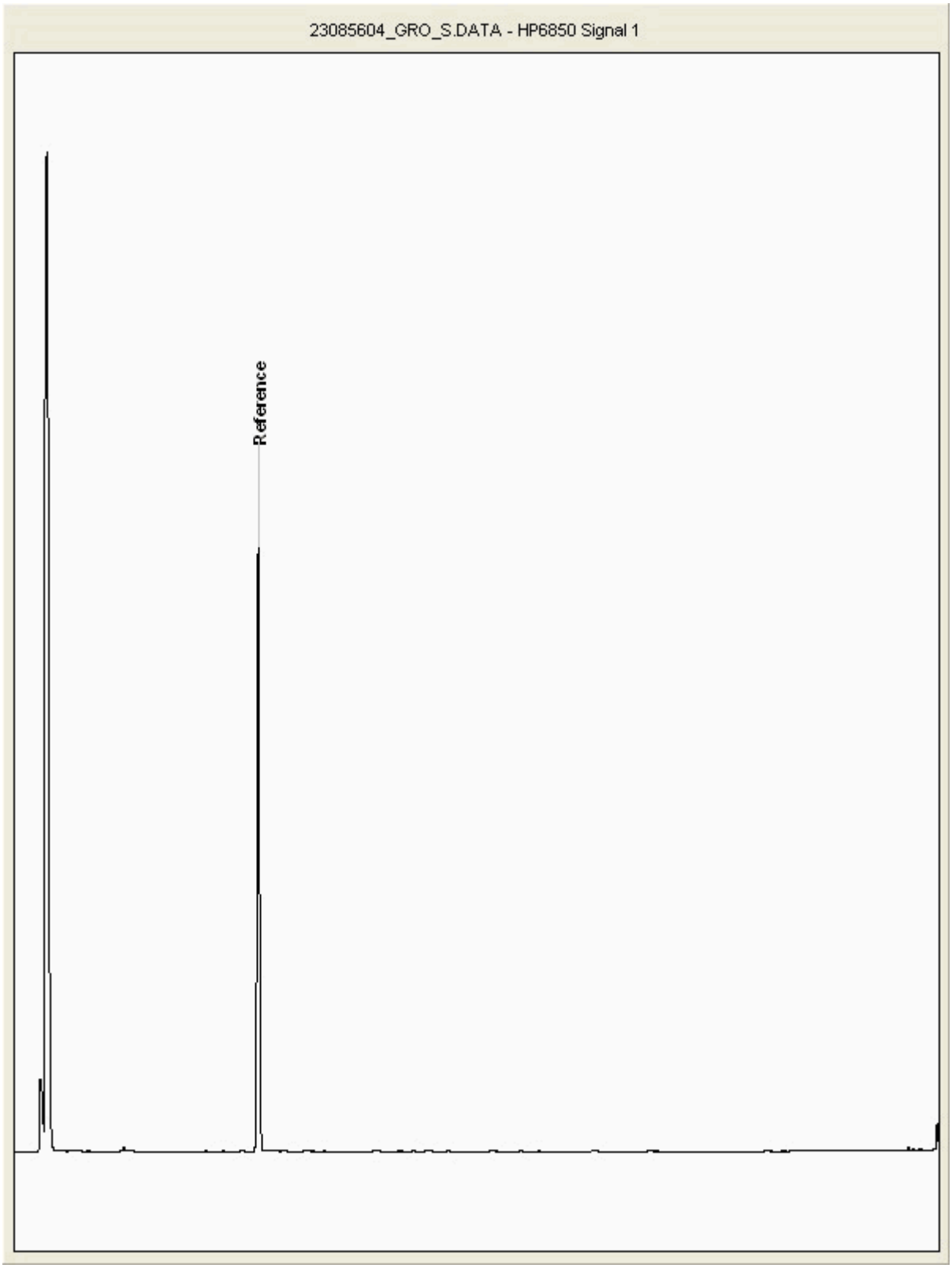
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23085604
Sample ID : TP313

Depth : 1.60 - 1.70



CERTIFICATE OF ANALYSIS

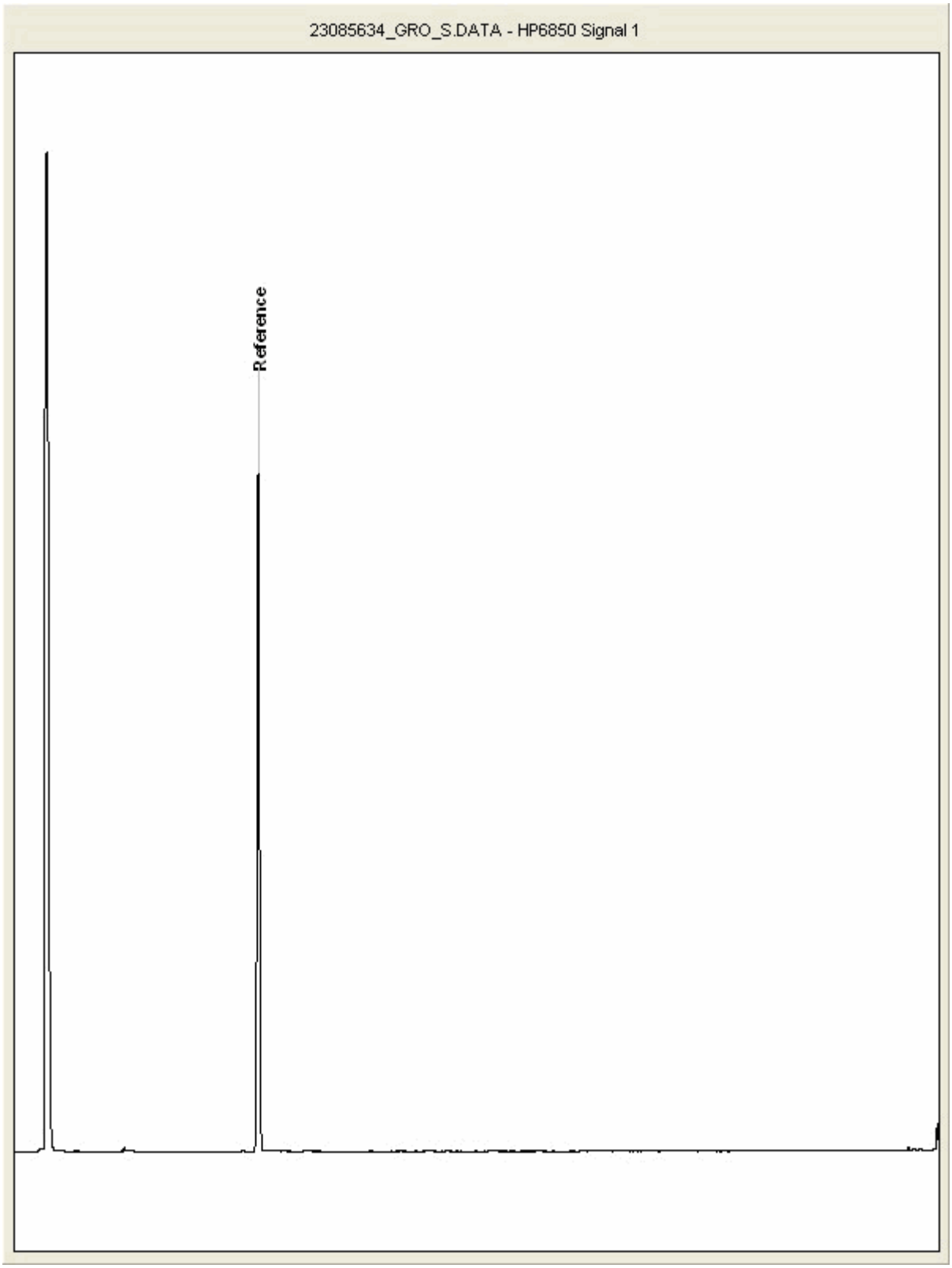
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23085634
Sample ID : TP318

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

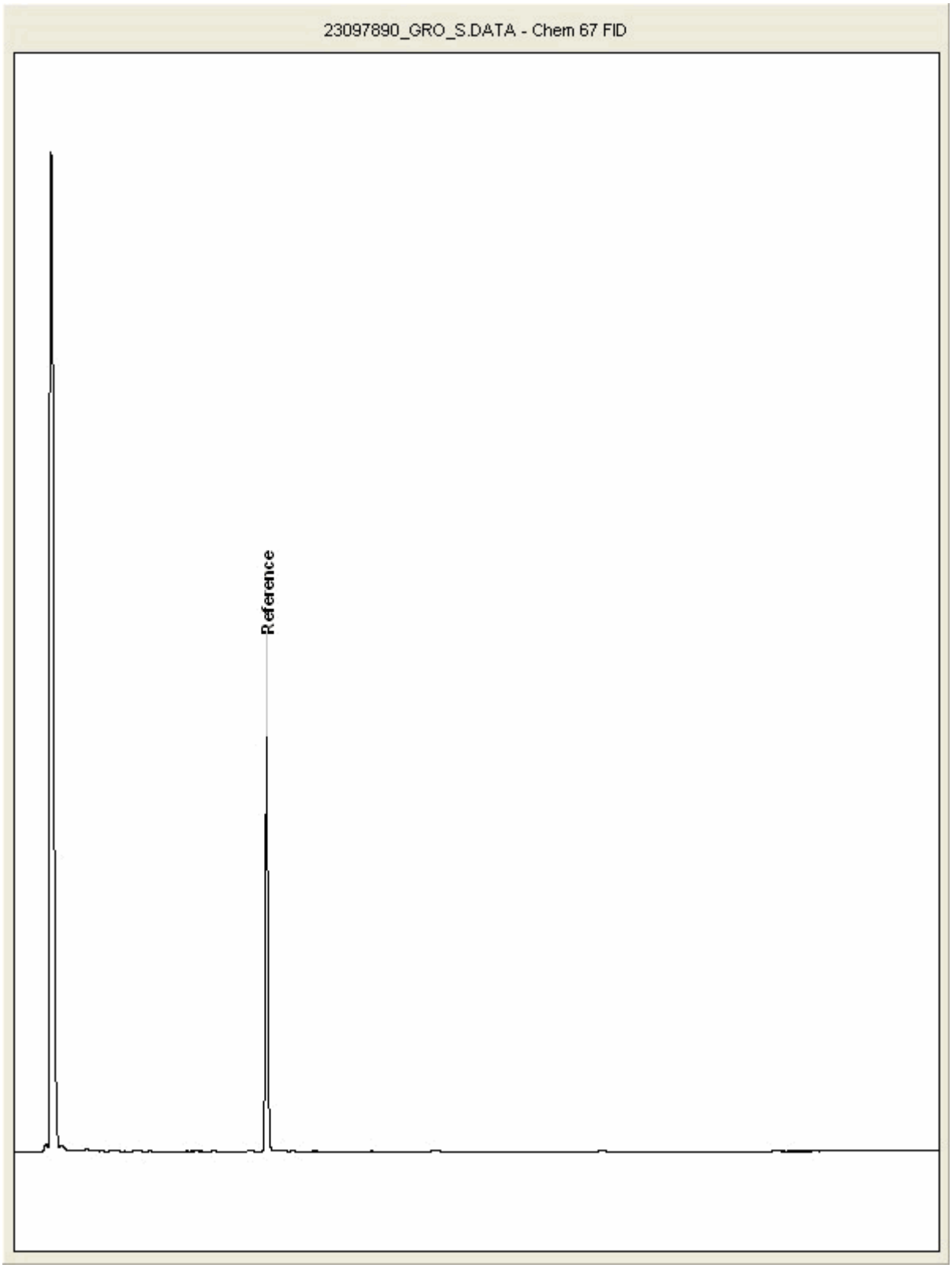
SDG:	201013-75	**Client Reference:**	2020WW102	**Report Number:**	579784
Location:	Arklow Bank	**Order Number:**	8984	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23097890
Sample ID : TP318

Depth : 3.50 - 3.60



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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. 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 (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.

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. **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.

18. **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**

19. **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, based on HSG 248 (2005).

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.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

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.

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

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	14 December 2020
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	201015-115
Your Reference:	2020WW102
Location:	Arklow Bank
Report No:	579794

We received 18 samples on Thursday October 15, 2020 and 18 of these samples were scheduled for analysis which was completed on Monday December 14, 2020. 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).

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

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23039439	TP007	ES1	0.40 - 0.50	13/10/2020
23039335	TP007	ES4	1.50 - 1.60	13/10/2020
23039368	TP008	ES1	0.40 - 0.50	13/10/2020
23039374	TP008	ES4	1.50 - 1.60	13/10/2020
23039379	TP009	ES1	0.50 - 0.60	13/10/2020
23039387	TP009	ES4	1.50 - 1.60	13/10/2020
23039330	TP202	ES1	0.50 - 0.60	12/10/2020
23039392	TP202	ES4	1.40 - 1.50	12/10/2020
23039401	TP203	ES1	0.50 - 0.60	12/10/2020
23039408	TP203	ES4	1.60 - 1.70	12/10/2020
23039414	TP311	ES1	0.40 - 0.50	12/10/2020
23039421	TP311	ES2	1.10 - 1.20	12/10/2020
23039427	TP311	ES4	2.10 - 2.20	12/10/2020
23039434	TP311	ES4	3.10 - 3.20	12/10/2020
23039342	TP319	ES1	0.40 - 0.50	12/10/2020
23039350	TP319	ES2	1.20 - 1.30	12/10/2020
23039356	TP319	ES3	2.30 - 2.40	12/10/2020
23039363	TP319	ES5	3.50 - 3.60	12/10/2020

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

CERTIFICATE OF ANALYSIS

Validated

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23039439			23039335			23039368			23039374			23039379			23039387			23039330		
Customer Sample Reference			TP007			TP007			TP008			TP008			TP009			TP009			TP202		
AGS Reference			ES1			ES4			ES1			ES4			ES1			ES4			ES1		
Depth (m)			0.40 - 0.50			1.50 - 1.60			0.40 - 0.50			1.50 - 1.60			0.50 - 0.60			1.50 - 1.60			0.50 - 0.60		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
Chromium III	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Coronene	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
EPH by GCxGC-FID	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Fluoride	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 18			X			X			X			X			X			X			
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	

23039434	TP311	ES4	3.10 - 3.20	1kg TUB with Handle (ALE260)	S		X		X		X					X	X				X			
23039427	TP311	ES4	2.10 - 2.20	60g VOC (ALE215)	S																	X		
				250g Amber Jar (ALE210)	S					X		X		X				X		X		X		X		X
				1kg TUB with Handle (ALE260)	S		X		X		X					X	X				X			
23039421	TP311	ES2	1.10 - 1.20	60g VOC (ALE215)	S																	X		
				250g Amber Jar (ALE210)	S					X		X		X				X		X		X		X		X
				1kg TUB with Handle (ALE260)	S		X		X		X					X	X				X			
23039414	TP311	ES1	0.40 - 0.50	60g VOC (ALE215)	S																	X		
				250g Amber Jar (ALE210)	S					X		X		X				X		X		X		X		X
				1kg TUB with Handle (ALE260)	S		X		X		X					X	X				X			
23039408	TP203	ES4	1.60 - 1.70	60g VOC (ALE215)	S																	X		
				250g Amber Jar (ALE210)	S					X		X		X				X		X		X		X		X
				1kg TUB with Handle (ALE260)	S		X		X		X					X	X				X			
23039401	TP203	ES1	0.50 - 0.60	60g VOC (ALE215)	S																	X		
				250g Amber Jar (ALE210)	S					X		X		X				X		X		X		X		X
				1kg TUB with Handle (ALE260)	S		X		X		X					X	X				X			
23039392	TP202	ES4	1.40 - 1.50	60g VOC (ALE215)	S																	X		
				250g Amber Jar (ALE210)	S					X		X		X				X		X		X		X		X
				1kg TUB with Handle (ALE260)	S		X		X		X					X	X				X			
23039330	TP202	ES1	0.50 - 0.60	60g VOC (ALE215)	S																	X		

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23039439			23039335			23039368			23039374			23039379			23039387			23039330		
Customer Sample Reference			TP007			TP007			TP008			TP008			TP009			TP009			TP202		
AGS Reference			ES1			ES4			ES1			ES4			ES1			ES4			ES1		
Depth (m)			0.40 - 0.50			1.50 - 1.60			0.40 - 0.50			1.50 - 1.60			0.50 - 0.60			1.50 - 1.60			0.50 - 0.60		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
pH	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
Total Dissolved Solids	All	NDPs: 0 Tests: 18	X			X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 18		X			X			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 18			X			X			X			X			X			X			

23039434	TP311	ES4	3.10 - 3.20	1kg TUB with Handle (ALE260)	S	X						X			X			
23039427	TP311	ES4	2.10 - 2.20	60g VOC (ALE215)	S													X
				250g Amber Jar (ALE210)	S		X	X	X	X	X		X	X		X	X	
				1kg TUB with Handle (ALE260)	S	X						X			X			
23039421	TP311	ES2	1.10 - 1.20	60g VOC (ALE215)	S													X
				250g Amber Jar (ALE210)	S		X	X	X	X	X		X	X		X	X	
				1kg TUB with Handle (ALE260)	S	X						X			X			
23039414	TP311	ES1	0.40 - 0.50	60g VOC (ALE215)	S													X
				250g Amber Jar (ALE210)	S		X	X	X	X	X		X	X		X	X	
				1kg TUB with Handle (ALE260)	S	X						X			X			
23039408	TP203	ES4	1.60 - 1.70	60g VOC (ALE215)	S													X
				250g Amber Jar (ALE210)	S		X	X	X	X	X		X	X		X	X	
				1kg TUB with Handle (ALE260)	S	X						X			X			
23039401	TP203	ES1	0.50 - 0.60	60g VOC (ALE215)	S													X
				250g Amber Jar (ALE210)	S		X	X	X	X	X		X	X		X	X	
				1kg TUB with Handle (ALE260)	S	X						X			X			
23039392	TP202	ES4	1.40 - 1.50	60g VOC (ALE215)	S													X
				250g Amber Jar (ALE210)	S		X	X	X	X	X		X	X		X	X	
				1kg TUB with Handle (ALE260)	S	X						X			X			
23039330	TP202	ES1	0.50 - 0.60	60g VOC (ALE215)	S													X

Validated

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

- X — Test
- N — No Determination Possible

Sample Types -

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

			23039434		23039342			23039350			23039356			23039363		
Lab Sample No(s)			23039434		23039342			23039350			23039356			23039363		
Customer Sample Reference			TP311		TP319			TP319			TP319			TP319		
AGS Reference			ES4		ES1			ES2			ES3			ES5		
Depth (m)			3.10 - 3.20		0.40 - 0.50			1.20 - 1.30			2.30 - 2.40			3.50 - 3.60		
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 18			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 18			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 18			X			X			X			X		
Chromium III	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Coronene	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 18			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 18			X			X			X			X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 18	X			X			X			X			X	
EPH by GCxGC-FID	All	NDPs: 0 Tests: 18	X			X			X			X			X	
EPH CWG GC (S)	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Fluoride	All	NDPs: 0 Tests: 18			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 18		X			X			X			X			X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Loss on Ignition in soils	All	NDPs: 0 Tests: 18	X			X			X			X			X	

CERTIFICATE OF ANALYSIS

SDG:	201015-115	Client Reference:	2020WW102	Report Number:	579794
Location:	Arklow Bank	Order Number:	9028	Superseded Report:	

Results Legend

- X — Test
- N — No Determination Possible

Sample Types -

S - Soil/Solid
UNS - Unspecified Solid
GW - Ground Water
SW - Surface Water
LE - Land Leachate
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PR - Process Water
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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)			23039434		23039342			23039350			23039356			23039363		
Customer Sample Reference			TP311		TP319			TP319			TP319			TP319		
AGS Reference			ES4		ES1			ES2			ES3			ES5		
Depth (m)			3.10 - 3.20		0.40 - 0.50			1.20 - 1.30			2.30 - 2.40			3.50 - 3.60		
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 18			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 18	X			X			X			X			X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 18	X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 18	X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 18	X			X			X			X			X	
pH	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 18			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 18	X			X			X			X			X	
Total Dissolved Solids	All	NDPs: 0 Tests: 18			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 18	X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 18	X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 18		X			X			X			X			X

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

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
23039335	TP007	1.50 - 1.60	Dark Brown	Sandy Clay	Stones	Vegetation
23039439	TP007	0.40 - 0.50	Dark Brown	Clay Loam	Stones	None
23039368	TP008	0.40 - 0.50	Dark Brown	Clay Loam	Stones	None
23039374	TP008	1.50 - 1.60	Dark Brown	Clay Loam	Stones	None
23039379	TP009	0.50 - 0.60	Dark Brown	Clay Loam	Stones	None
23039387	TP009	1.50 - 1.60	Dark Brown	Sandy Loam	Stones	Vegetation
23039330	TP202	0.50 - 0.60	Dark Brown	Loamy Sand	Stones	None
23039392	TP202	1.40 - 1.50	Light Brown	Silty Clay	None	None
23039401	TP203	0.50 - 0.60	Light Brown	Sand	Stones	None
23039408	TP203	1.60 - 1.70	Dark Brown	Sandy Loam	Stones	None
23039414	TP311	0.40 - 0.50	Dark Brown	Sandy Loam	Vegetation	Stones
23039421	TP311	1.10 - 1.20	Dark Brown	Loamy Sand	Stones	Vegetation
23039427	TP311	2.10 - 2.20	Light Brown	Silty Clay	None	None
23039434	TP311	3.10 - 3.20	Grey	Silty Clay	None	None
23039342	TP319	0.40 - 0.50	Red	Loamy Sand	None	None
23039350	TP319	1.20 - 1.30	Cream	Silt Loam	Vegetation	Stones
23039356	TP319	2.30 - 2.40	Dark Brown	Silt Loam	Stones	None
23039363	TP319	3.50 - 3.60	Grey	Silt Loam	None	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 ocurring 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

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
Moisture Content Ratio (% of as received sample)	%	PM024		20	14	23	17	17	14
Loss on ignition	<0.7 % M	TM018		4.84	3.06	6.13	4.16	3.92	4.61
Organic Carbon, Total	<0.2 % M	TM132		0.309	<0.2	0.396	0.233	<0.2	<0.2
pH	1 pH Units M	TM133		7.29	8.46	7.43	8.48	7.41	8.25
Chromium, Hexavalent	<0.6 mg/kg #	TM151		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Cyanide, Total	<1 mg/kg M	TM153		<1	<1	<1	<1	<1	<1
Cyanide, Free	<1 mg/kg M	TM153		<1	<1	<1	<1	<1	<1
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 52	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 101	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 118	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 138	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 153	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
PCB congener 180	<3 µg/kg M	TM168		<3	<3	<3	<3	<3	<3
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg ♦ M	TM180		<15	<15	<15	<15	<15	<15
Chromium, Trivalent	<0.9 mg/kg	TM181		37.2	26.9	43.3	30	36.5	27
Antimony	<0.6 mg/kg #	TM181		<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Arsenic	<0.6 mg/kg M	TM181		18.5	10.6	19.9	14.7	17.1	13
Barium	<0.6 mg/kg #	TM181		58.3	63.7	74.9	76	51.6	76.7
Cadmium	<0.02 mg/kg M	TM181		<0.02	0.0955	0.0347	0.126	<0.02	0.0545
Chromium	<0.9 mg/kg M	TM181		37.2	26.9	43.3	30	36.5	27
Copper	<1.4 mg/kg M	TM181		17.9	18.3	15.7	23.2	25.8	19.9
Lead	<0.7 mg/kg M	TM181		18.8	13.8	22.3	18.4	17.1	15.2
Mercury	<0.14 mg/kg M	TM181		<0.14	<0.14	<0.14	<0.14	0.15	<0.14
Molybdenum	<0.1 mg/kg #	TM181		0.489	0.337	0.451	0.43	0.511	0.364
Nickel	<0.2 mg/kg M	TM181		28.8	33	29.7	40.2	28.5	36.3
Selenium	<1 mg/kg #	TM181		<1	<1	<1	<1	<1	<1
Zinc	<1.9 mg/kg M	TM181		62.4	56.6	57.1	69.9	70	56
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
Moisture Content Ratio (% of as received sample)	%	PM024		9	14	12	16	6.2	12
Loss on ignition	<0.7 % M	TM018		1.99 M	2.29 M	1.48 M	2.87 M	1.62 M	4.57 M
Organic Carbon, Total	<0.2 % M	TM132		0.248 M	<0.2 M	0.303 M	<0.2 M	0.397 M	0.355 M
pH	1 pH Units M	TM133		7.45 M	7.32 M	7.05 M	6.7 M	8.4 M	6.84 M
Chromium, Hexavalent	<0.6 mg/kg #	TM151		<3 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg M	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg M	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<15 M	<3 M
PCB congener 52	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<15 M	<3 M
PCB congener 101	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<15 M	<3 M
PCB congener 118	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<15 M	<3 M
PCB congener 138	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<15 M	<3 M
PCB congener 153	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<15 M	<3 M
PCB congener 180	<3 µg/kg M	TM168		<3 M	<3 M	<3 M	<3 M	<15 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<105	<21
Sulphide, Easily liberated	<15 mg/kg @ M	TM180		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	55.7 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		20.2	23	10.2	26.3	3.96	12.2
Antimony	<0.6 mg/kg #	TM181		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg M	TM181		12.6 M	11.1 M	5.06 M	9.19 M	23.8 M	30.6 M
Barium	<0.6 mg/kg #	TM181		29.6 #	43.3 #	17 #	64.5 #	43.4 #	42.1 #
Cadmium	<0.02 mg/kg M	TM181		0.141 M	0.0676 M	0.0496 M	0.071 M	0.426 M	0.246 M
Chromium	<0.9 mg/kg M	TM181		20.2 M	23 M	10.2 M	26.3 M	3.96 M	12.2 M
Copper	<1.4 mg/kg M	TM181		12.9 M	16.3 M	3.11 M	16 M	72.1 M	58 M
Lead	<0.7 mg/kg M	TM181		12 M	12.5 M	8.12 M	19.3 M	31.8 M	37.5 M
Mercury	<0.14 mg/kg M	TM181		<0.14 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M	<0.14 M
Molybdenum	<0.1 mg/kg #	TM181		0.439 #	0.315 #	0.177 #	0.489 #	1.77 #	0.345 #
Nickel	<0.2 mg/kg M	TM181		27.8 M	24.6 M	6.52 M	21.6 M	19.4 M	39.4 M
Selenium	<1 mg/kg #	TM181		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Zinc	<1.9 mg/kg M	TM181		66.9 M	44.8 M	16.5 M	34.7 M	263 M	128 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	<35	195	<35

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
Moisture Content Ratio (% of as received sample)	%	PM024		32	37	28	31	31	26
Loss on ignition	<0.7 %	TM018		3.7 M	11.1 M	<0.7 M	5.56 M	7.55 M	14.3 M
Organic Carbon, Total	<0.2 %	TM132		0.361 M	1.6 M	<0.2 M	0.493 M	0.376 M	0.608 M
pH	1 pH Units	TM133		6.83 M	6.3 M	6.84 M	6.37 M	5.16 M	5.33 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<3 #	<3 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 @ M	<15 @ M	<15 @ M	<15 @ M	<15 @ M	63.5 @ M
Chromium, Trivalent	<0.9 mg/kg	TM181		12.7	30.4	<0.9	9.45	7.57	<0.9
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	36.5 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		50.4 M	30.5 M	2910 M	85.1 M	74 M	97.3 M
Barium	<0.6 mg/kg	TM181		50.5 #	86.4 #	20.7 #	42.6 #	87.6 #	40.1 #
Cadmium	<0.02 mg/kg	TM181		0.133 M	0.0858 M	13.7 M	2.25 M	1.67 M	<0.02 M
Chromium	<0.9 mg/kg	TM181		12.7 M	30.4 M	<0.9 M	9.45 M	7.57 M	<0.9 M
Copper	<1.4 mg/kg	TM181		25.9 M	28.8 M	6240 M	803 M	648 M	22.9 M
Lead	<0.7 mg/kg	TM181		43.8 M	55.9 M	4760 M	100 M	56.2 M	62.7 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	2.51 M	<0.14 M	0.283 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181		1.04 #	0.261 #	99.1 #	1.68 #	0.946 #	1.55 #
Nickel	<0.2 mg/kg	TM181		20.9 M	32.2 M	<0.2 M	19.8 M	23.8 M	18.2 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	<1 #	<1 #
Zinc	<1.9 mg/kg	TM181		95.7 M	128 M	5890 M	1500 M	1290 M	87 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

Validated

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
EPH >C8-C40	<35 mg/kg	TM415		<35	43	<35	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
Naphthalene-d8 % recovery**	%	TM218		70.3	92.7	70.7	70.9	72.4	96.6
Acenaphthene-d10 % recovery**	%	TM218		70.6	83	70.2	71.2	71	86.7
Phenanthrene-d10 % recovery**	%	TM218		71.7	90.1	75.5	71.9	71.2	92.4
Chrysene-d12 % recovery**	%	TM218		82.6	90.7	92.6	81.7	83.7	92.4
Perylene-d12 % recovery**	%	TM218		81.3	85.9	87.6	78.7	80.3	83.9
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
Naphthalene-d8 % recovery**	%	TM218		71.7	95.1	72.8	72.4	93.2	72.2
Acenaphthene-d10 % recovery**	%	TM218		70.2	85.9	71.2	70.8	84.7	70.4
Phenanthrene-d10 % recovery**	%	TM218		73.3	93.2	73.8	77.5	92.8	77.1
Chrysene-d12 % recovery**	%	TM218		85.5	95.3	84.3	95.7	102	93.6
Perylene-d12 % recovery**	%	TM218		86.6	87	84	91.1	93.3	89.5
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<45 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<60 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<40 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<50 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<75 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<80 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	<17 M	<85 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<75 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<70 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<50 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<75 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<70 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<75 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<90 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<115 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<120 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<590	<118

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
Naphthalene-d8 % recovery**	%	TM218		96.2	94.8	71.7	72.7	72.5	72.1
Acenaphthene-d10 % recovery**	%	TM218		88.3	88.3	70.5	71.9	71.2	70.3
Phenanthrene-d10 % recovery**	%	TM218		94.1	95.8	75.7	79	74.7	81.7
Chrysene-d12 % recovery**	%	TM218		98.1	97.4	90.8	97.3	88.2	92.7
Perylene-d12 % recovery**	%	TM218		86.8	86.8	85.1	95.7	88.8	89.3
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<500	<100	<500	<500	<500	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<1000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Nitrophenol	<100 µg/kg	TM157		<500	<100	<100	<500	<200	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Fluoranthene	<100 µg/kg	TM157		<100	123	<100	<100	<200	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Phenanthrene	<100 µg/kg	TM157		<100	185	<100	<100	<200	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<200	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<2000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<500	<500	<500	<500
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<1000	<1000	<1000	<1000

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
GRO Surrogate % recovery**	%	TM089		89.3	92.1	104	98.1	104	91.8
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	1280	<1000	<1000	<1000	3390
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
GRO Surrogate % recovery**	%	TM089		93.6	93.2	90	105	91.1	105
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	2270	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	26800	1840
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	<1000	2340	<1000	101000	2540
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	26500	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	156000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	211000	13900
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	<1000	5230	<1000	50200	8240
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	3700	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	2270	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	6570	<5000	54100	9400
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	211000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
GRO Surrogate % recovery**	%	TM089		95.4	80.6	80.4	90.2	74.2	91.8
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	13.9	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	26.4	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	1020	<1000	<1000	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	34000	<1000	<1000	<1000	5530
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	3580	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	39200	<5000	<5000	<5000	6070
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	68400	<10000	<10000	<10000	15000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	16.7	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	1380	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	17400	<1000	2560	<1000	7670
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	9850	<1000	<1000	<1000	1110
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	29200	<5000	<5000	<5000	8890
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	68400	<10000	<10000	<10000	15000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
Dibromofluoromethane**	%	TM116		109	111	106	102	116	107
Toluene-d8**	%	TM116		98.9	101	100	97	98.7	99.6
4-Bromofluorobenzene**	%	TM116		86.6	86	93.1	82.3	97.6	86.4
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009
			Depth (m)	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020	13/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039439	23039335	23039368	23039374	23039379	23039387
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES4
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
Dibromofluoromethane**	%	TM116		106	117	101	112	106	125
Toluene-d8**	%	TM116		99.8	101	97.4	99.4	94	100
4-Bromofluorobenzene**	%	TM116		93.6	95.2	80.2	90.6	76.9	89.1
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP202	TP202	TP203	TP203	TP311	TP311
			Depth (m)	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70	0.40 - 0.50	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039330	23039392	23039401	23039408	23039414	23039421
			AGS Reference	ES1	ES4	ES1	ES4	ES1	ES2
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
Dibromofluoromethane**	%	TM116		117	115	108	113	105	109
Toluene-d8**	%	TM116		102	101	101	101	99.9	97.6
4-Bromofluorobenzene**	%	TM116		97.6	92.6	91.9	90.2	90.6	80.4
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<60 M	<6 M	<6 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<70 #	<7 #	<7 #	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<60 M	<6 M	<6 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<60 M	<6 M	<6 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<10 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<70 M	<7 M	<7 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<10 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<80 M	<8 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<60 M	<6 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<100	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<80 M	<8 M	<8 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<70 M	<7 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<50 M	<5 M	<5 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<90 M	<9 M	<9 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<90 #	<9 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<90 M	<9 M	<9 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<70 M	<7 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<70 M	<7 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<100	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<70 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<50 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<50 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<40 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<50 #	<5 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<160 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<90 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<80 M	<8 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<140 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<90 #	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<100	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<80 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<50 M	<5 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<110	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<140 M	<14 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<200	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<200	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<130 M	<13 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP311	TP311	TP319	TP319	TP319	TP319
			Depth (m)	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020	12/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020	15/10/2020
			SDG Ref	201015-115	201015-115	201015-115	201015-115	201015-115	201015-115
			Lab Sample No.(s)	23039427	23039434	23039342	23039350	23039356	23039363
			AGS Reference	ES4	ES4	ES1	ES2	ES3	ES5
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<200 #	<20 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.2	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<400	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<500	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&+§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP007ES1 0.40 - 0.50 SOLID 13/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039439 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP007ES4 1.50 - 1.60 SOLID 13/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039335 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP008ES1 0.40 - 0.50 SOLID 13/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039368 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP008ES4 1.50 - 1.60 SOLID 13/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039374 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP009ES1 0.50 - 0.60 SOLID 13/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039379 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP009ES4 1.50 - 1.60 SOLID 13/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039387 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP202ES1 0.50 - 0.60 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039330 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Received SDG Original Sample Method Number	TP202ES4 1.40 - 1.50 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039392 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP203ES1 0.50 - 0.60 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039401 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP203ES4 1.60 - 1.70 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039408 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP311ES1 0.40 - 0.50 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039414 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP311ES2 1.10 - 1.20 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039421 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP311ES4 2.10 - 2.20 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039427 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP311ES4 3.10 - 3.20 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039434 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP319ES1 0.40 - 0.50 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039342 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP319ES2 1.20 - 1.30 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039350 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP319ES3 2.30 - 2.40 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039356 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

Validated

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP319ES5 3.50 - 3.60 SOLID 12/10/2020 00:00:00 15/10/2020 09:00:00 201015-115 23039363 TM048	25/10/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.101	**Natural Moisture Content (%)**	11.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	89.3
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039330
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP202 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.43	<3	44.3	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000491	<0.00001	0.000491	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00432	<0.0005	0.0432	<0.005	-	-	-
Barium	0.0132	<0.0002	0.132	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00786	<0.001	0.0786	<0.01	-	-	-
Copper	0.0071	<0.0003	0.071	<0.003	-	-	-
Lead	0.00463	<0.0002	0.0463	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00434	<0.0004	0.0434	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0158	<0.001	0.158	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	18.2	<5	182	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.65
Conductivity (µS/cm)	18.90
Temperature (°C)	19.20
Volume Leachant (Litres)	0.889

Mcerts Certification does not apply to leachates

14/12/2020 15:31:58

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
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	201015-115
Lab Sample Number(s)	23039335
Sampled Date	13-Oct-2020
Customer Sample Ref.	TP007 ES4
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	0.724	<0.5	7.24	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000516	<0.0005	0.00516	<0.005	-	-	-
Barium	0.368	<0.0002	3.68	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00163	<0.001	0.0163	<0.01	-	-	-
Copper	0.00159	<0.0003	0.0159	<0.003	-	-	-
Lead	0.000248	<0.0002	0.00248	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000542	<0.0004	0.00542	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0191	<0.001	0.191	<0.01	-	-	-
Chloride	3.4	<2	34	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	87.9	<5	879	<50	-	-	-

Leach Test Information

Date Prepared	24-Oct-2020
pH (pH Units)	8.70
Conductivity (µS/cm)	109.00
Temperature (°C)	15.10
Volume Leachant (Litres)	0.885

Mcerts Certification does not apply to leachates

14/12/2020 15:31:58

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.122	**Natural Moisture Content (%)**	35.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	73.6
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039342
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP319 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000322	<0.00001	0.000322	<0.0001	-	-	-
Antimony	0.00214	<0.001	0.0214	<0.01	-	-	-
Arsenic	0.323	<0.00253	3.23	<0.0253	-	-	-
Barium	0.00215	<0.0002	0.0215	<0.002	-	-	-
Cadmium	0.000922	<0.00008	0.00922	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00509	<0.0003	0.0509	<0.003	-	-	-
Lead	0.000977	<0.0002	0.00977	<0.002	-	-	-
Molybdenum	0.18	<0.003	1.8	<0.03	-	-	-
Nickel	0.000948	<0.0004	0.00948	<0.004	-	-	-
Selenium	0.00198	<0.001	0.0198	<0.01	-	-	-
Zinc	0.168	<0.001	1.68	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	39	<2	390	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	82.9	<5	829	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.53
Conductivity (µS/cm)	104.00
Temperature (°C)	20.00
Volume Leachant (Litres)	0.868

Mcerts Certification does not apply to leachates

14/12/2020 15:31:58

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.125	**Natural Moisture Content (%)**	39.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	71.8
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039350
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP319 ES2
Depth (m)	1.20 - 1.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	7.04	<3	70.4	<30	-	-	-
Fluoride	0.733	<0.5	7.33	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00498	<0.0005	0.0498	<0.005	-	-	-
Barium	0.0264	<0.0002	0.264	<0.002	-	-	-
Cadmium	0.0021	<0.00008	0.021	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.0181	<0.0003	0.181	<0.003	-	-	-
Lead	0.000269	<0.0002	0.00269	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000997	<0.0004	0.00997	<0.004	-	-	-
Selenium	0.00278	<0.001	0.0278	<0.01	-	-	-
Zinc	0.43	<0.001	4.3	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	66.5	<2	665	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	137	<5	1370	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	7.75
Conductivity (µS/cm)	178.00
Temperature (°C)	19.30
Volume Leachant (Litres)	0.865

Mcerts Certification does not apply to leachates

14/12/2020 15:31:58

CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.137	**Natural Moisture Content (%)**	50.8
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	66.3
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039356
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP319 ES3
Depth (m)	2.30 - 2.40

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	2.3	<0.5	23	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0246	<0.0002	0.246	<0.002	-	-	-
Cadmium	0.0327	<0.00008	0.327	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.284	<0.0003	2.84	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.0137	<0.0004	0.137	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	12.6	<0.00394	126	<0.0394	-	-	-
Chloride	2.2	<2	22	<20	-	-	-
Sulphate (soluble)	150	<2	1500	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	247	<5	2470	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	7.42
Conductivity (µS/cm)	307.00
Temperature (°C)	17.80
Volume Leachant (Litres)	0.854

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.131	**Natural Moisture Content (%)**	45.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	68.7
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039363
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP319 ES5
Depth (m)	3.50 - 3.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	7.11	<3	71.1	<30	-	-	-
Fluoride	8.47	<2.5	84.7	<25	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.133	<0.00154	1.33	<0.0154	-	-	-
Barium	0.383	<0.0002	3.83	<0.002	-	-	-
Cadmium	0.0000856	<0.00008	0.000856	<0.0008	-	-	-
Chromium	0.00457	<0.001	0.0457	<0.01	-	-	-
Copper	0.00708	<0.0003	0.0708	<0.003	-	-	-
Lead	0.0112	<0.0002	0.112	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00244	<0.0004	0.0244	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.306	<0.001	3.06	<0.01	-	-	-
Chloride	4.5	<2	45	<20	-	-	-
Sulphate (soluble)	95.8	<2	958	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	164	<5	1640	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	5.61
Conductivity (µS/cm)	223.00
Temperature (°C)	20.50
Volume Leachant (Litres)	0.860

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.122	**Natural Moisture Content (%)**	35.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	73.7
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039368
Sampled Date	13-Oct-2020
Customer Sample Ref.	TP008 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.1	<3	31	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	0.000012	<0.00001	0.00012	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000967	<0.0005	0.00967	<0.005	-	-	-
Barium	0.367	<0.0002	3.67	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00429	<0.001	0.0429	<0.01	-	-	-
Copper	0.00194	<0.0003	0.0194	<0.003	-	-	-
Lead	0.00407	<0.0002	0.0407	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000564	<0.0004	0.00564	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.135	<0.001	1.35	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	2.9	<2	29	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	27.9	<5	279	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	7.84
Conductivity (µS/cm)	34.10
Temperature (°C)	16.70
Volume Leachant (Litres)	0.868

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	80.8
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039374
Sampled Date	13-Oct-2020
Customer Sample Ref.	TP008 ES4
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	0.608	<0.5	6.08	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00377	<0.0002	0.0377	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00087	<0.0003	0.0087	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00297	<0.001	0.0297	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	80.9	<5	809	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.52
Conductivity (µS/cm)	99.50
Temperature (°C)	18.30
Volume Leachant (Litres)	0.879

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	21.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.5
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039379
Sampled Date	13-Oct-2020
Customer Sample Ref.	TP009 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00104	<0.0005	0.0104	<0.005	-	-	-
Barium	0.379	<0.0002	3.79	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00339	<0.001	0.0339	<0.01	-	-	-
Copper	0.00196	<0.0003	0.0196	<0.003	-	-	-
Lead	0.00351	<0.0002	0.0351	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000712	<0.0004	0.00712	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.114	<0.001	1.14	<0.01	-	-	-
Chloride	2.6	<2	26	<20	-	-	-
Sulphate (soluble)	2.6	<2	26	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	49.7	<5	497	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.21
Conductivity (µS/cm)	33.10
Temperature (°C)	2.80
Volume Leachant (Litres)	0.880

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.108	**Natural Moisture Content (%)**	20.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.7
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039387
Sampled Date	13-Oct-2020
Customer Sample Ref.	TP009 ES4
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	0.678	<0.5	6.78	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00618	<0.0002	0.0618	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000907	<0.0003	0.00907	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00678	<0.001	0.0678	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	75.6	<5	756	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.59
Conductivity (µS/cm)	94.20
Temperature (°C)	17.70
Volume Leachant (Litres)	0.882

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.106	**Natural Moisture Content (%)**	17.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85.2
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039392
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP202 ES4
Depth (m)	1.40 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000909	<0.0005	0.00909	<0.005	-	-	-
Barium	0.063	<0.0002	0.63	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000395	<0.0003	0.00395	<0.003	-	-	-
Lead	0.000395	<0.0002	0.00395	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00043	<0.0004	0.0043	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00564	<0.001	0.0564	<0.01	-	-	-
Chloride	2.4	<2	24	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	20	<5	200	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	9.13
Conductivity (µS/cm)	19.00
Temperature (°C)	19.50
Volume Leachant (Litres)	0.884

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.102	**Natural Moisture Content (%)**	14
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	87.7
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039401
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP203 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.31	<3	43.1	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000125	<0.00001	0.000125	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00158	<0.0005	0.0158	<0.005	-	-	-
Barium	0.00375	<0.0002	0.0375	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00144	<0.001	0.0144	<0.01	-	-	-
Copper	0.0023	<0.0003	0.023	<0.003	-	-	-
Lead	0.00105	<0.0002	0.0105	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000959	<0.0004	0.00959	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00398	<0.001	0.0398	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	14.5	<5	145	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	7.65
Conductivity (µS/cm)	13.60
Temperature (°C)	20.30
Volume Leachant (Litres)	0.888

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.110	**Natural Moisture Content (%)**	21.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.5
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039408
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP203 ES4
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.003	<0.0005	0.03	<0.005	-	-	-
Barium	0.018	<0.0002	0.18	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000606	<0.0003	0.00606	<0.003	-	-	-
Lead	0.00335	<0.0002	0.0335	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0116	<0.001	0.116	<0.01	-	-	-
Chloride	2.2	<2	22	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	20.5	<5	205	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.41
Conductivity (µS/cm)	12.50
Temperature (°C)	19.90
Volume Leachant (Litres)	0.880

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.109	**Natural Moisture Content (%)**	21.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.5
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039414
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP311 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.69	<3	36.9	<30	-	-	-
Fluoride	0.657	<0.5	6.57	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00691	<0.0005	0.0691	<0.005	-	-	-
Barium	0.00827	<0.0002	0.0827	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00571	<0.0003	0.0571	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.0101	<0.003	0.101	<0.03	-	-	-
Nickel	0.000433	<0.0004	0.00433	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	139	<2	1390	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	266	<5	2660	<50	-	-	-

Leach Test Information

Date Prepared	23-Oct-2020
pH (pH Units)	8.50
Conductivity (µS/cm)	348.00
Temperature (°C)	19.10
Volume Leachant (Litres)	0.882

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.103	**Natural Moisture Content (%)**	15.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	86.6
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039421
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP311 ES2
Depth (m)	1.10 - 1.20

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.02	<3	30.2	<30	-	-	-
Fluoride	1.09	<0.5	10.9	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00112	<0.001	0.0112	<0.01	-	-	-
Arsenic	0.00135	<0.0005	0.0135	<0.005	-	-	-
Barium	0.0407	<0.0002	0.407	<0.002	-	-	-
Cadmium	0.000402	<0.00008	0.00402	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00227	<0.0003	0.0227	<0.003	-	-	-
Lead	0.000519	<0.0002	0.00519	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.0215	<0.0004	0.215	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0178	<0.001	0.178	<0.01	-	-	-
Chloride	2	<2	20	<20	-	-	-
Sulphate (soluble)	1490	<10	14900	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	1550	<5	15500	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	6.37
Conductivity (µS/cm)	2,060.00
Temperature (°C)	18.60
Volume Leachant (Litres)	0.887

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.133	**Natural Moisture Content (%)**	47.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	67.7
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039427
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP311 ES4
Depth (m)	2.10 - 2.20

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.38	<3	33.8	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00874	<0.0002	0.0874	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00144	<0.0003	0.0144	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00285	<0.001	0.0285	<0.01	-	-	-
Chloride	2.4	<2	24	<20	-	-	-
Sulphate (soluble)	49.7	<2	497	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	131	<5	1310	<50	-	-	-

Leach Test Information

Date Prepared	23-Oct-2020
pH (pH Units)	7.97
Conductivity (µS/cm)	170.00
Temperature (°C)	18.10
Volume Leachant (Litres)	0.858

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.164	**Natural Moisture Content (%)**	81.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	55
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039434
Sampled Date	12-Oct-2020
Customer Sample Ref.	TP311 ES4
Depth (m)	3.10 - 3.20

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.22	<3	42.2	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00109	<0.001	0.0109	<0.01	-	-	-
Arsenic	0.0807	<0.0005	0.807	<0.005	-	-	-
Barium	0.228	<0.0002	2.28	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00135	<0.001	0.0135	<0.01	-	-	-
Copper	0.00323	<0.0003	0.0323	<0.003	-	-	-
Lead	0.00282	<0.0002	0.0282	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00158	<0.0004	0.0158	<0.004	-	-	-
Selenium	0.00105	<0.001	0.0105	<0.01	-	-	-
Zinc	0.138	<0.001	1.38	<0.01	-	-	-
Chloride	5.9	<2	59	<20	-	-	-
Sulphate (soluble)	9	<2	90	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	48.2	<5	482	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.72
Conductivity (µS/cm)	42.70
Temperature (°C)	18.30
Volume Leachant (Litres)	0.826

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CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.117	**Natural Moisture Content (%)**	29.1
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77.5
Particle Size <4mm	>95%		

Case	
SDG	201015-115
Lab Sample Number(s)	23039439
Sampled Date	13-Oct-2020
Customer Sample Ref.	TP007 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	4.38	<3	43.8	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00129	<0.0005	0.0129	<0.005	-	-	-
Barium	0.0223	<0.0002	0.223	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.0037	<0.001	0.037	<0.01	-	-	-
Copper	0.00322	<0.0003	0.0322	<0.003	-	-	-
Lead	0.00296	<0.0002	0.0296	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00159	<0.0004	0.0159	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00561	<0.001	0.0561	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	5.3	<2	53	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	41.3	<5	413	<50	-	-	-

Leach Test Information

Date Prepared	22-Oct-2020
pH (pH Units)	8.53
Conductivity (µS/cm)	58.60
Temperature (°C)	19.80
Volume Leachant (Litres)	0.873

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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
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) 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
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
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
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
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	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

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

Test Completion Dates

Lab Sample No(s)	23039335	23039439	23039368	23039374	23039379	23039387	23039330	23039392	23039401	23039408
Customer Sample Ref.	TP007	TP007	TP008	TP008	TP009	TP009	TP202	TP202	TP203	TP203
AGS Ref.	ES4	ES1	ES1	ES4	ES1	ES4	ES1	ES4	ES1	ES4
Depth	1.50 - 1.60	0.40 - 0.50	0.40 - 0.50	1.50 - 1.60	0.50 - 0.60	1.50 - 1.60	0.50 - 0.60	1.40 - 1.50	0.50 - 0.60	1.60 - 1.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
Asbestos ID in Solid Samples	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
CEN 10:1 Leachate (1 Stage)	24-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020
CEN Readings	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
Chromium III	27-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	24-Oct-2020	26-Oct-2020
Coronene	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	27-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	26-Oct-2020	23-Oct-2020	26-Oct-2020	26-Oct-2020	23-Oct-2020
Dissolved Metals by ICP-MS	27-Oct-2020	27-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	27-Oct-2020	27-Oct-2020	27-Oct-2020
Dissolved Organic/Inorganic Carbon	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Easily Liberated Sulphide	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	27-Oct-2020	26-Oct-2020	26-Oct-2020	27-Oct-2020	26-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	27-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	27-Oct-2020	23-Oct-2020	27-Oct-2020	27-Oct-2020	23-Oct-2020
Fluoride	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
GRO by GC-FID (S)	24-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Hexavalent Chromium (s)	27-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	23-Oct-2020	26-Oct-2020
Loss on Ignition in soils	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Mercury Dissolved	26-Oct-2020	27-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Metals in solid samples by OES	26-Oct-2020	26-Oct-2020	24-Oct-2020	24-Oct-2020	26-Oct-2020	24-Oct-2020	24-Oct-2020	24-Oct-2020	24-Oct-2020	24-Oct-2020
Moisture at 105C	24-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020
PAH 16 & 17 Calc	26-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	24-Oct-2020	23-Oct-2020	24-Oct-2020	23-Oct-2020	23-Oct-2020
PAH by GCMS	26-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	24-Oct-2020	23-Oct-2020	24-Oct-2020	23-Oct-2020	23-Oct-2020
PCBs by GCMS	26-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
pH	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Phenols by HPLC (W)	26-Oct-2020	27-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
Sample description	23-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	22-Oct-2020	21-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020
Semi Volatile Organic Compounds	26-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	26-Oct-2020	23-Oct-2020	26-Oct-2020	26-Oct-2020	23-Oct-2020
Total Dissolved Solids	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Total Organic Carbon	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
TPH CWG GC (S)	27-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	27-Oct-2020	23-Oct-2020	27-Oct-2020	27-Oct-2020	23-Oct-2020
VOC MS (S)	24-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020

Lab Sample No(s)	23039414	23039421	23039427	23039434	23039342	23039350	23039356	23039363
Customer Sample Ref.	TP311	TP311	TP311	TP311	TP319	TP319	TP319	TP319
AGS Ref.	ES1	ES2	ES4	ES4	ES1	ES2	ES3	ES5
Depth	0.40 - 0.50	1.10 - 1.20	2.10 - 2.20	3.10 - 3.20	0.40 - 0.50	1.20 - 1.30	2.30 - 2.40	3.50 - 3.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
Asbestos ID in Solid Samples	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
CEN 10:1 Leachate (1 Stage)	24-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
CEN Readings	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020	25-Oct-2020
Chromium III	26-Oct-2020	26-Oct-2020	26-Oct-2020	24-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Coronene	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Cyanide Comp/Free/Total/Thiocyanate	26-Oct-2020	23-Oct-2020	26-Oct-2020	26-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Dissolved Metals by ICP-MS	27-Oct-2020	28-Oct-2020	28-Oct-2020	28-Oct-2020	27-Oct-2020	28-Oct-2020	28-Oct-2020	27-Oct-2020
Dissolved Organic/Inorganic Carbon	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Easily Liberated Sulphide	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	27-Oct-2020	26-Oct-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	27-Oct-2020	23-Oct-2020	27-Oct-2020	27-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Fluoride	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
GRO by GC-FID (S)	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Hexavalent Chromium (s)	26-Oct-2020	26-Oct-2020	26-Oct-2020	23-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Loss on Ignition in soils	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Mercury Dissolved	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Metals in solid samples by OES	24-Oct-2020	24-Oct-2020	24-Oct-2020	24-Oct-2020	27-Oct-2020	27-Oct-2020	26-Oct-2020	24-Oct-2020
Moisture at 105C	23-Oct-2020	22-Oct-2020	26-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020	22-Oct-2020
PAH 16 & 17 Calc	24-Oct-2020	23-Oct-2020	24-Oct-2020	24-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
PAH by GCMS	24-Oct-2020	23-Oct-2020	24-Oct-2020	24-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
PCBs by GCMS	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
pH	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Phenols by HPLC (W)	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	27-Oct-2020
Sample description	22-Oct-2020	21-Oct-2020	22-Oct-2020	22-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020	21-Oct-2020
Semi Volatile Organic Compounds	26-Oct-2020	23-Oct-2020	26-Oct-2020	26-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
Total Dissolved Solids	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
Total Organic Carbon	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020	26-Oct-2020
TPH CWG GC (S)	27-Oct-2020	23-Oct-2020	27-Oct-2020	27-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020
VOC MS (S)	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020	23-Oct-2020

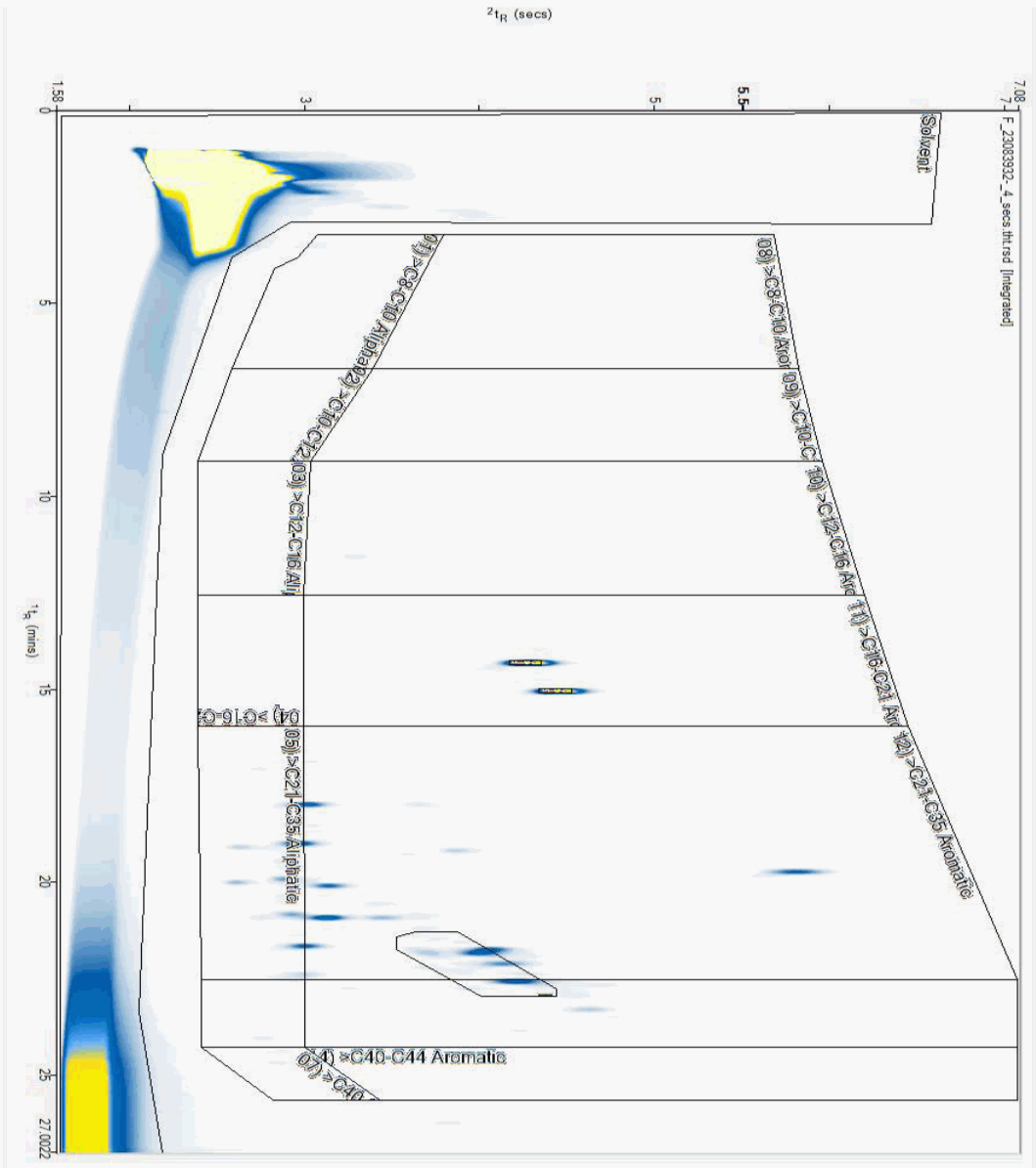
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23083932 **Depth :** 3.50 - 3.60
Sample ID : TP319

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23083932-_4_secs.tht
Date Acquired   :  22/10/20 05:26:50
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



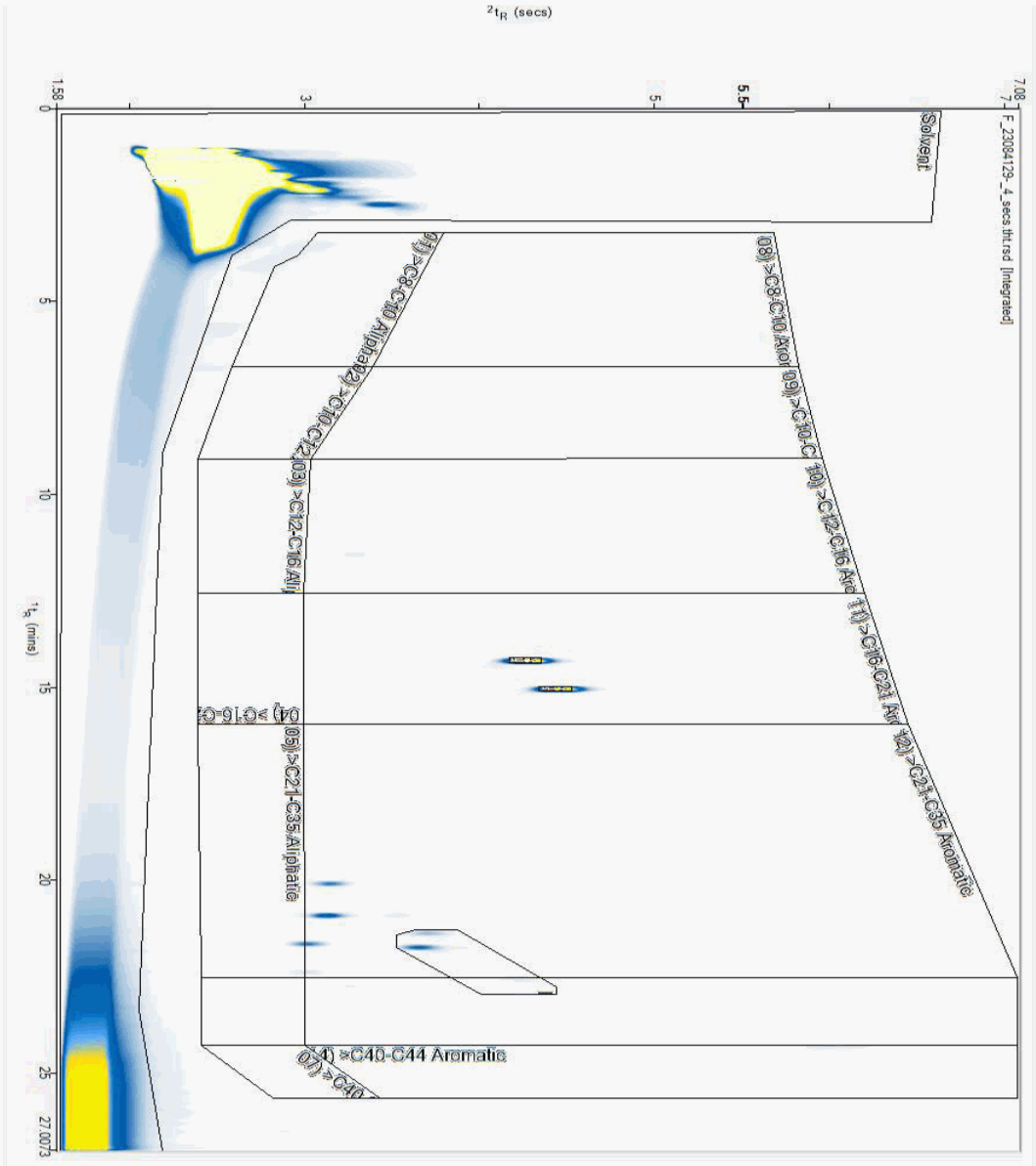
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23084129 **Depth :** 1.20 - 1.30
Sample ID : TP319

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23084129-_4_secs.tht
Date Acquired   :  22/10/20 04:55:16
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

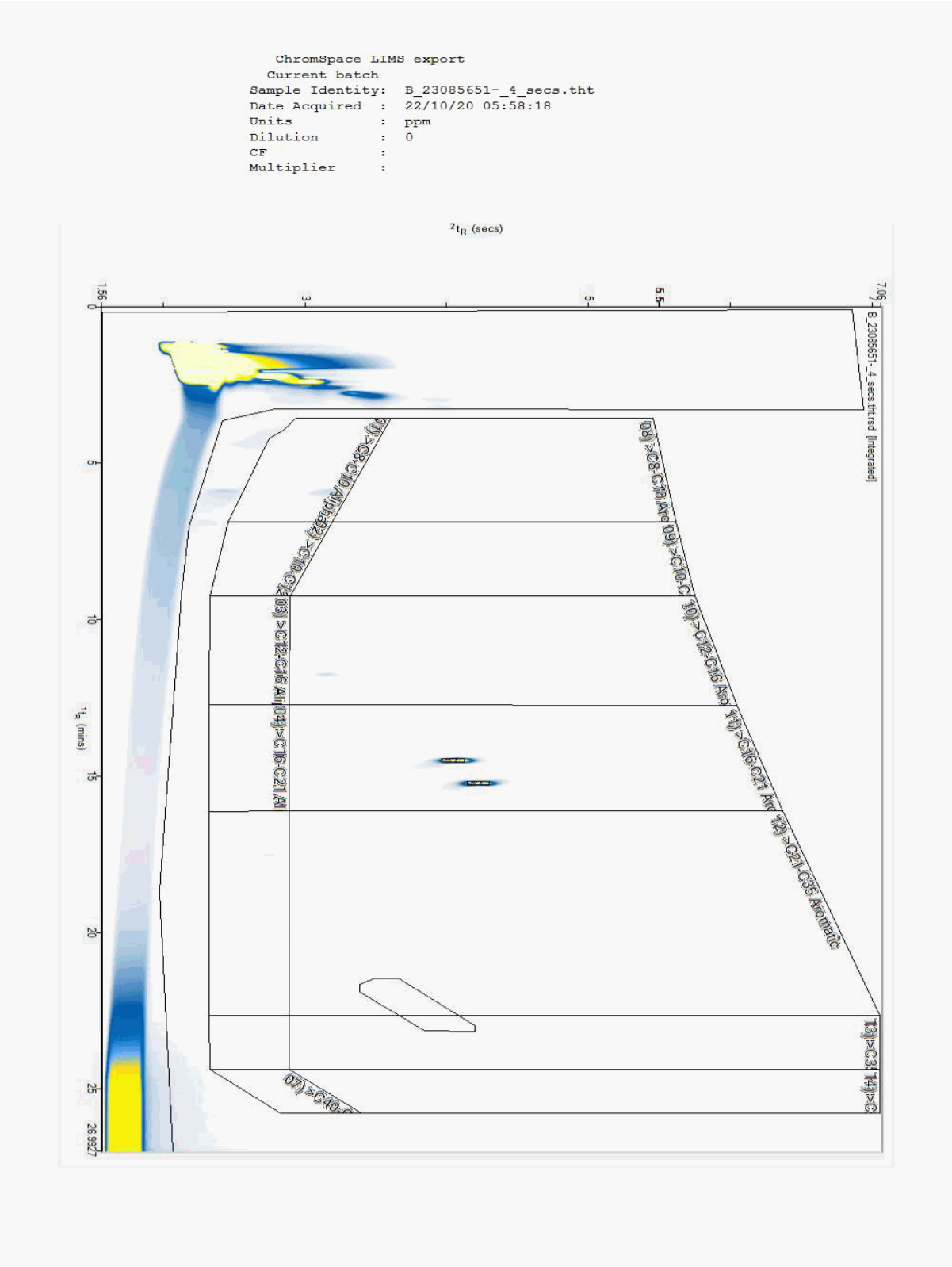


CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085651 **Depth :** 0.40 - 0.50
Sample ID : TP008



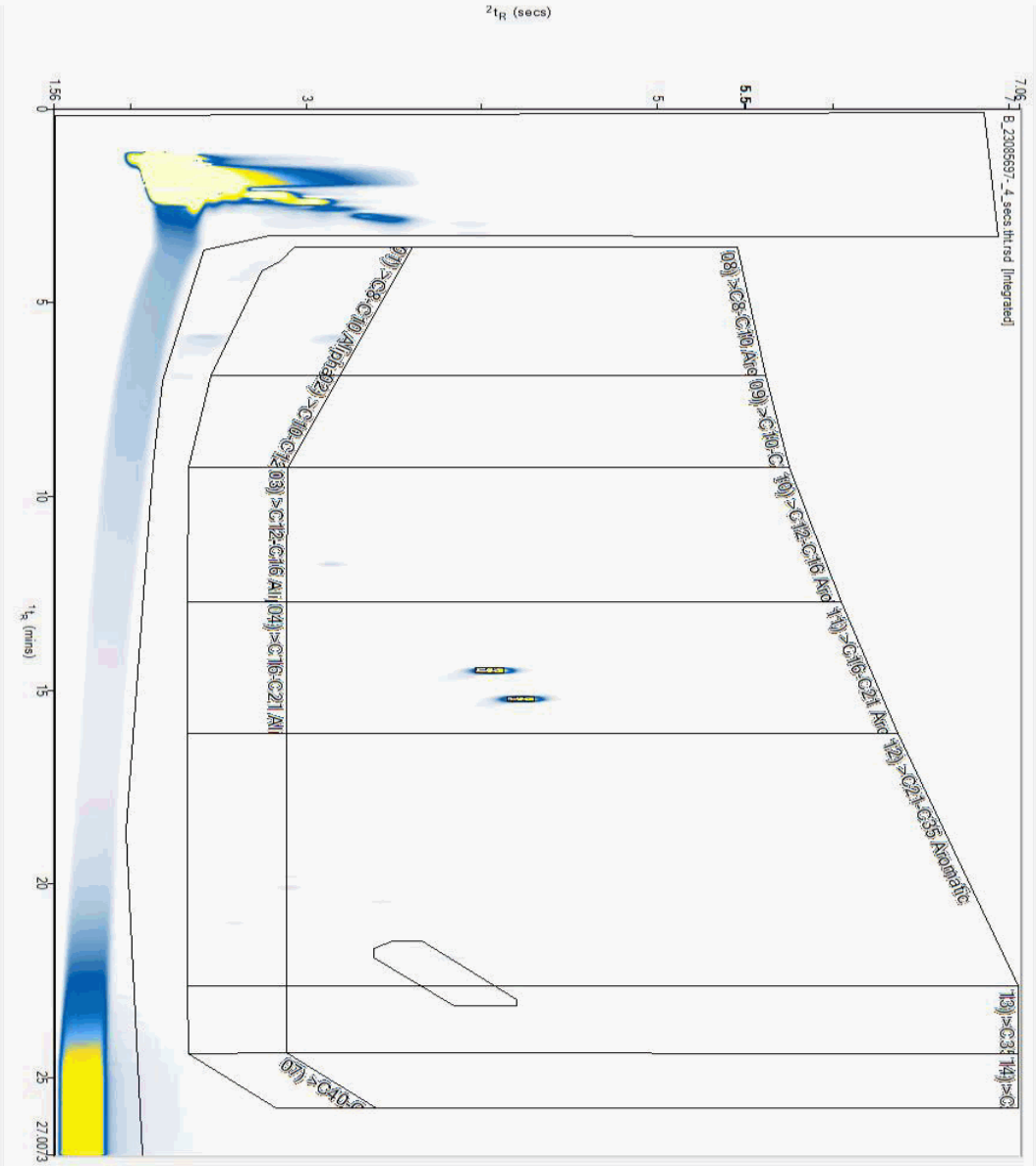
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085697 **Depth :** 0.40 - 0.50
Sample ID : TP007

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23085697-_4_secs.tht
Date Acquired   :  22/10/20 04:55:15
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



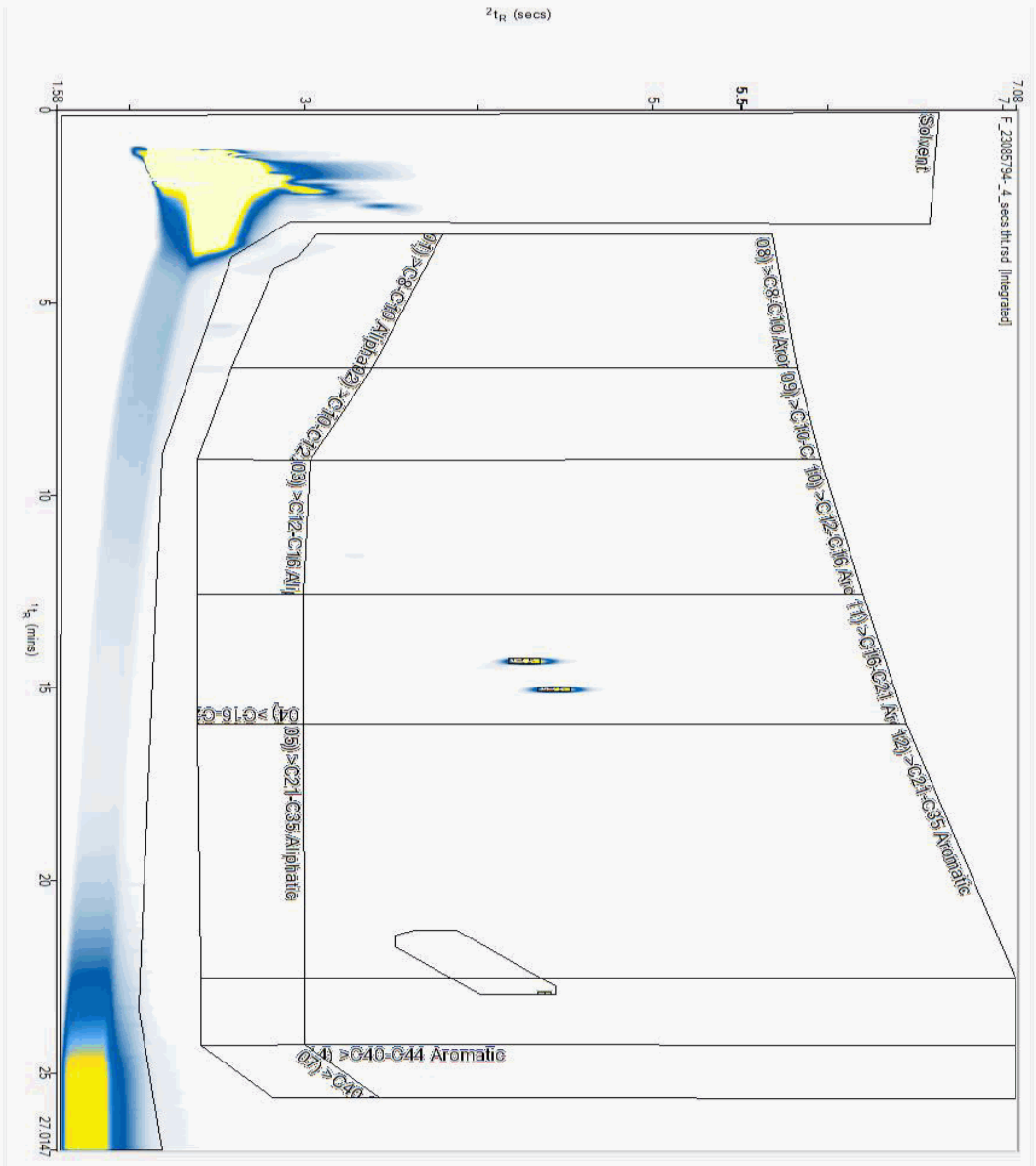
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085794 **Depth :** 0.40 - 0.50
Sample ID : TP319

```
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  Current batch
Sample Identity:  F_23085794-_4_secs.tht
Date Acquired   :  22/10/20 07:33:01
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



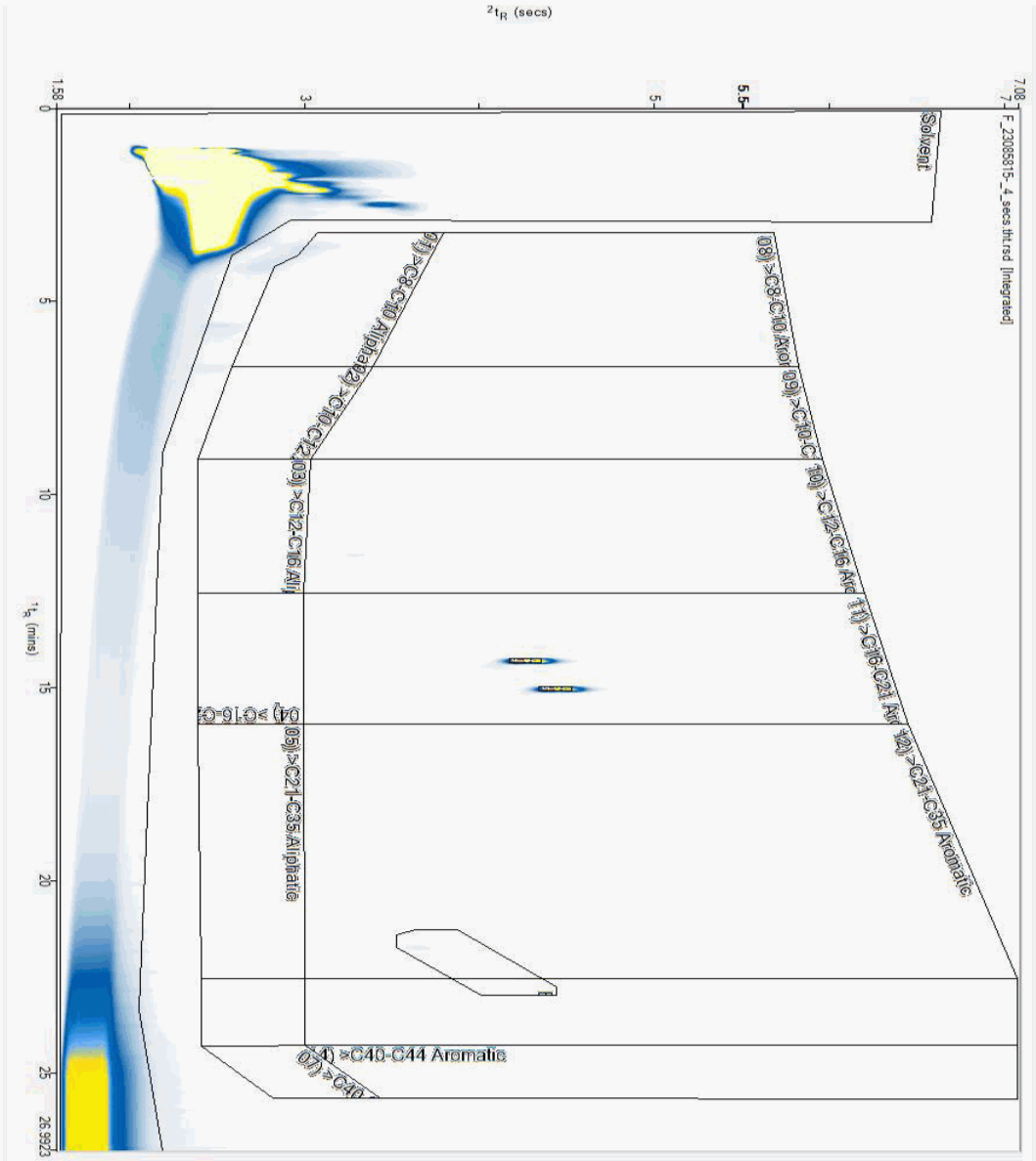
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085815 **Depth :** 2.30 - 2.40
Sample ID : TP319

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23085815-_4_secs.tht
Date Acquired   :  22/10/20 08:36:06
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



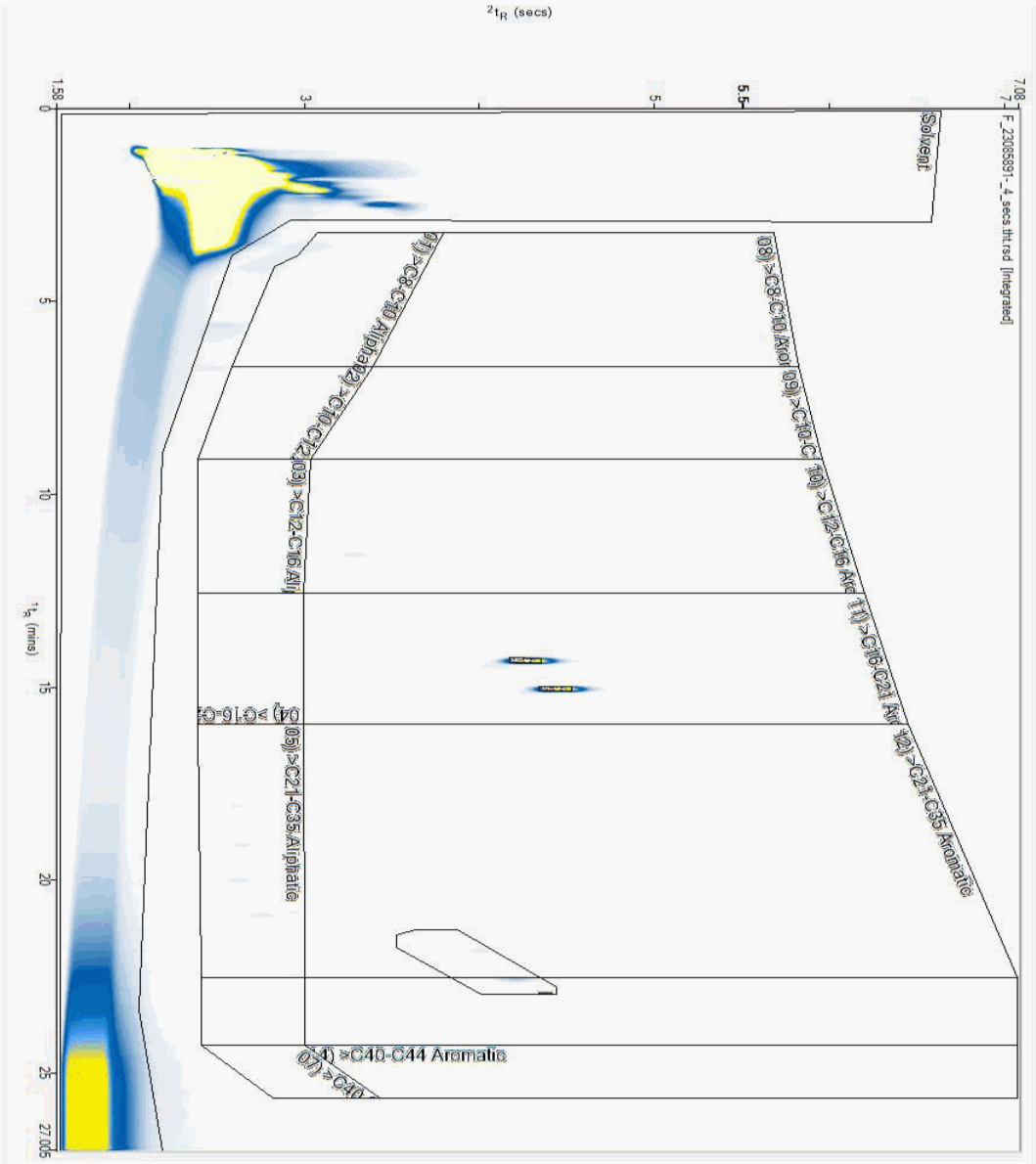
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085891 **Depth :** 1.50 - 1.60
Sample ID : TP008

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23085891-_4_secs.tht
Date Acquired   :  22/10/20 06:29:53
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



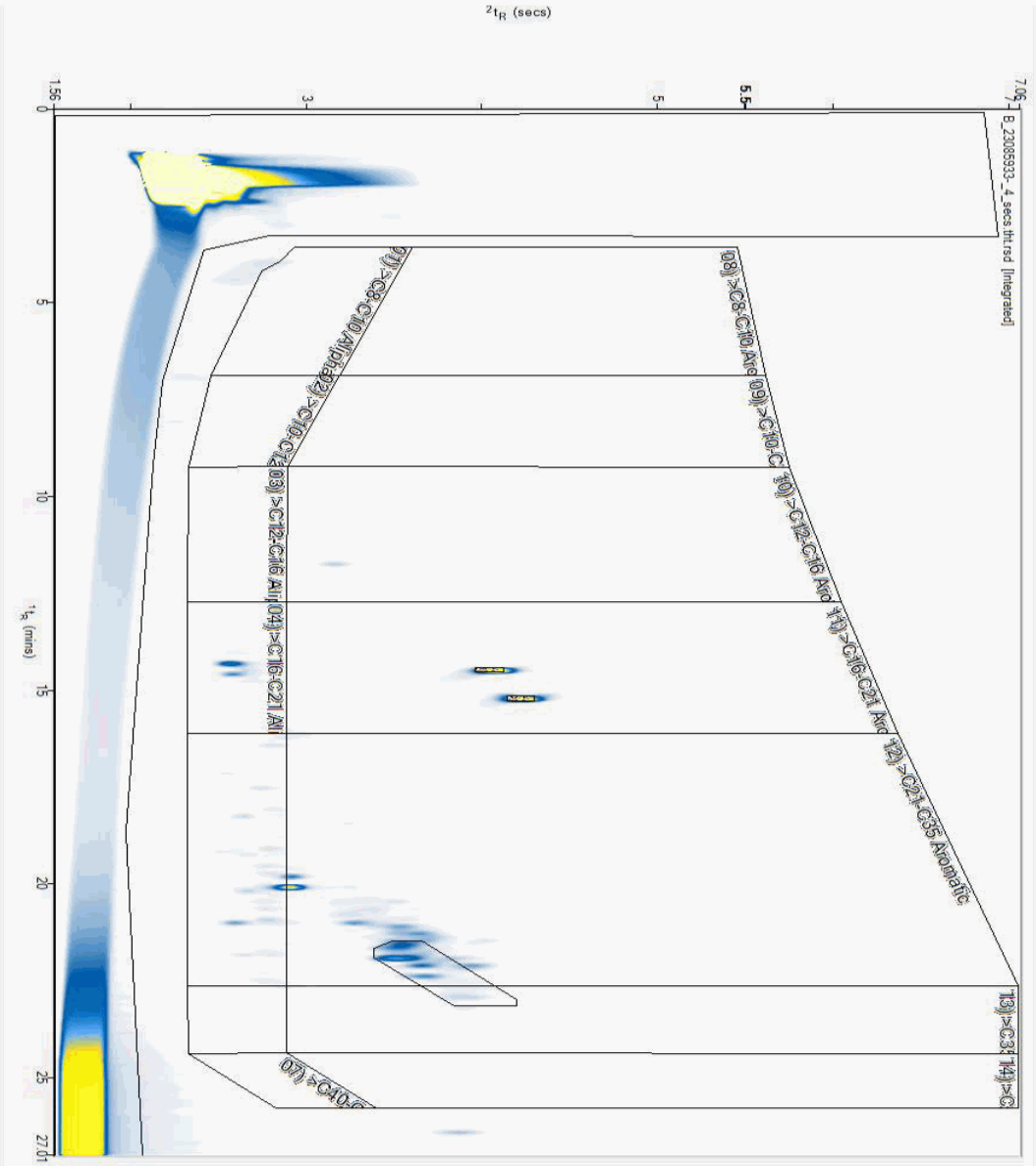
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085933 **Depth :** 1.10 - 1.20
Sample ID : TP311

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23085933-_4_secs.tht
Date Acquired   :  22/10/20 11:23:17
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



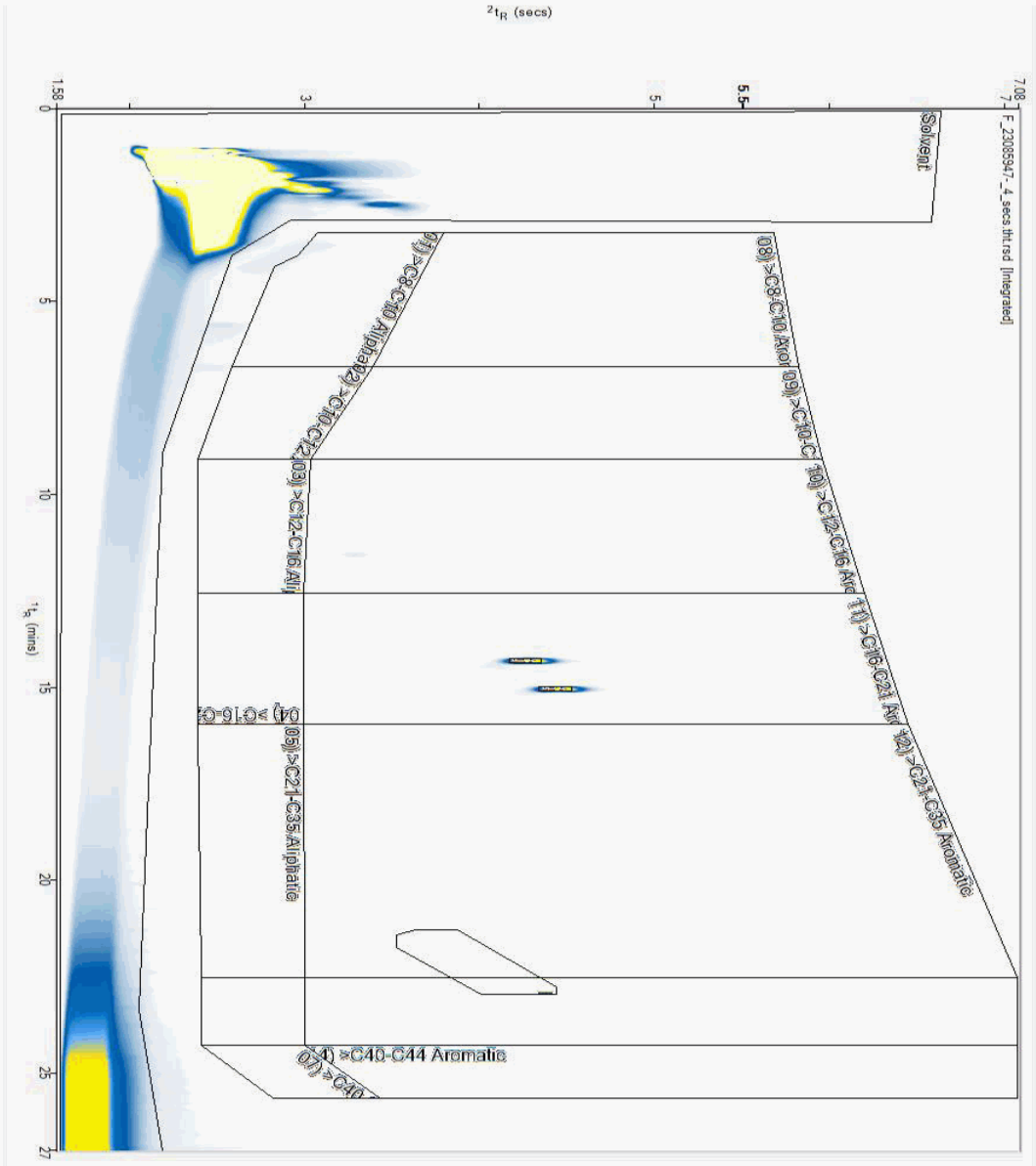
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085947 **Depth :** 0.50 - 0.60
Sample ID : TP009

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23085947-_4_secs.tht
Date Acquired   :  22/10/20 07:01:31
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



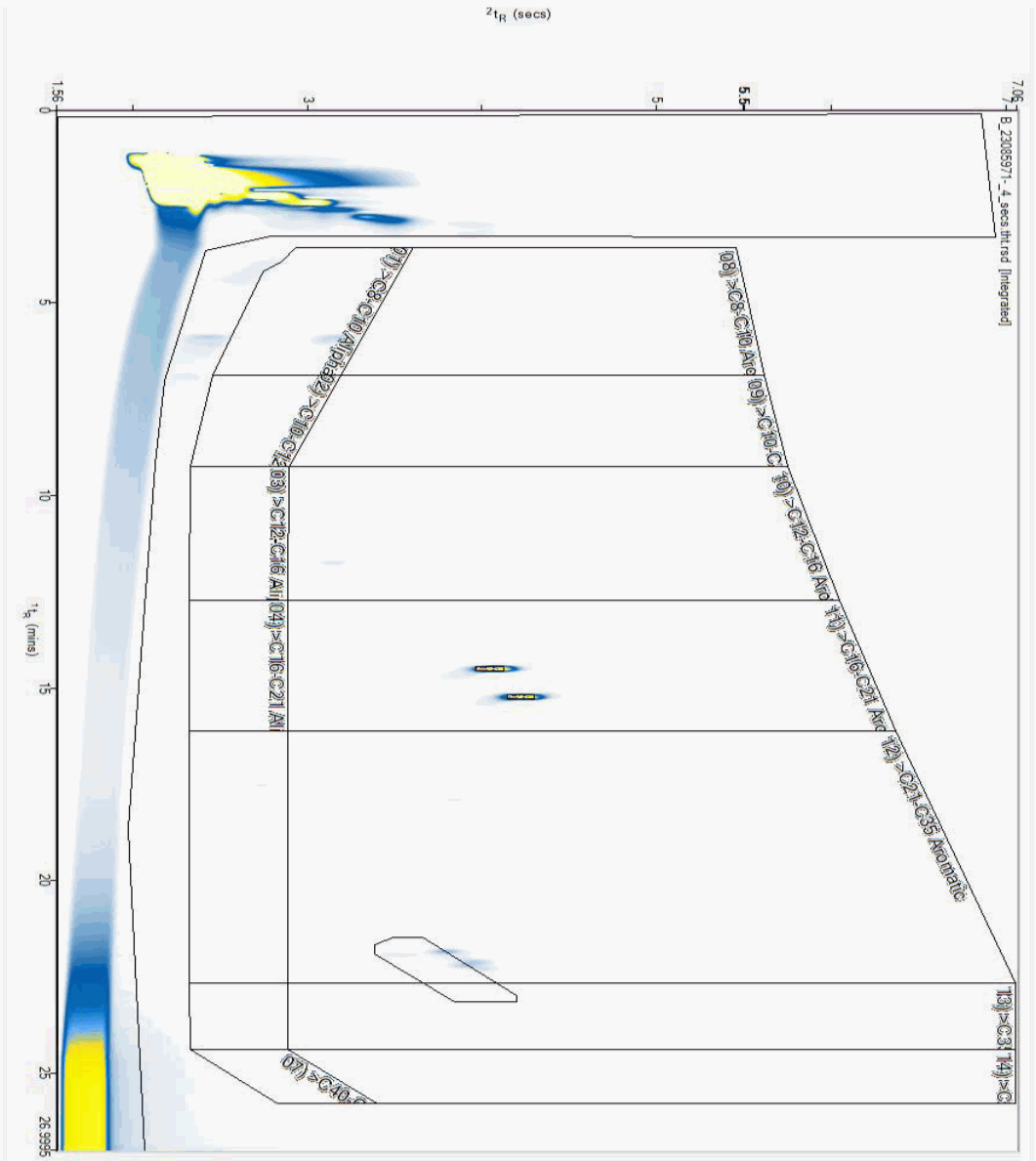
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085971 **Depth :** 1.60 - 1.70
Sample ID : TP203

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23085971-_4_secs.tht
Date Acquired   :  22/10/20 03:52:04
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



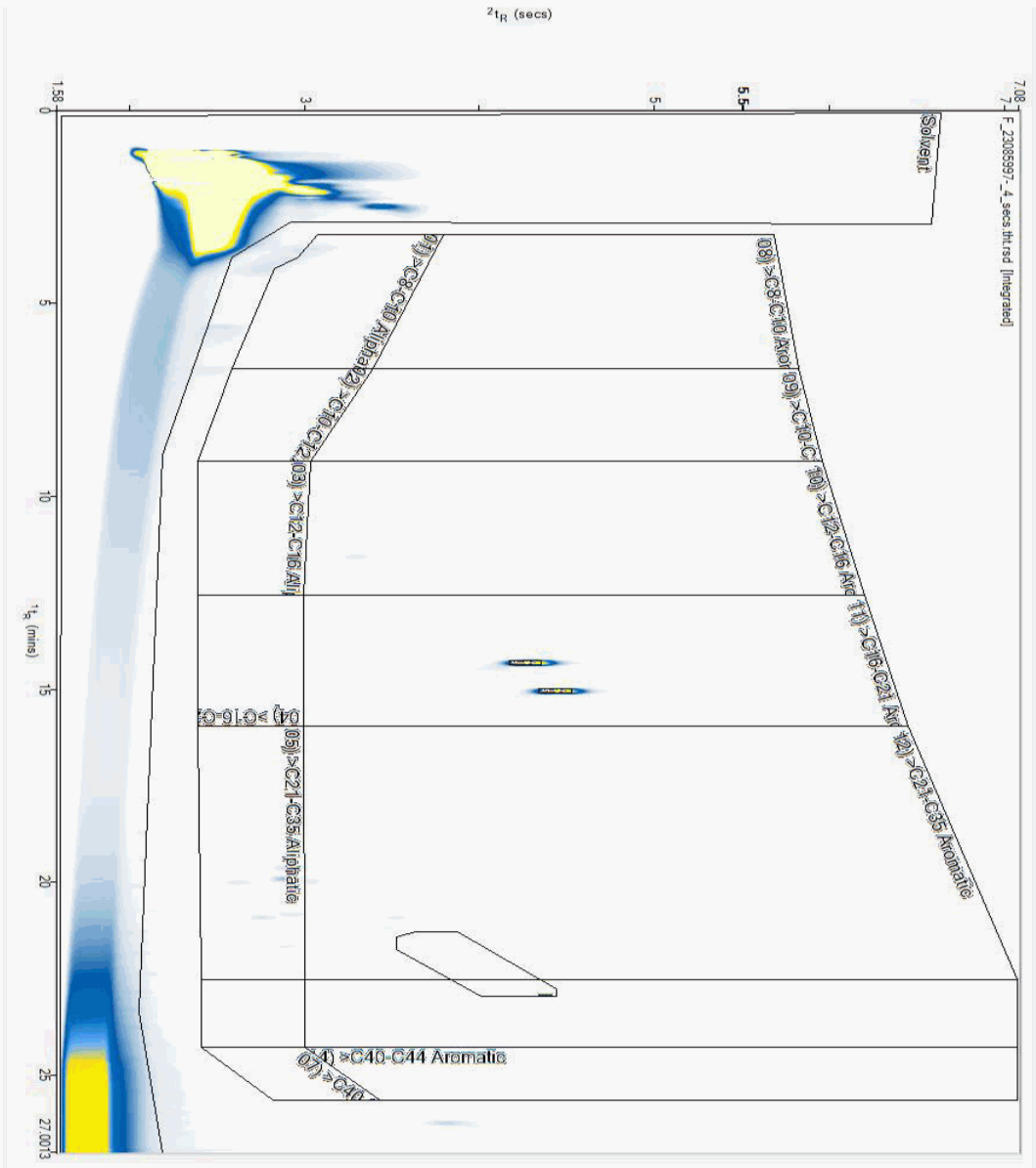
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23085997 **Depth :** 0.50 - 0.60
Sample ID : TP202

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23085997-_4_secs.tht
Date Acquired   :  22/10/20 08:04:32
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

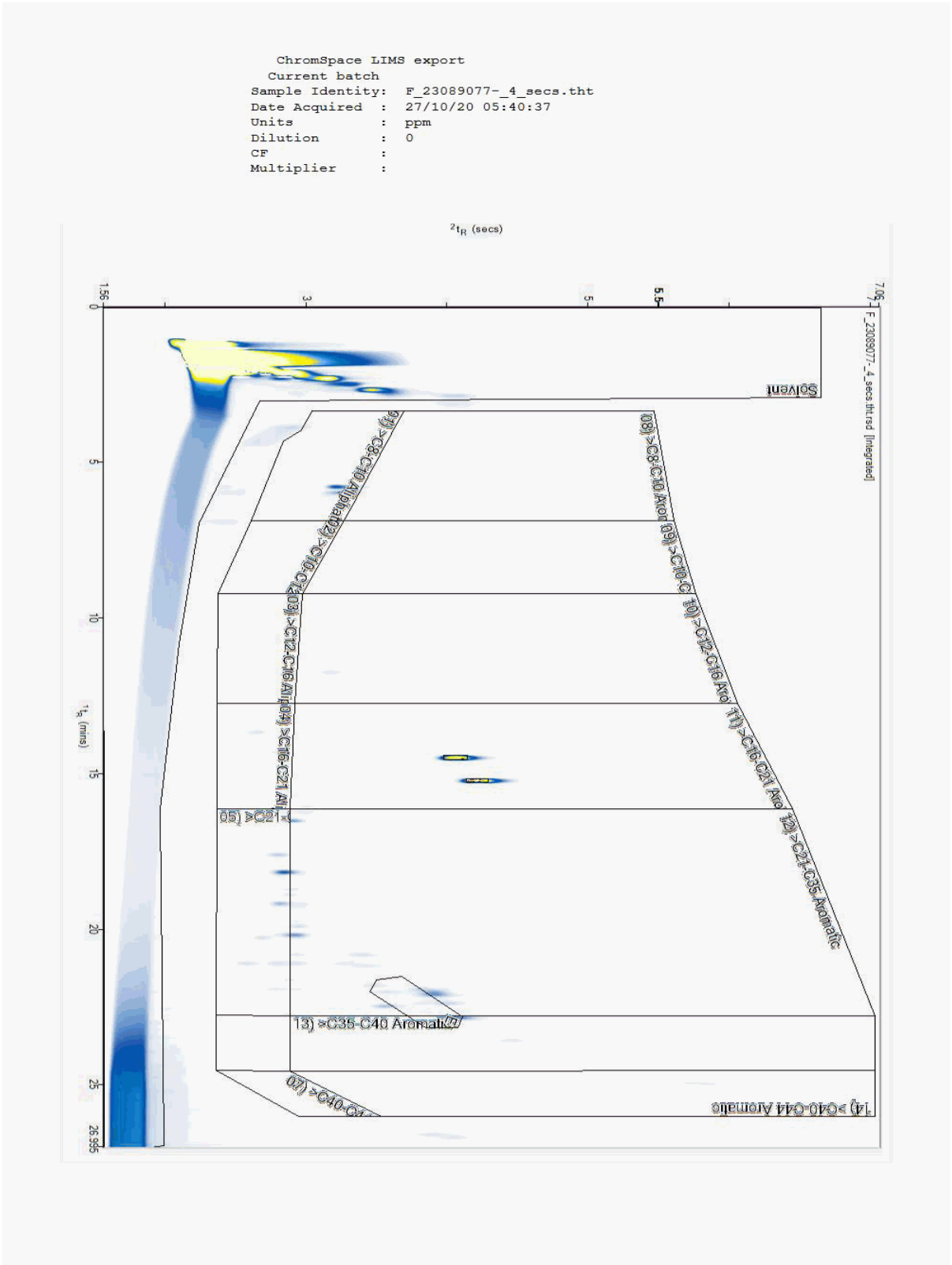


CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23089077 **Depth :** 0.50 - 0.60
Sample ID : TP203



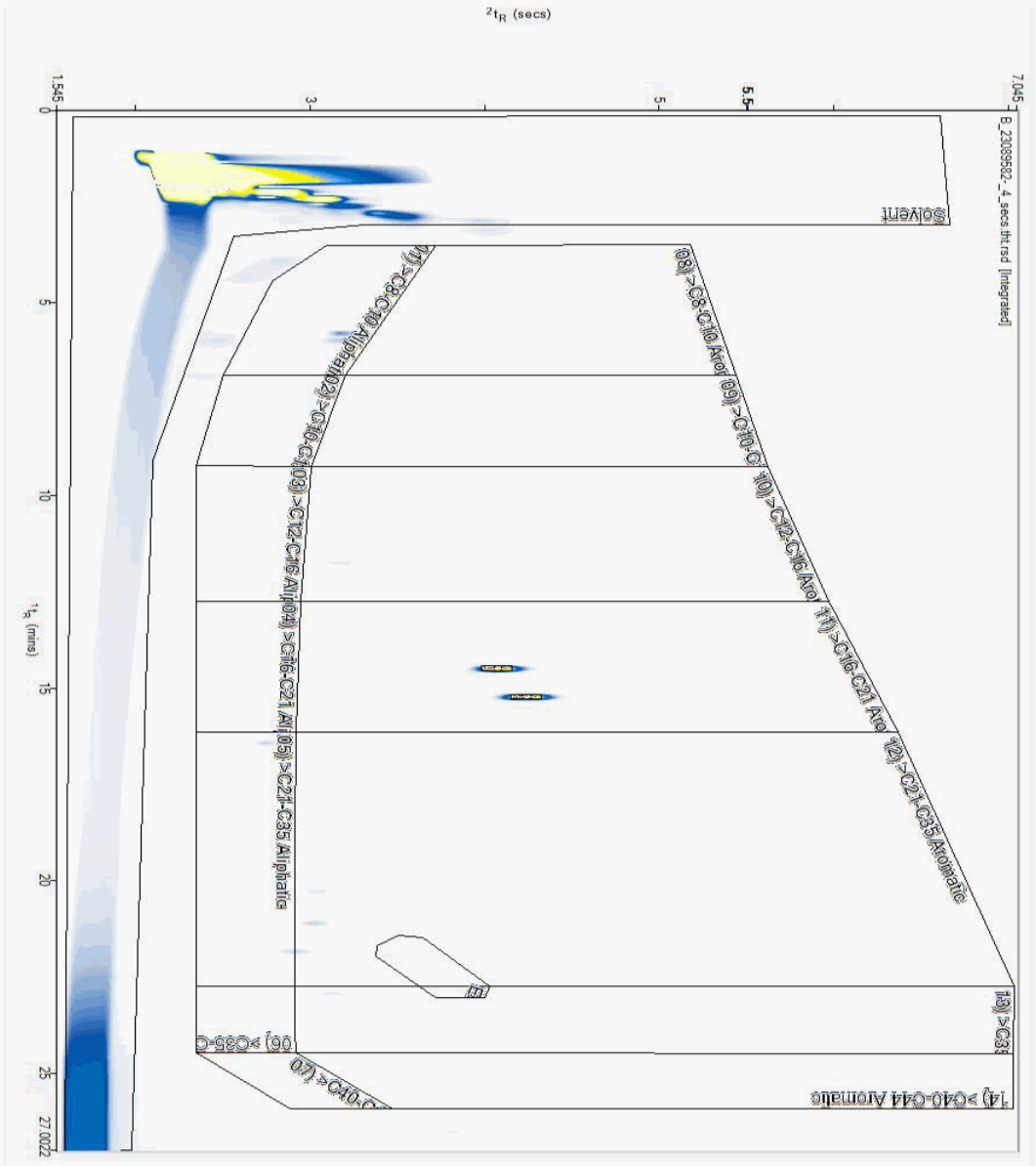
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23089582 **Depth :** 2.10 - 2.20
Sample ID : TP311

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23089582-_4_secs.tht
Date Acquired   :  27/10/20 04:06:29
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



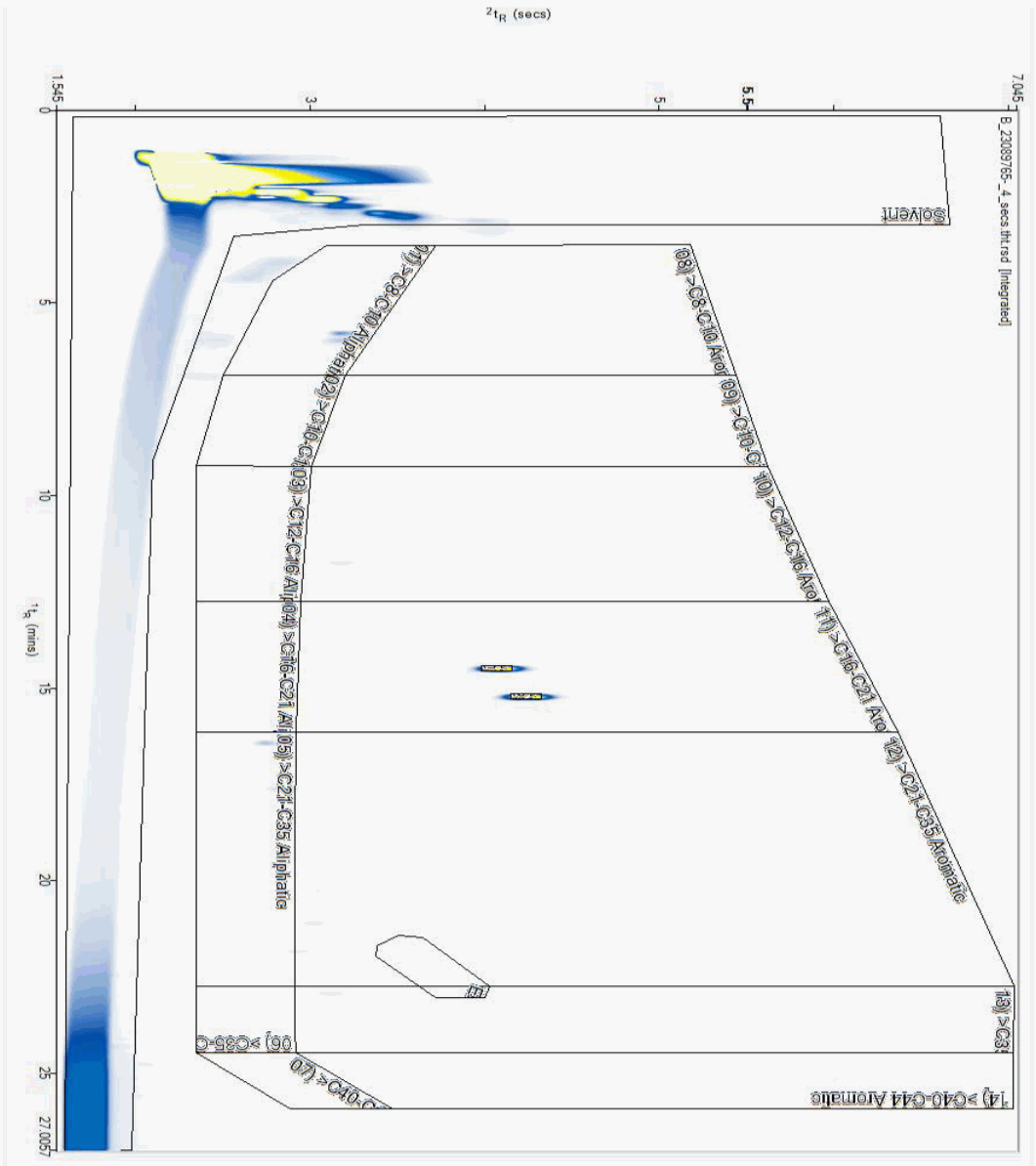
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23089765 **Depth :** 1.40 - 1.50
Sample ID : TP202

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23089765-_4_secs.tht
Date Acquired   :  27/10/20 04:37:51
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



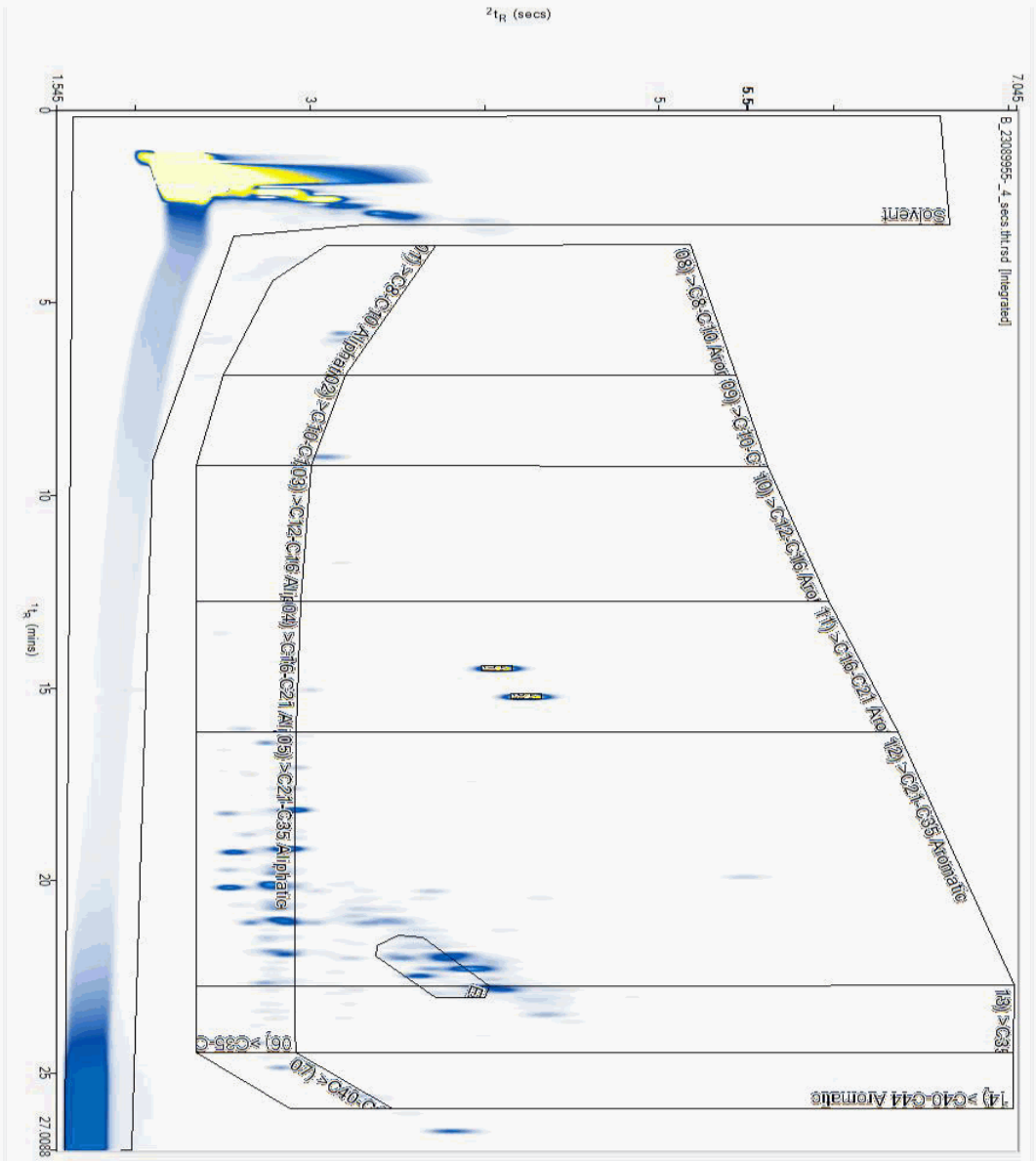
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23089955 **Depth :** 3.10 - 3.20
Sample ID : TP311

```
  ChromSpace LIMS export
 Current batch
Sample Identity:  B_23089955-_4_secs.tht
Date Acquired   :  27/10/20 05:09:14
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

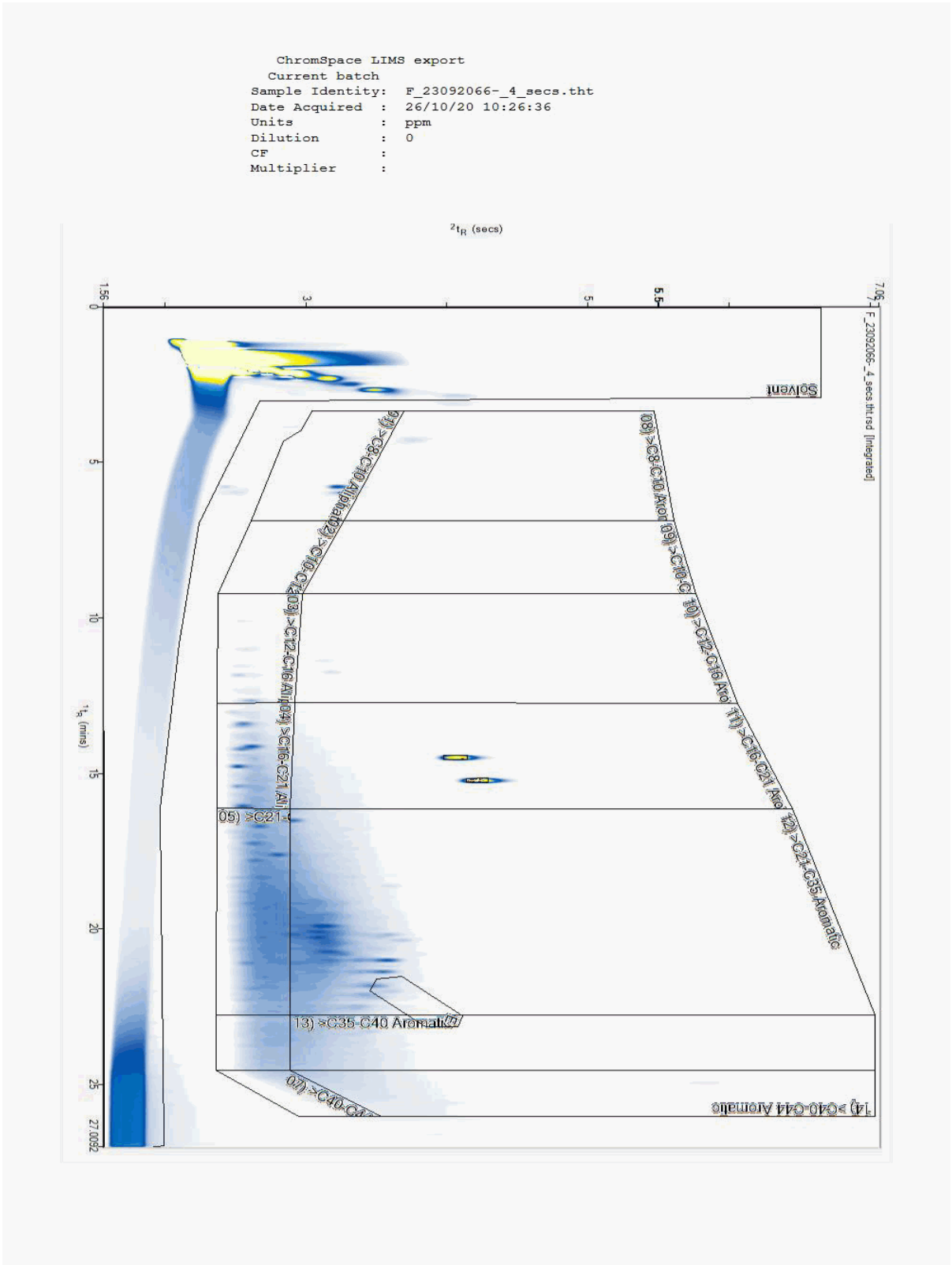


CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23092066 **Depth :** 0.40 - 0.50
Sample ID : TP311



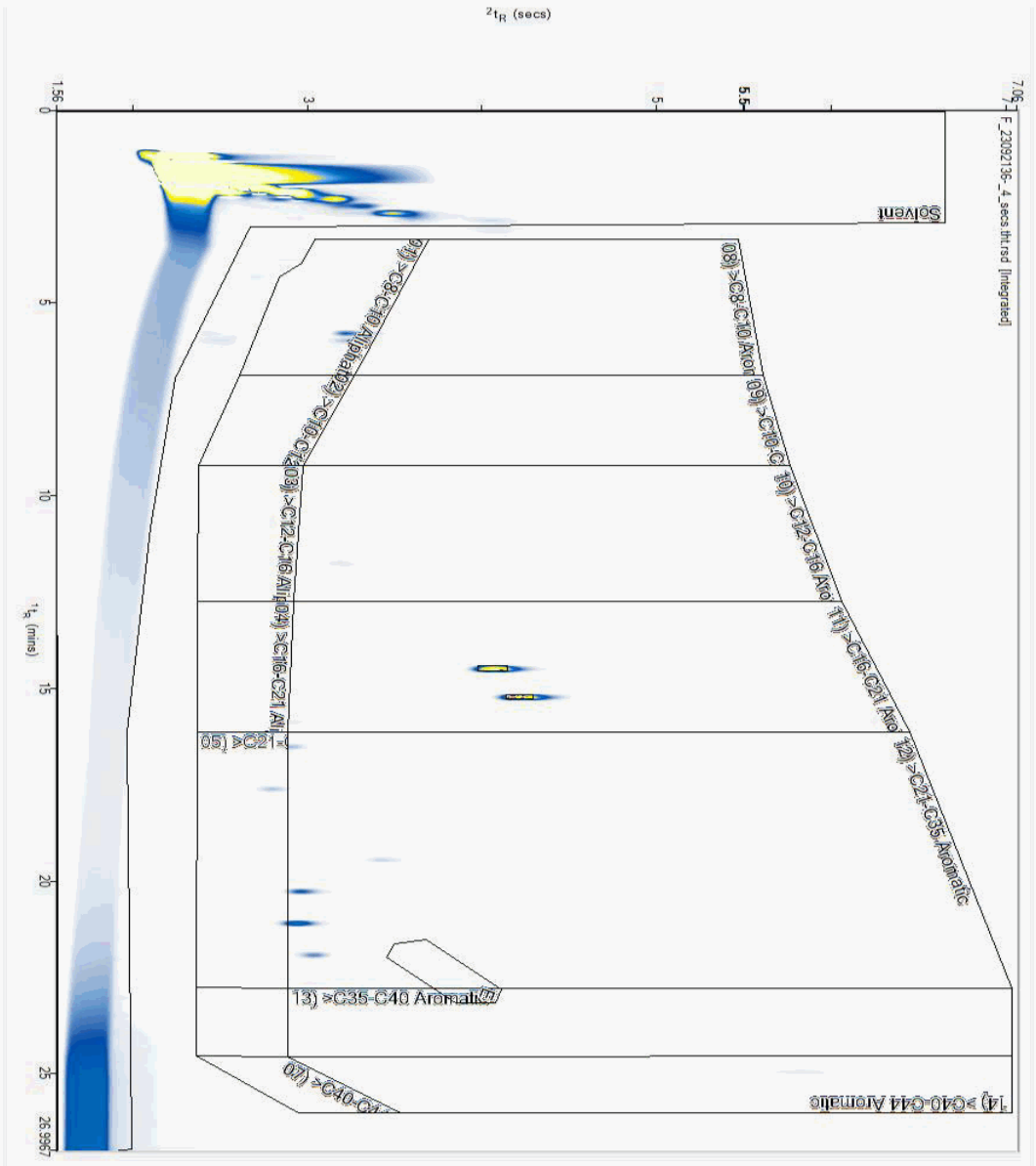
CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23092136 **Depth :** 1.50 - 1.60
Sample ID : TP009

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23092136-_4_secs.tht
Date Acquired   :  26/10/20 04:41:02
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

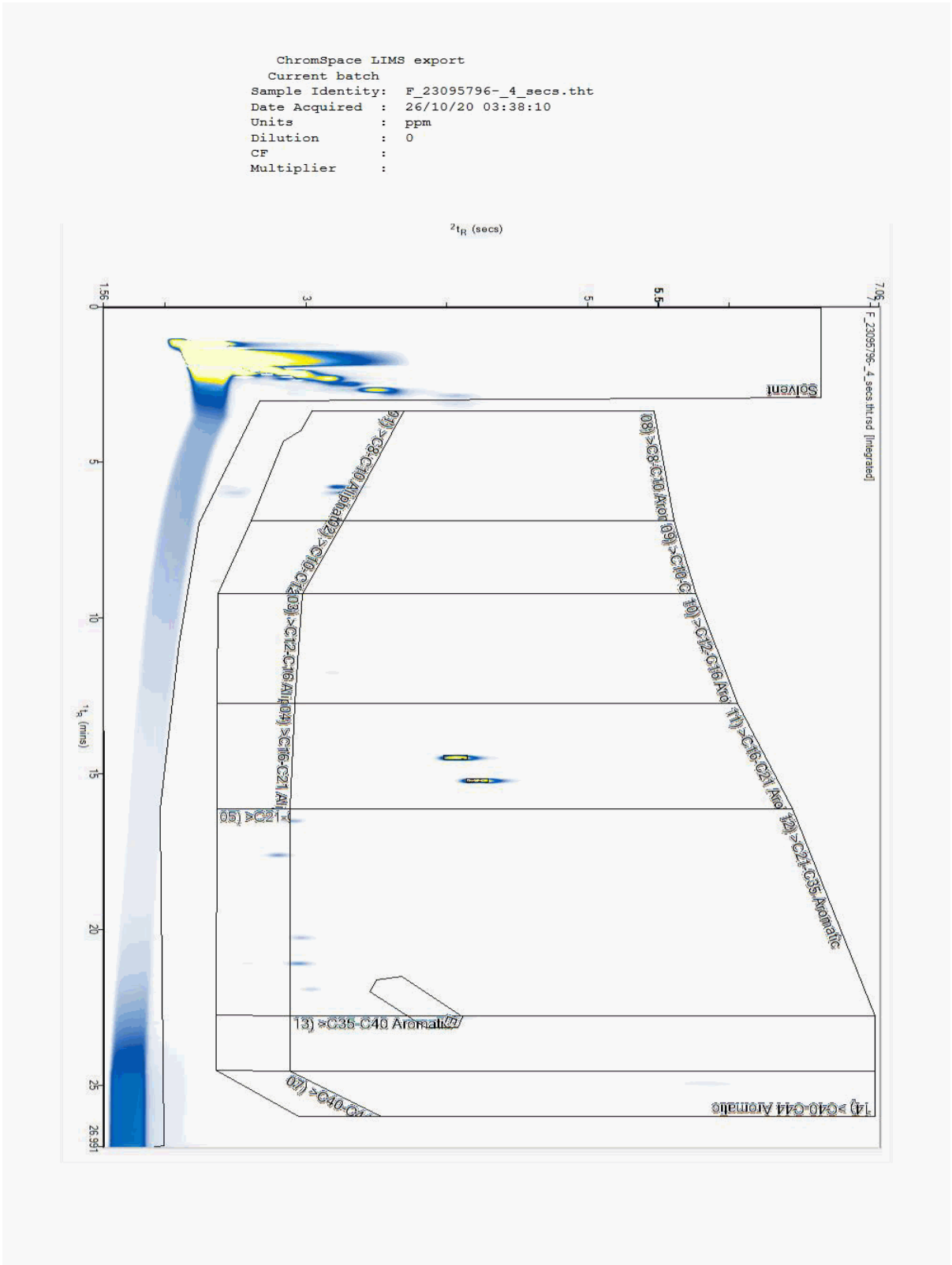


CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23095796 **Depth :** 1.50 - 1.60
Sample ID : TP007



CERTIFICATE OF ANALYSIS

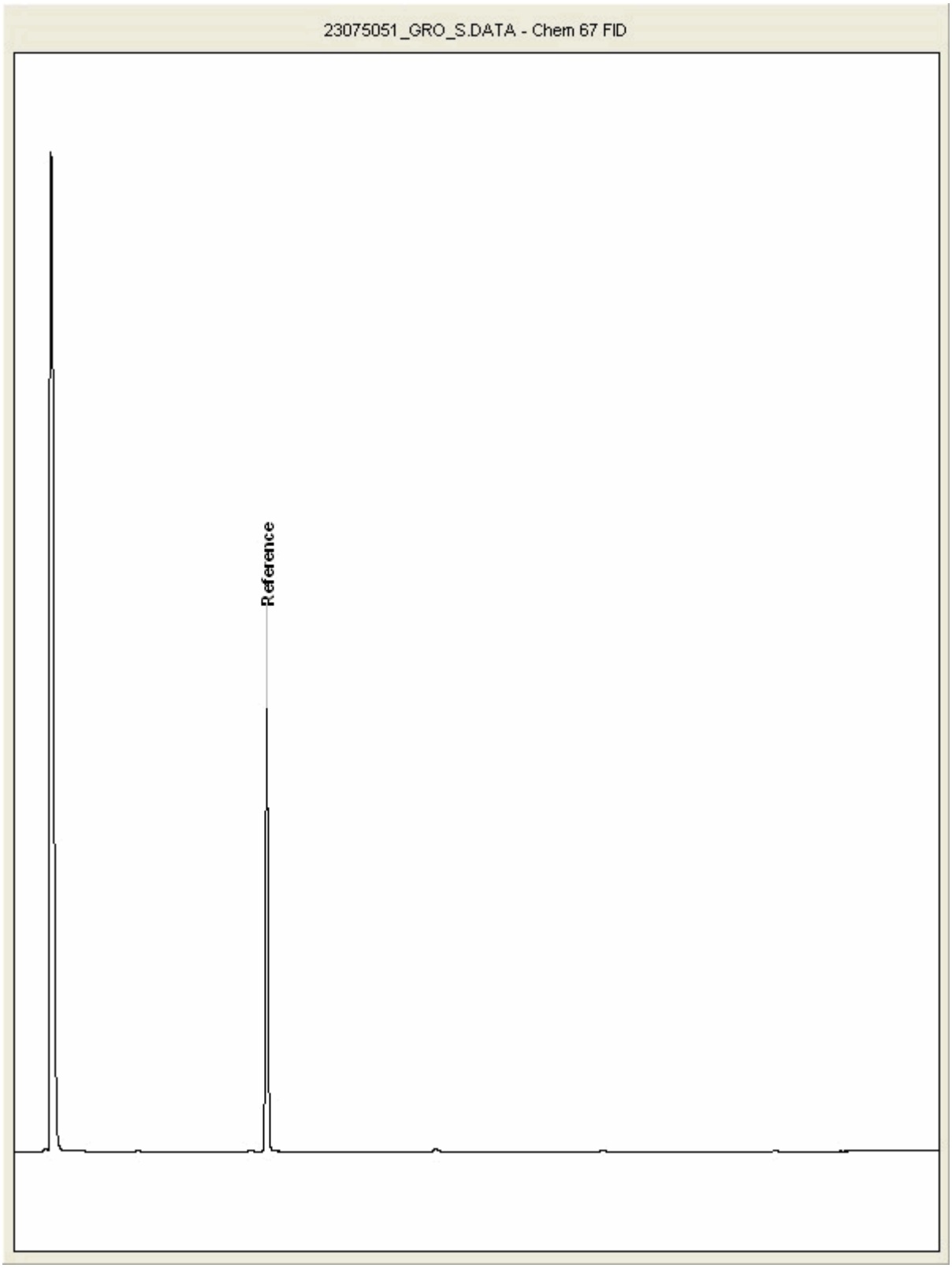
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075051
Sample ID : TP311

Depth : 2.10 - 2.20

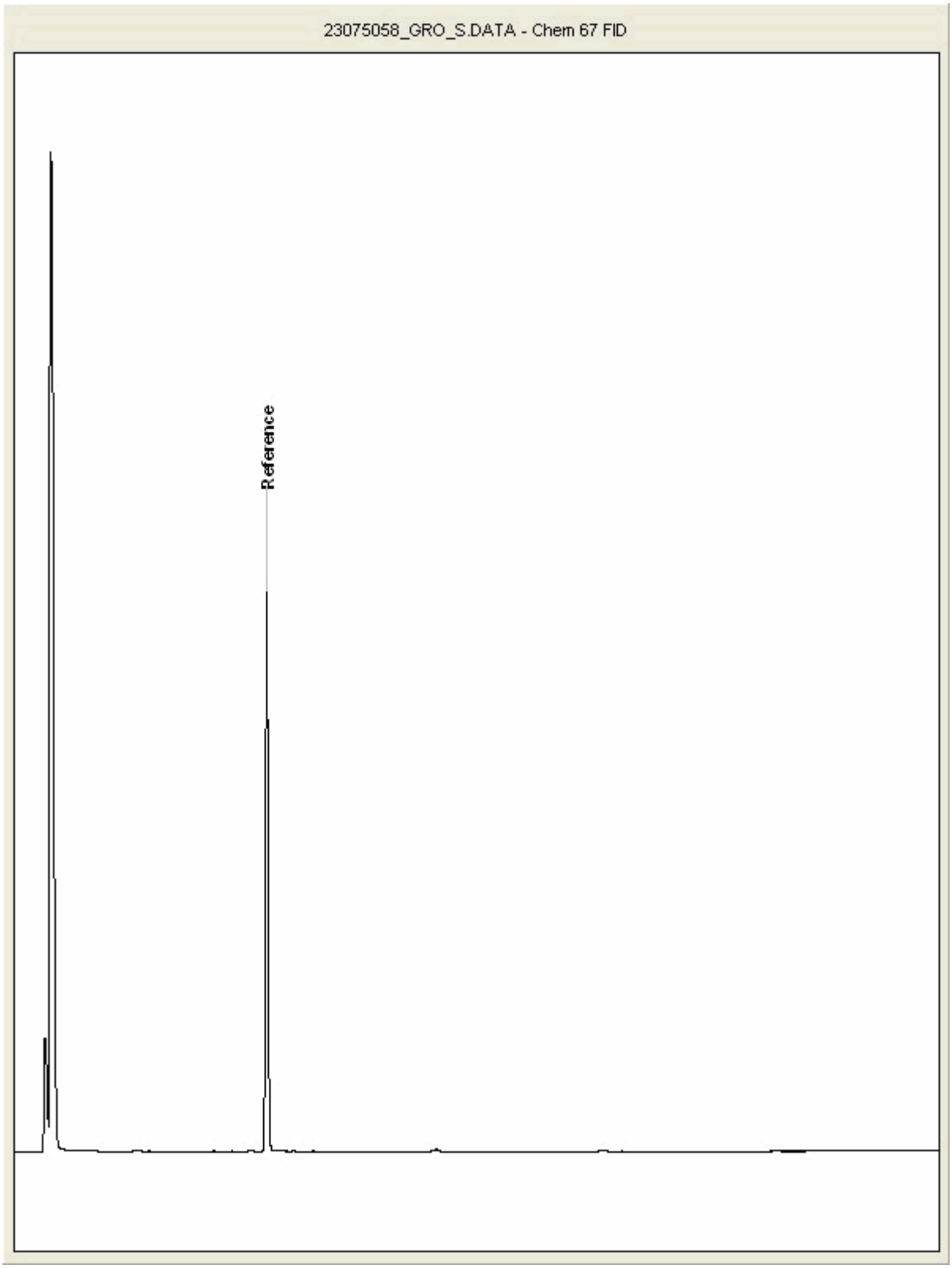


CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 23075058 **Sample ID :** TP311 **Depth :** 3.10 - 3.20



CERTIFICATE OF ANALYSIS

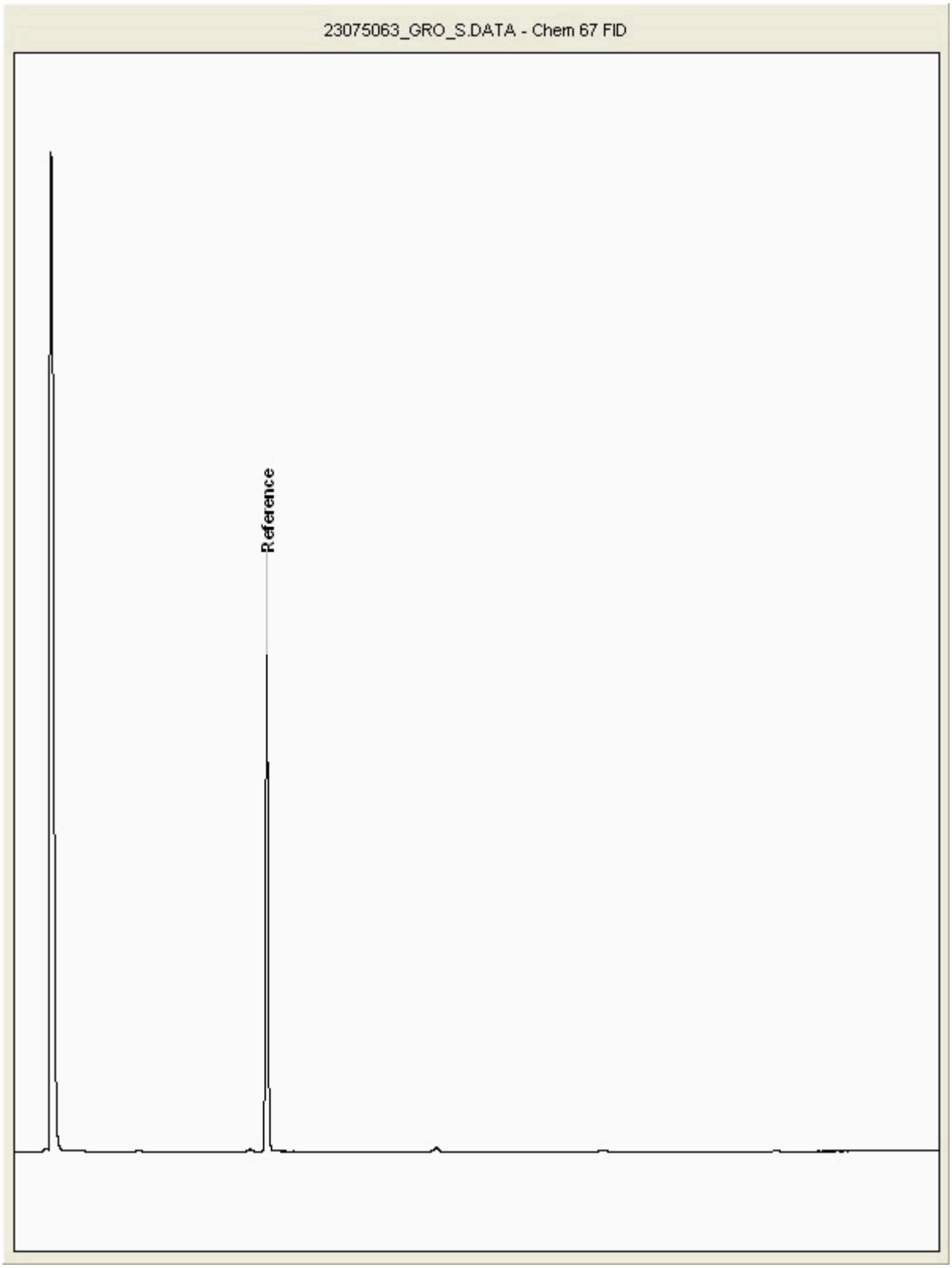
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075063
Sample ID : TP009

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

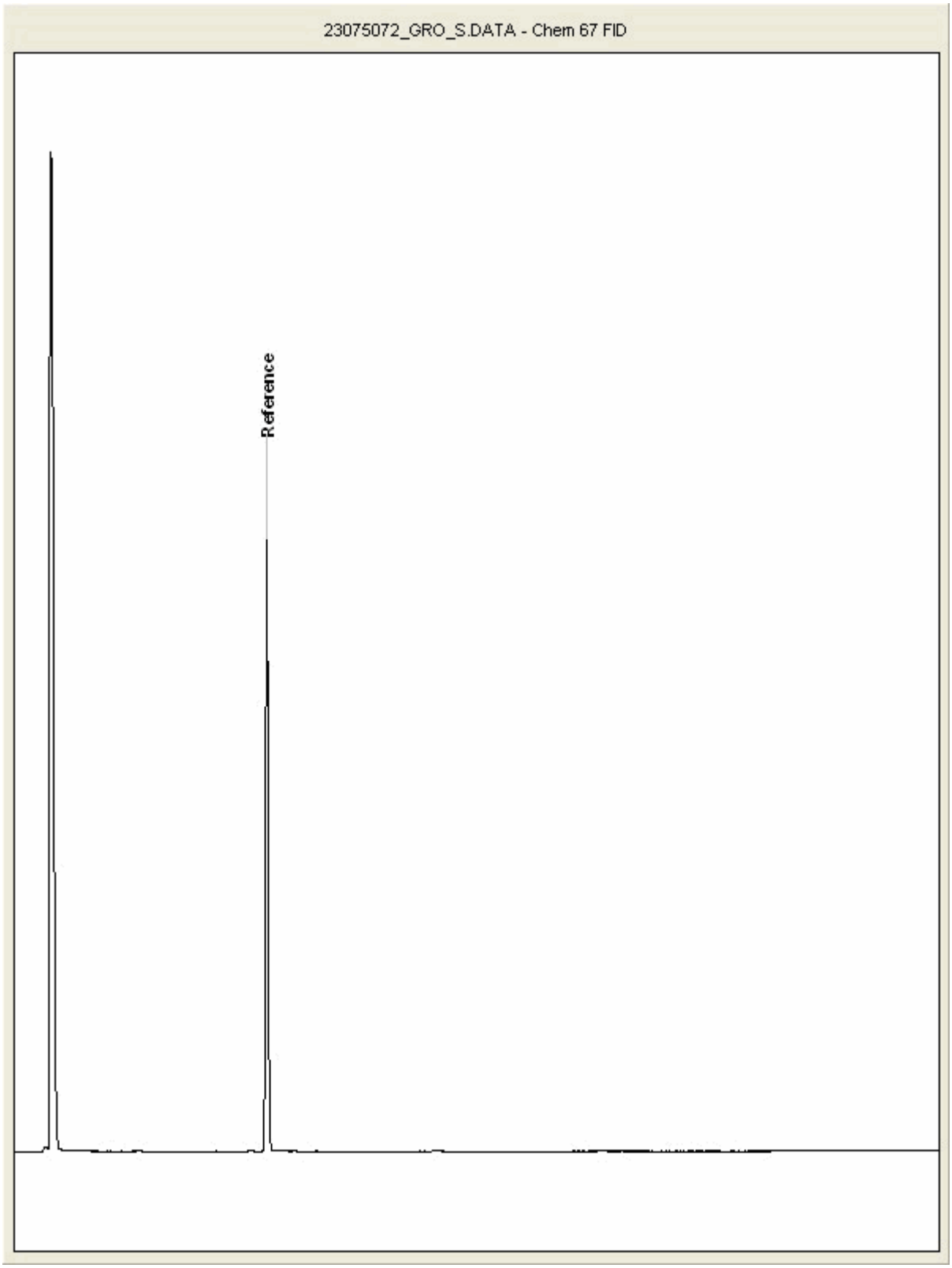
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075072
Sample ID : TP202

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

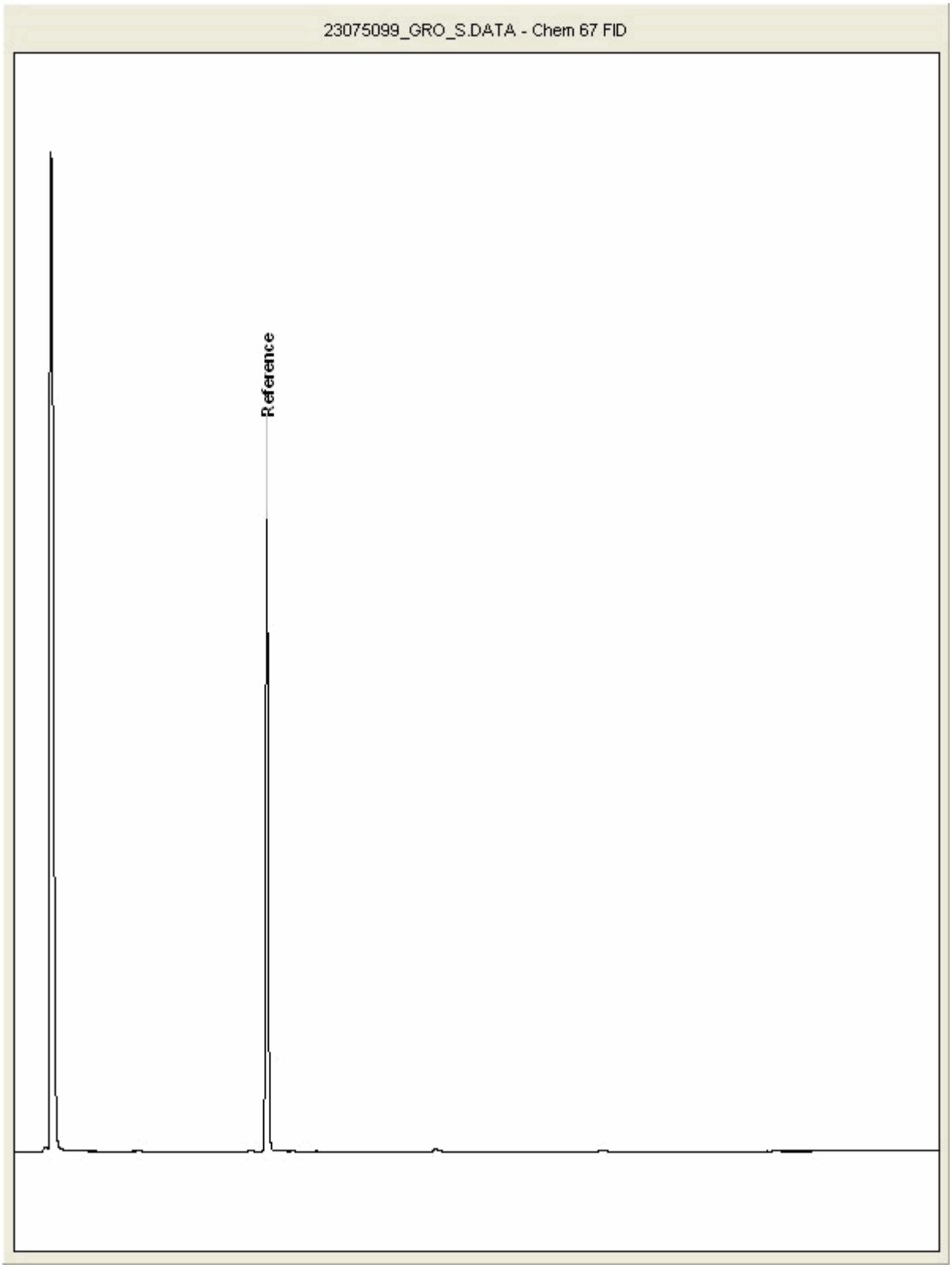
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075099
Sample ID : TP202

Depth : 1.40 - 1.50



CERTIFICATE OF ANALYSIS

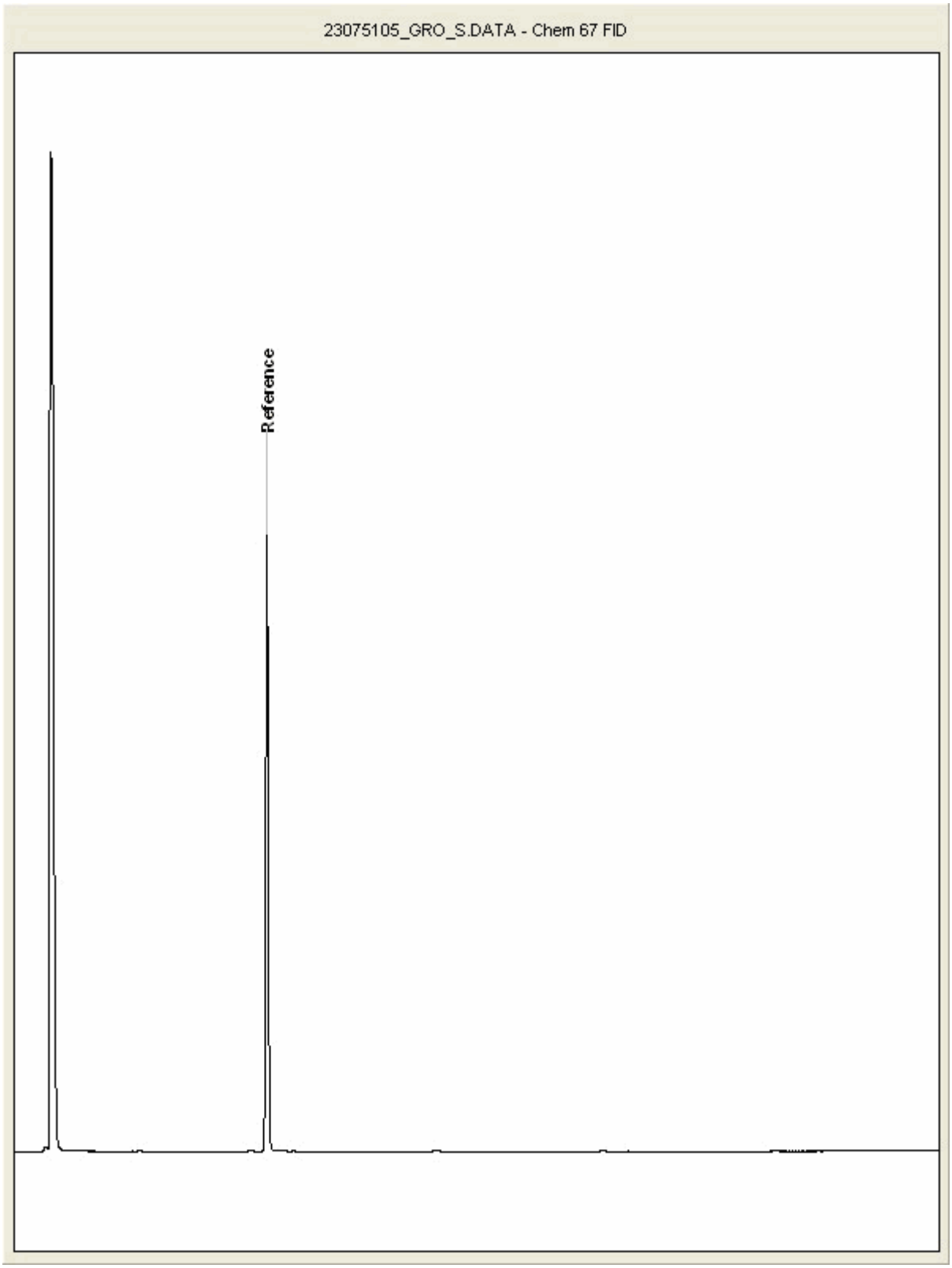
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075105
Sample ID : TP203

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

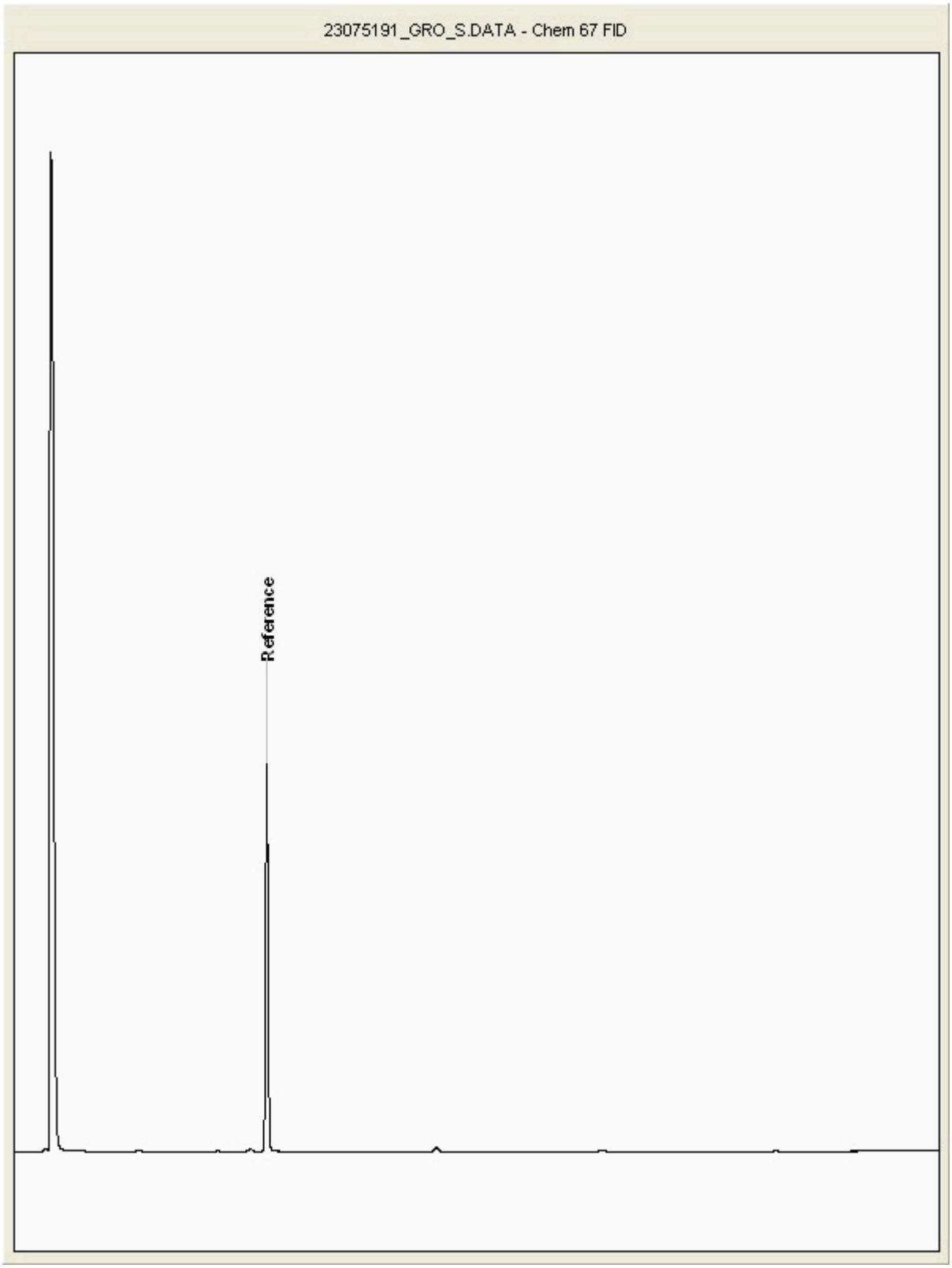
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075191
Sample ID : TP009

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

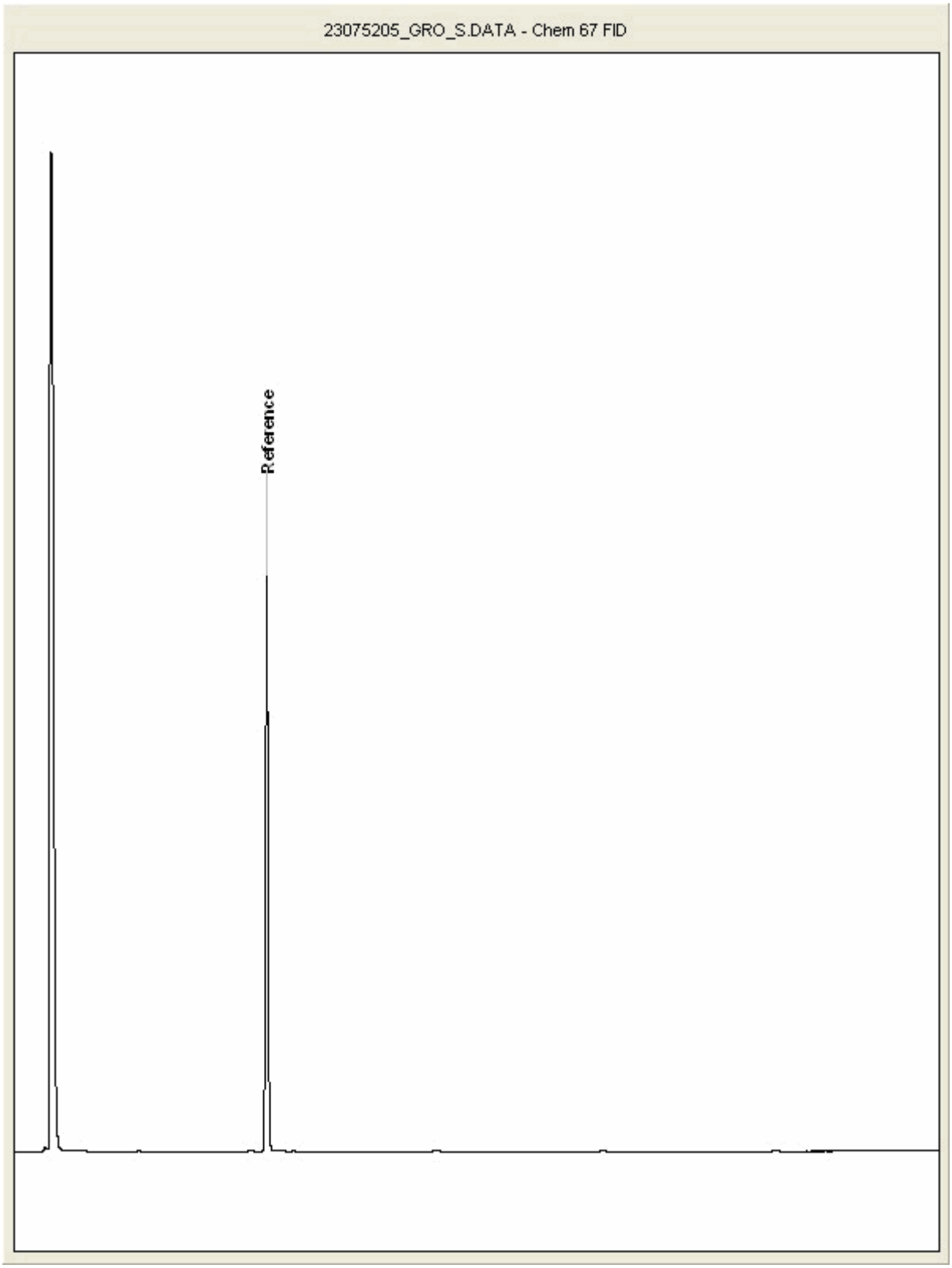
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075205
Sample ID : TP203

Depth : 1.60 - 1.70



CERTIFICATE OF ANALYSIS

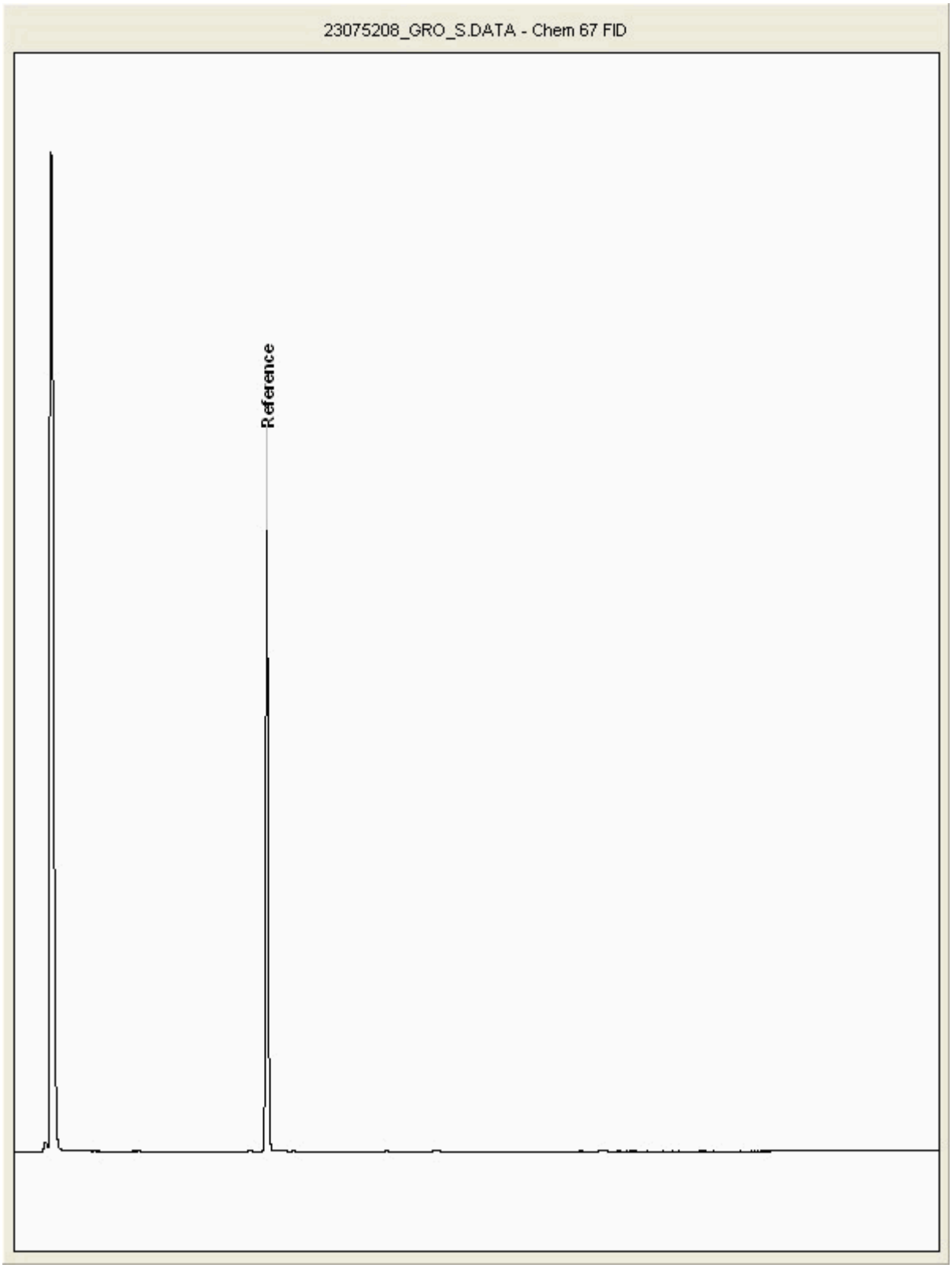
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075208
Sample ID : TP311

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

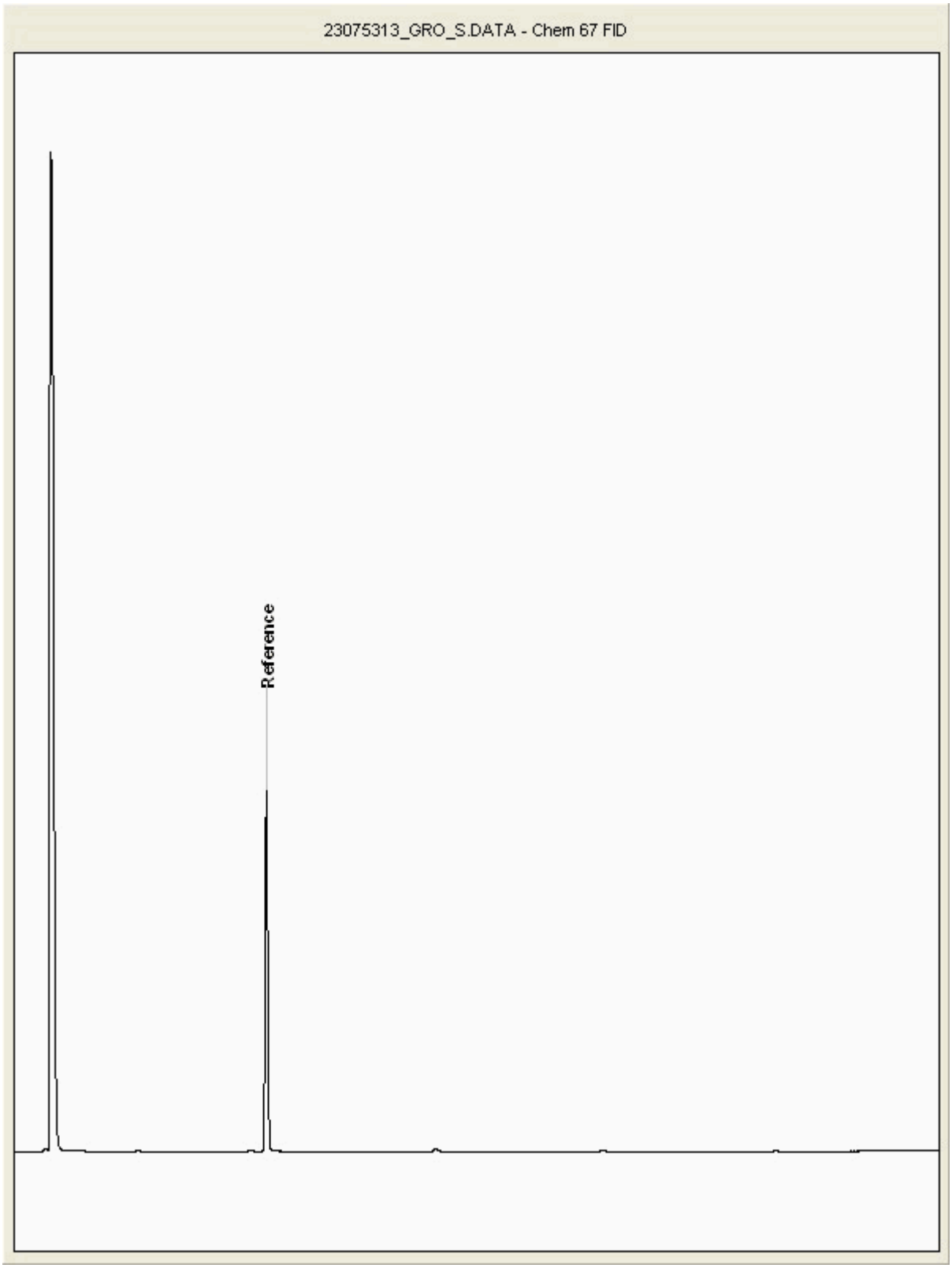
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075313
Sample ID : TP007

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

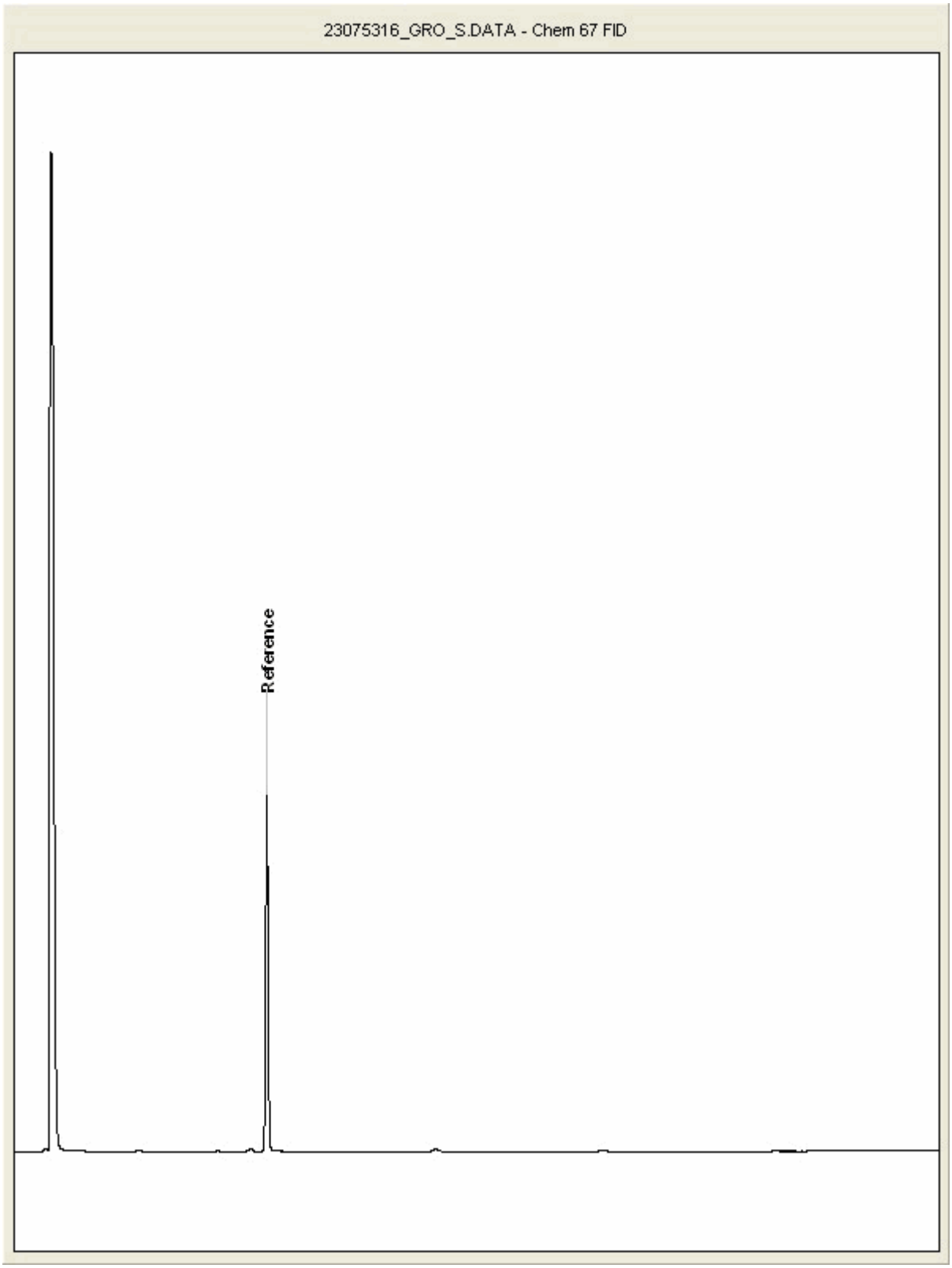
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075316
Sample ID : TP319

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

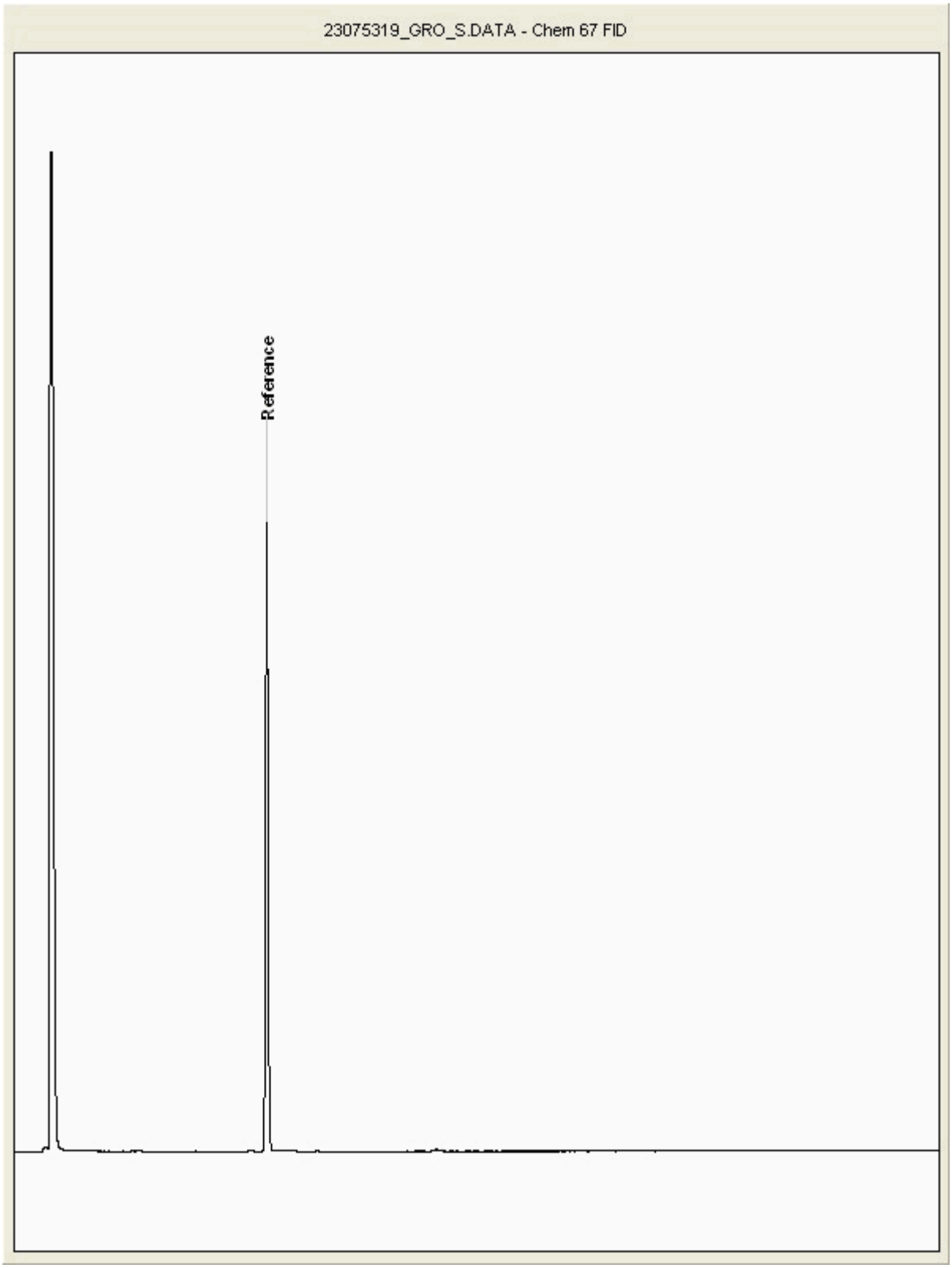
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075319
Sample ID : TP007

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

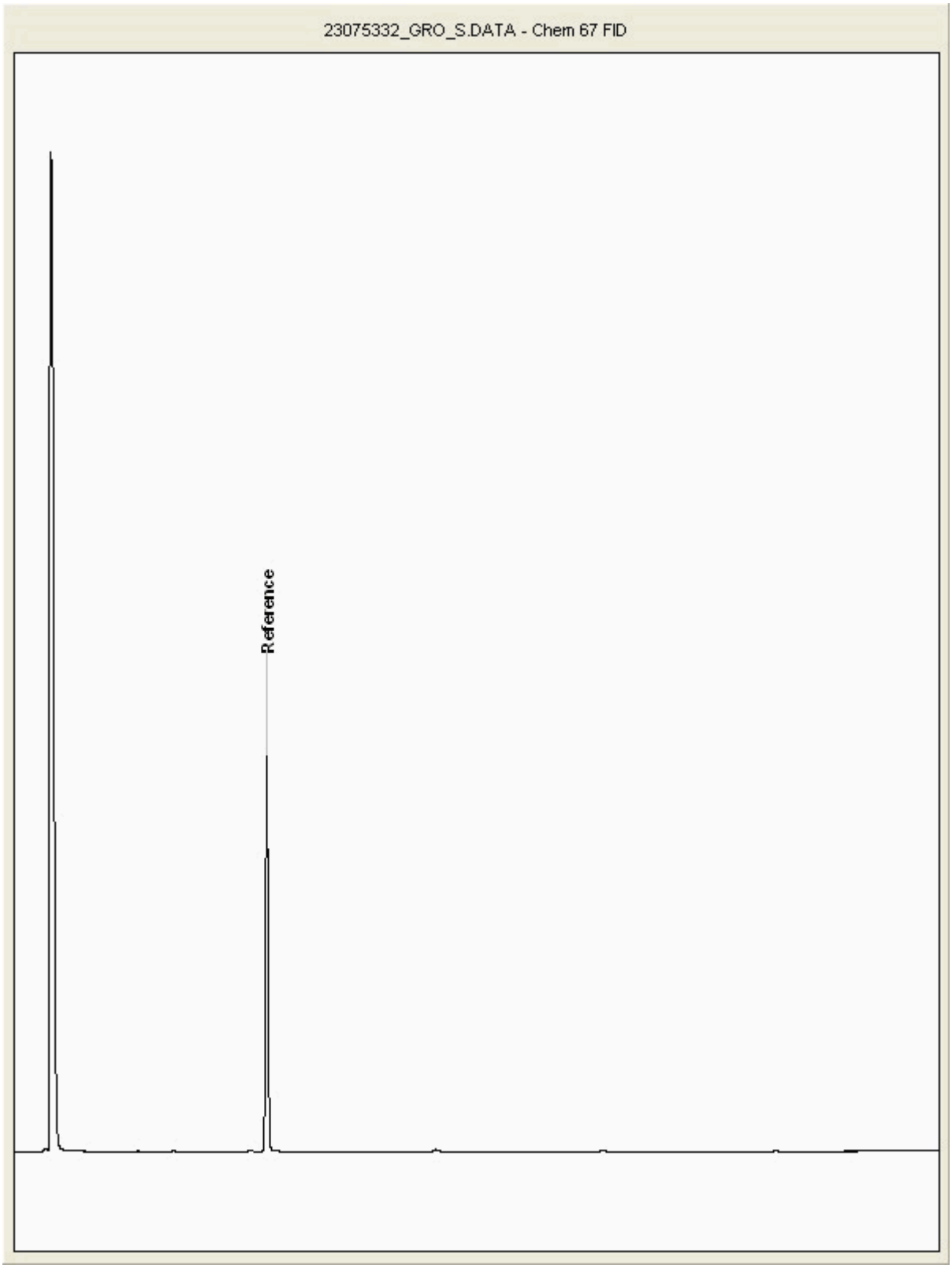
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075332
Sample ID : TP319

Depth : 1.20 - 1.30



CERTIFICATE OF ANALYSIS

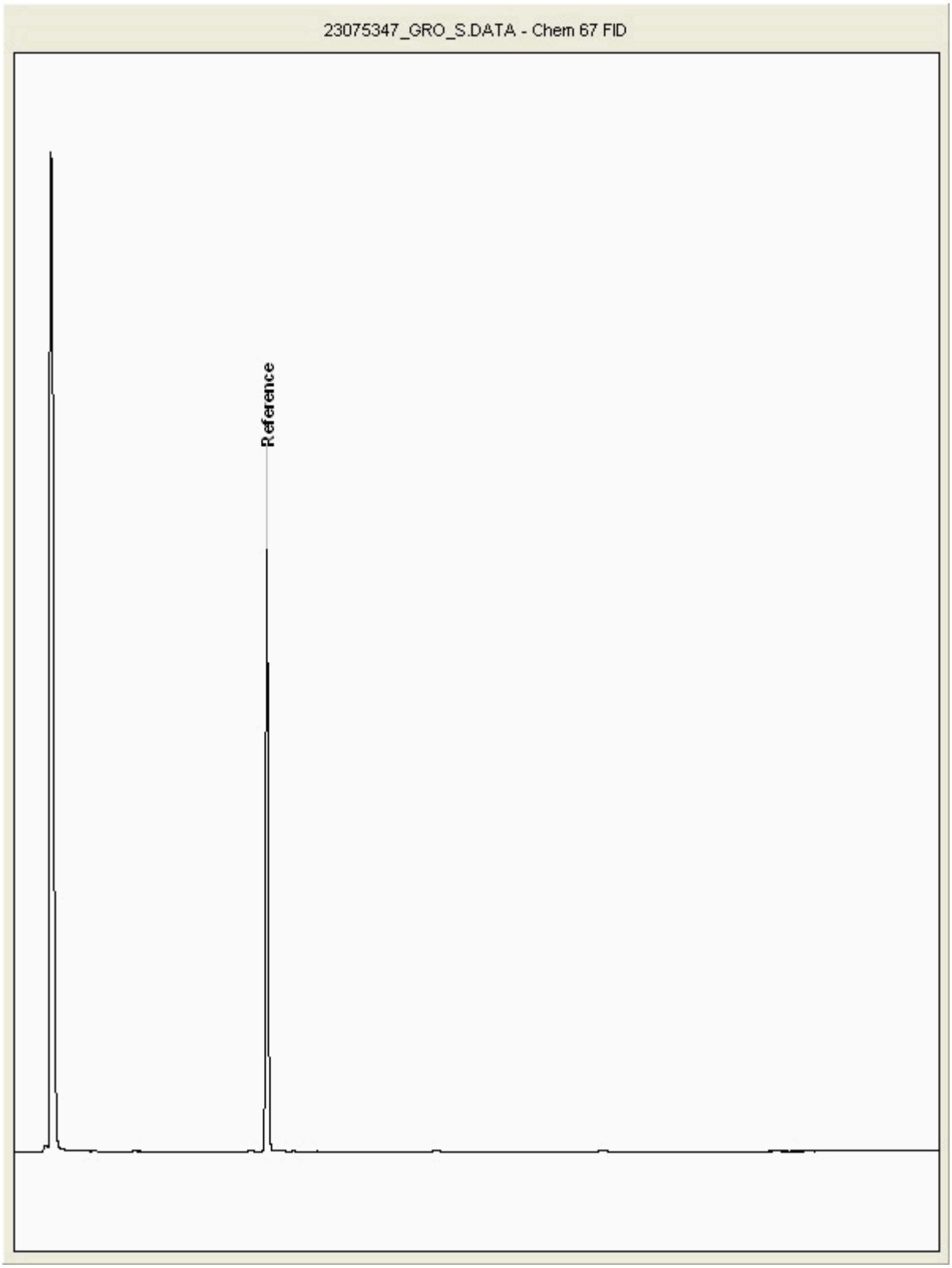
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075347
Sample ID : TP319

Depth : 3.50 - 3.60



CERTIFICATE OF ANALYSIS

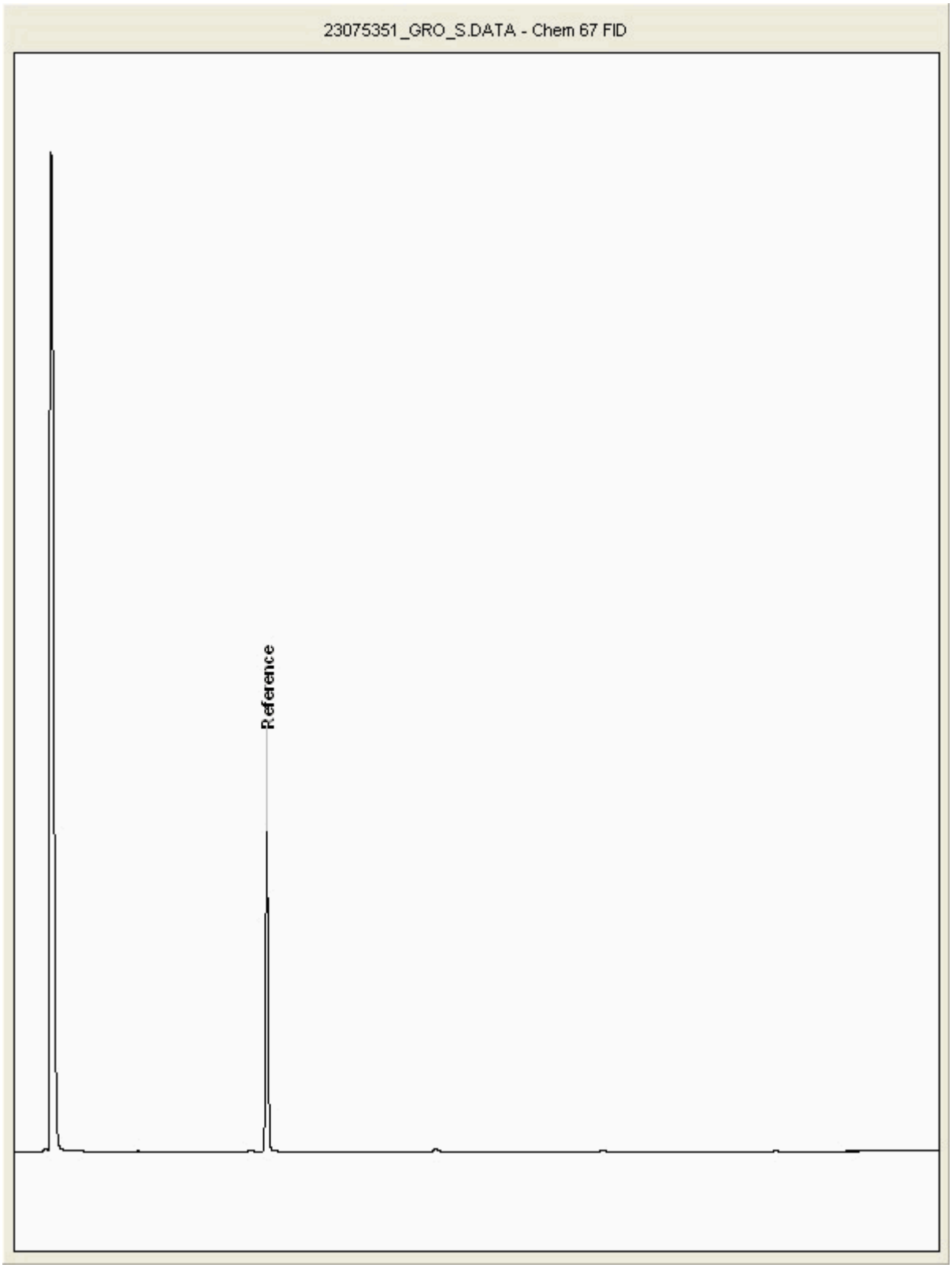
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075351
Sample ID : TP319

Depth : 2.30 - 2.40



CERTIFICATE OF ANALYSIS

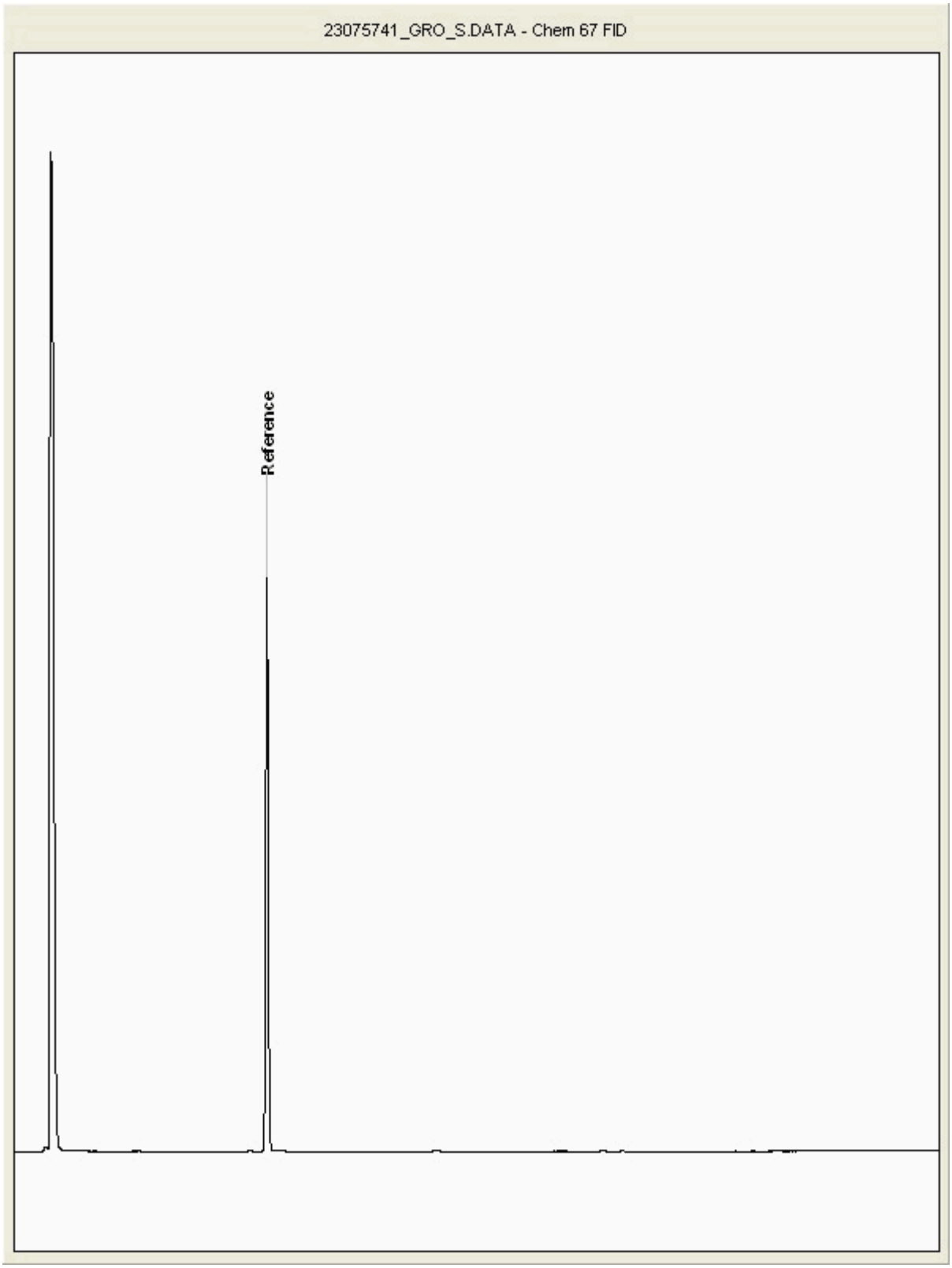
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075741
Sample ID : TP008

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

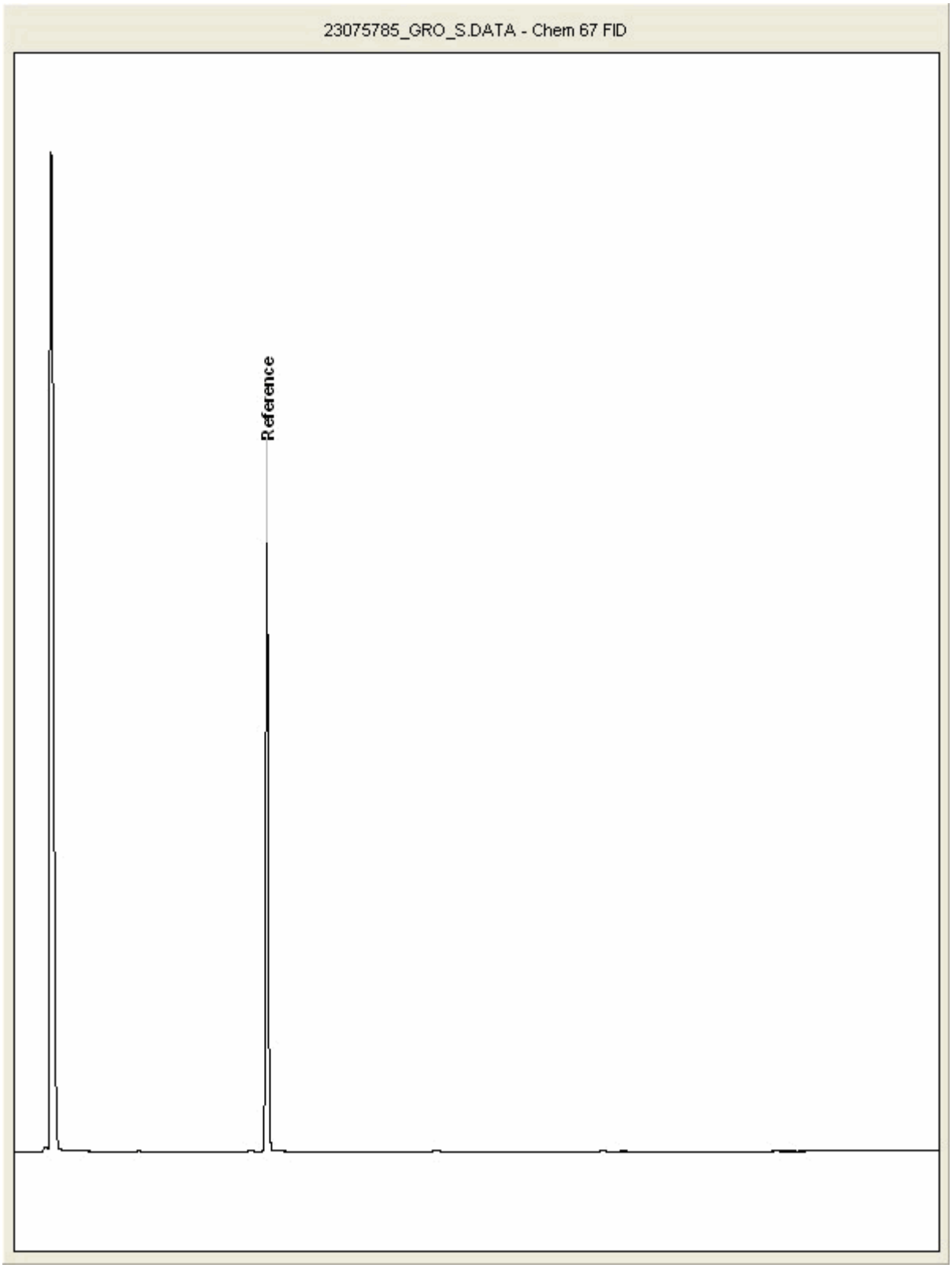
SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23075785
Sample ID : TP008

Depth : 0.40 - 0.50

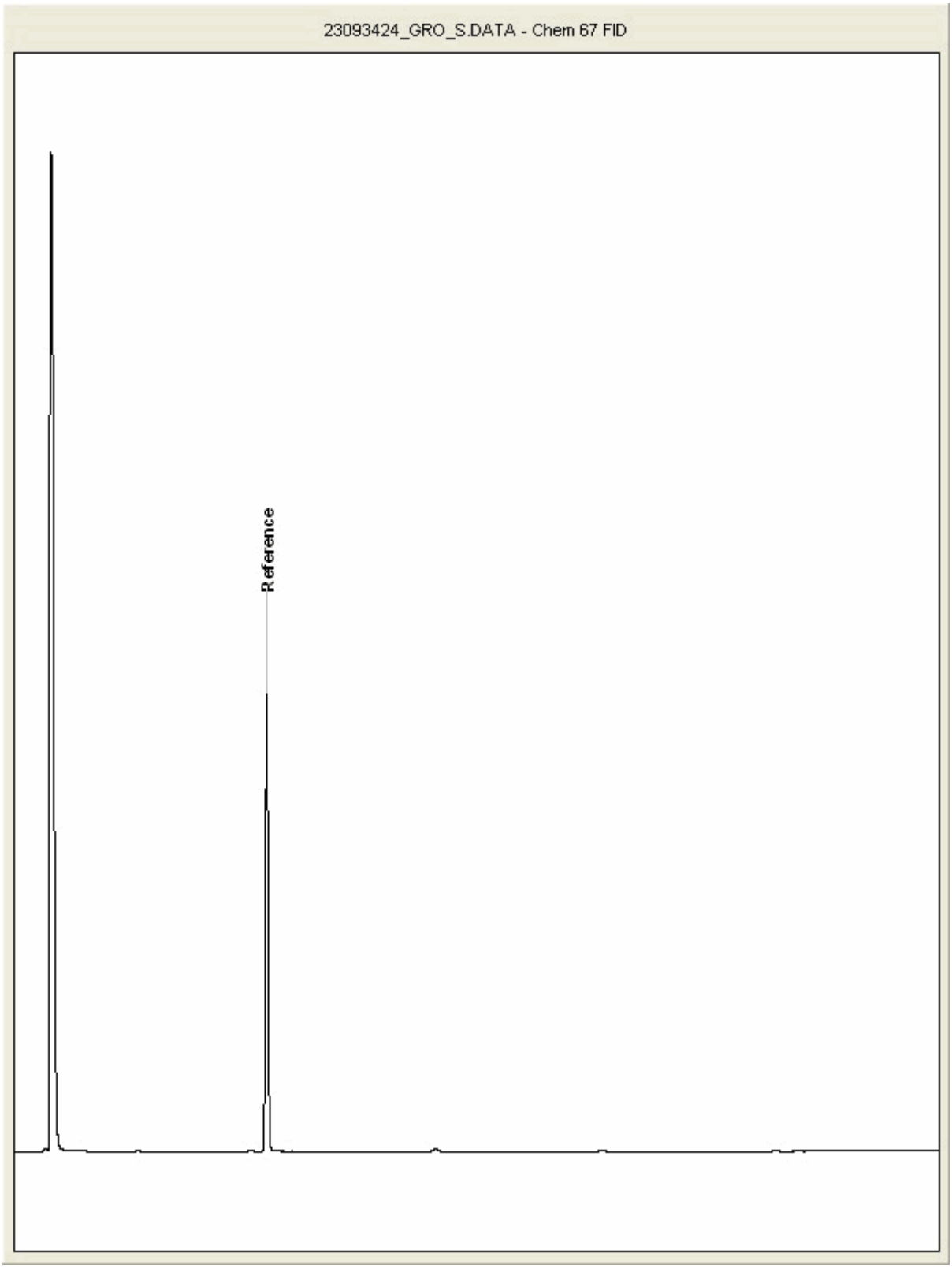


CERTIFICATE OF ANALYSIS

SDG:	201015-115	**Client Reference:**	2020WW102	**Report Number:**	579794
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S) **Sample No :** 23093424 **Sample ID :** TP311 **Depth :** 1.10 - 1.20



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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. 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 (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.

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. **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.

18. **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**

19. **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, based on HSG 248 (2005).

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.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

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.

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

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	14 December 2020
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	201031-64
Your Reference:	2020WW102
Location:	Arklow Bank
Report No:	579788

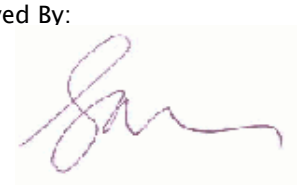
We received 36 samples on Saturday October 31, 2020 and 36 of these samples were scheduled for analysis which was completed on Monday December 14, 2020. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of 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).

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

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23156344	TP207	ES1	0.40 - 0.50	27/10/2020
23156351	TP207	ES5	1.60 - 1.70	27/10/2020
23156204	TP209	ES1	0.50 - 0.60	27/10/2020
23156295	TP209	ES5	1.50 - 1.60	27/10/2020
23156329	TP210	ES1	0.40 - 0.50	27/10/2020
23156337	TP210	ES5	1.50 - 1.60	27/10/2020
23156138	TP301	ES1	0.40 - 0.50	29/10/2020
23156148	TP301	ES2	0.90 - 1.00	29/10/2020
23156162	TP301	ES3	1.00 - 1.10	29/10/2020
23156171	TP301	ES4	1.60 - 1.70	29/10/2020
23156180	TP301	ES6	2.90 - 3.00	29/10/2020
23156259	TP302	ES1	0.40 - 0.50	29/10/2020
23156273	TP302	ES2	1.00 - 1.10	29/10/2020
23156285	TP302	ES3	1.60 - 1.70	29/10/2020
23156303	TP302	ES5	3.10 - 3.20	29/10/2020
23156226	TP304	ES1	0.40 - 0.50	29/10/2020
23156239	TP304	ES2	1.00 - 1.10	29/10/2020
23156246	TP304	ES3	1.60 - 1.70	29/10/2020
23156253	TP304	ES5	3.20 - 3.30	29/10/2020
23156390	TP310	ES1	0.50 - 0.60	29/10/2020
23156402	TP310	ES2	1.00 - 1.10	29/10/2020
23156116	TP310	ES4	1.40 - 1.50	29/10/2020
23156124	TP310	ES5	2.50 - 2.60	29/10/2020
23156107	TP312	ES1	0.40 - 0.50	29/10/2020
23156130	TP312	ES2	0.80 - 0.90	29/10/2020
23156234	TP312	ES3	1.40 - 1.50	29/10/2020
23156310	TP312	ES4	2.10 - 2.20	29/10/2020
23156322	TP312	ES6	3.00 - 3.10	29/10/2020
23156358	TP314	ES1	0.50 - 0.60	29/10/2020
23156366	TP314	ES2	1.10 - 1.20	29/10/2020
23156371	TP314	ES4	1.80 - 1.90	29/10/2020
23156383	TP314	ES6	2.90 - 3.00	29/10/2020
23156190	TP315	ES1	0.40 - 0.50	29/10/2020
23156196	TP315	ES2	0.90 - 1.00	29/10/2020
23156210	TP315	ES3	1.50 - 1.60	29/10/2020
23156217	TP315	ES5	2.50 - 2.60	29/10/2020

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

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23156344		23156351		23156204		23156295		23156329		23156337		23156138								
Customer Sample Reference			TP207		TP207		TP209		TP209		TP210		TP210		TP301								
AGS Reference			ES1		ES5		ES1		ES5		ES1		ES5		ES1								
Depth (m)			0.40 - 0.50		1.60 - 1.70		0.50 - 0.60		1.50 - 1.60		0.40 - 0.50		1.50 - 1.60		0.40 - 0.50								
Container			1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE250)	250g Amber Jar (ALE210)				
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S			
Anions by Kone (w)	All	NDPs: 0 Tests: 36	X			X			X			X			X			X					
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 36	X			X			X			X			X			X					
CEN Readings	All	NDPs: 0 Tests: 36	X			X			X			X			X			X					
Chromium III	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					
Coronene	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 36	X			X			X			X			X			X					
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 36	X			X			X			X			X			X					
Easily Liberated Sulphide	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					
EPH by GCxGC-FID	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					
EPH CWG GC (S)	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					
Fluoride	All	NDPs: 0 Tests: 36	X			X			X			X			X			X					
GRO by GC-FID (S)	All	NDPs: 0 Tests: 36			X			X			X			X			X						
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					
Loss on Ignition in soils	All	NDPs: 0 Tests: 36		X			X			X			X			X			X					

23156285	TP302	ES3	1.60 - 1.70	1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156273	TP302	ES2	1.00 - 1.10	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156259	TP302	ES1	0.40 - 0.50	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156180	TP301	ES6	2.90 - 3.00	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156171	TP301	ES4	1.60 - 1.70	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156162	TP301	ES3	1.00 - 1.10	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156148	TP301	ES2	0.90 - 1.00	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156138	TP301	ES1	0.40 - 0.50	60g VOC (ALE215)	S													X		

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23156344			23156351			23156204			23156295			23156329			23156337			23156138		
Customer Sample Reference			TP207			TP207			TP209			TP209			TP210			TP210			TP301		
AGS Reference			ES1			ES5			ES1			ES5			ES1			ES5			ES1		
Depth (m)			0.40 - 0.50			1.60 - 1.70			0.50 - 0.60			1.50 - 1.60			0.40 - 0.50			1.50 - 1.60			0.40 - 0.50		
Container			1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle (ALE260)	250g Amber Jar (ALE210)	
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
pH	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
Total Dissolved Solids	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 36			X			X			X			X			X			X			

23156285	TP302	ES3	1.60 - 1.70	1kg TUB with Handle	S		X							X				X					
23156273	TP302	ES2	1.00 - 1.10	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X		X		X		X		X		
				1kg TUB with Handle	S		X							X				X					
23156259	TP302	ES1	0.40 - 0.50	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X		X		X		X		X		
				1kg TUB with Handle	S		X							X				X					
23156180	TP301	ES6	2.90 - 3.00	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X		X		X		X		X		
				1kg TUB with Handle	S		X							X				X					
23156171	TP301	ES4	1.60 - 1.70	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X		X		X		X		X		
				1kg TUB with Handle	S		X							X				X					
23156162	TP301	ES3	1.00 - 1.10	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X		X		X		X		X		
				1kg TUB with Handle	S		X							X				X					
23156148	TP301	ES2	0.90 - 1.00	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X		X		X		X		X		
				1kg TUB with Handle	S		X							X				X					
23156138	TP301	ES1	0.40 - 0.50	60g VOC (ALE215)	S																		X

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23156285		23156303		23156226		23156239		23156246		23156253		23156390						
Customer Sample Reference			TP302		TP302		TP304		TP304		TP304		TP304		TP310						
AGS Reference			ES3		ES5		ES1		ES2		ES3		ES5		ES1						
Depth (m)			1.60 - 1.70		3.10 - 3.20		0.40 - 0.50		1.00 - 1.10		1.60 - 1.70		3.20 - 3.30		0.50 - 0.60						
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
CEN Readings	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Chromium III	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Coronene	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Easily Liberated Sulphide	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
EPH by GCxGC-FID	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Fluoride	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
GRO by GC-FID (S)	All	NDPs: 0 Tests: 36		X			X			X			X			X			X				X
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		
Loss on Ignition in soils	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		

23156310	TP312	ES4	2.10 - 2.20	250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156234	TP312	ES3	1.40 - 1.50	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156130	TP312	ES2	0.80 - 0.90	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156107	TP312	ES1	0.40 - 0.50	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156124	TP310	ES5	2.50 - 2.60	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156116	TP310	ES4	1.40 - 1.50	60g VOC (ALE215)	S															
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X		X	X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			
23156402	TP310	ES2	1.00 - 1.10	60g VOC (ALE215)	S													X		
				250g Amber Jar (ALE210)	S				X	X	X			X	X	X			X	X
				1kg TUB with Handle (ALE260)	S	X	X	X				X	X				X			

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23156285		23156303		23156226		23156239		23156246		23156253		23156390						
Customer Sample Reference			TP302		TP302		TP304		TP304		TP304		TP304		TP310						
AGS Reference			ES3		ES5		ES1		ES2		ES3		ES5		ES1						
Depth (m)			1.60 - 1.70		3.10 - 3.20		0.40 - 0.50		1.00 - 1.10		1.60 - 1.70		3.20 - 3.30		0.50 - 0.60						
Container			250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Metals in solid samples by OES	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
PAH by GCMS	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
PCBs by GCMS	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
pH	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
Phenols by HPLC (W)	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Sample description	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
Total Dissolved Solids	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Total Organic Carbon	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
TPH CWG GC (S)	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
VOC MS (S)	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X	X

23156310	TP312	ES4	2.10 - 2.20	250g Amber Jar (ALE210)	S			X		X		X		X			X	X			X	X	
				1kg TUB with Handle (ALE260)	S	X							X			X							
23156234	TP312	ES3	1.40 - 1.50	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X			X	X			X	X	
				1kg TUB with Handle (ALE260)	S	X							X			X							
23156130	TP312	ES2	0.80 - 0.90	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X			X	X			X	X	
				1kg TUB with Handle (ALE260)	S	X							X			X							
23156107	TP312	ES1	0.40 - 0.50	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X			X	X			X	X	
				1kg TUB with Handle (ALE260)	S	X							X			X							
23156124	TP310	ES5	2.50 - 2.60	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X			X	X			X	X	
				1kg TUB with Handle (ALE260)	S	X							X			X							
23156116	TP310	ES4	1.40 - 1.50	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X			X	X			X	X	
				1kg TUB with Handle (ALE260)	S	X							X			X							
23156402	TP310	ES2	1.00 - 1.10	60g VOC (ALE215)	S																		X
				250g Amber Jar (ALE210)	S			X		X		X		X			X	X			X	X	
				1kg TUB with Handle (ALE260)	S	X							X			X							

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23156310		23156322			23156358			23156366			23156371			23156383			23156190	23156196
Customer Sample Reference			TP312		TP312			TP314			TP314			TP314			TP314			TP315	TP315
AGS Reference			ES4		ES6			ES1			ES2			ES4			ES6			ES1	ES2
Depth (m)			2.10 - 2.20		3.00 - 3.10			0.50 - 0.60			1.10 - 1.20			1.80 - 1.90			2.90 - 3.00			0.40 - 0.50	0.90 - 1.00
Container			60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Anions by Kone (w)	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
Asbestos ID in Solid Samples	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
CEN Readings	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
Chromium III	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Coronene	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Cyanide Comp/Free/Total/Thiocyanate	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
Dissolved Organic/Inorganic Carbon	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
Easily Liberated Sulphide	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
EPH by GCxGC-FID	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
EPH CWG GC (S)	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Fluoride	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
GRO by GC-FID (S)	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X	
Hexavalent Chromium (s)	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Loss on Ignition in soils	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		

23156217	TP315	ES5	2.50 - 2.60	60g VOC (ALE215)	S	
				250g Amber Jar (ALE210)	S	
				1kg TUB with Handle	S	X
23156210	TP315	ES3	1.50 - 1.60	60g VOC (ALE215)	S	
				250g Amber Jar (ALE210)	S	X
				1kg TUB with Handle	S	X
23156196	TP315	ES2	0.90 - 1.00	60g VOC (ALE215)	S	X
				250g Amber Jar (ALE210)	S	X

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23156310		23156322			23156358			23156366			23156371			23156383			23156190	23156196
Customer Sample Reference			TP312		TP312			TP314			TP314			TP314			TP314			TP315	TP315
AGS Reference			ES4		ES6			ES1			ES2			ES4			ES6			ES1	ES2
Depth (m)			2.10 - 2.20		3.00 - 3.10			0.50 - 0.60			1.10 - 1.20			1.80 - 1.90			2.90 - 3.00			0.40 - 0.50	0.90 - 1.00
Container			60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle	250g Amber Jar (ALE210)	60g VOC (ALE215)	1kg TUB with Handle
Sample Type			S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S	S
Mercury Dissolved	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
Metals in solid samples by OES	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
PAH 16 & 17 Calc	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
PAH by GCMS	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
PCBs by GCMS	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
pH	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Phenols by HPLC (W)	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
Sample description	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
Total Dissolved Solids	All	NDPs: 0 Tests: 36		X			X			X			X			X			X			X
Total Organic Carbon	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
TPH CWG GC (S)	All	NDPs: 0 Tests: 36			X			X			X			X			X			X		
VOC MS (S)	All	NDPs: 0 Tests: 36	X			X			X			X			X			X			X		

23156217	TP315	ES5	2.50 - 2.60	250g Amber Jar (ALE210)	S		
				1kg TUB with Handle	S		
				60g VOC (ALE215)	S		
23156210	TP315	ES3	1.50 - 1.60	250g Amber Jar (ALE210)	S	X	
				1kg TUB with Handle	S		X
				60g VOC (ALE215)	S		
23156196	TP315	ES2	0.90 - 1.00	250g Amber Jar (ALE210)	S	X	
				60g VOC (ALE215)	S		X

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

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
23156344	TP207	0.40 - 0.50	Light Brown	Loamy Sand	Stones	Vegetation
23156351	TP207	1.60 - 1.70	Dark Brown	Sandy Clay	Stones	Vegetation
23156204	TP209	0.50 - 0.60	Light Brown	Loamy Sand	Stones	Vegetation
23156295	TP209	1.50 - 1.60	Dark Brown	Silt Loam	Stones	Vegetation
23156329	TP210	0.40 - 0.50	Light Brown	Clay Loam	Vegetation	None
23156337	TP210	1.50 - 1.60	Dark Brown	Loamy Sand	Vegetation	Stones
23156138	TP301	0.40 - 0.50	Dark Brown	Sand	Stones	None
23156148	TP301	0.90 - 1.00	Red	N/A	N/A	N/A
23156162	TP301	1.00 - 1.10	Beige	N/A	N/A	N/A
23156171	TP301	1.60 - 1.70	Dark Brown	Clay Loam	Vegetation	None
23156180	TP301	2.90 - 3.00	Dark Brown	Silty Clay Loam	None	None
23156259	TP302	0.40 - 0.50	Dark Brown	Sand	Stones	Vegetation
23156273	TP302	1.00 - 1.10	Red	Sand	Stones	Vegetation
23156285	TP302	1.60 - 1.70	Dark Brown	Silt Loam	Stones	Vegetation
23156303	TP302	3.10 - 3.20	Dark Brown	Silt Loam	None	None
23156226	TP304	0.40 - 0.50	Dark Brown	Sand	Stones	None
23156239	TP304	1.00 - 1.10	Light Brown	N/A	Stones	None
23156246	TP304	1.60 - 1.70	Dark Brown	Silt Loam	Vegetation	None
23156253	TP304	3.20 - 3.30	Grey	Sand	Stones	None
23156116	TP310	1.40 - 1.50	Beige	N/A	N/A	N/A
23156124	TP310	2.50 - 2.60	Dark Brown	Silty Clay Loam	None	None
23156390	TP310	0.50 - 0.60	Dark Brown	Sand	Stones	None
23156402	TP310	1.00 - 1.10	Dark Brown	Loamy Sand	Stones	None
23156107	TP312	0.40 - 0.50	Dark Brown	Sand	Stones	None
23156130	TP312	0.80 - 0.90	Dark Brown	Sand	Stones	Crushed Brick
23156234	TP312	1.40 - 1.50	Cream	Chalk	Vegetation	Stones
23156310	TP312	2.10 - 2.20	Dark Brown	Clay Loam	Vegetation	Stones
23156322	TP312	3.00 - 3.10	Dark Brown	Clay Loam	Vegetation	Stones
23156358	TP314	0.50 - 0.60	Light Brown	Sandy Loam	Stones	None
23156366	TP314	1.10 - 1.20	Dark Brown	N/A	Stones	Vegetation
23156371	TP314	1.80 - 1.90	Dark Brown	Clay Loam	Stones	None
23156383	TP314	2.90 - 3.00	Dark Brown	Sand	Stones	None
23156190	TP315	0.40 - 0.50	Light Brown	Sandy Clay Loam	Stones	Vegetation
23156196	TP315	0.90 - 1.00	Light Brown	N/A	Stones	None
23156210	TP315	1.50 - 1.60	Dark Brown	Silt Loam	Stones	None
23156217	TP315	2.50 - 2.60	Dark Brown	Gravel	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 ocurring 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

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
Sampled Time	.	.	.	.	.	.
Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5

Component	LOD/Units	Method											
Moisture Content Ratio (% of as received sample)	%	PM024	8.9		8.9		12		11		16		13	
Loss on ignition	<0.7 %	TM018	3.83	M	4.54	M	1.88	M	2.15	M	4.63	M	2.02	M
Organic Carbon, Total	<0.2 %	TM132	0.482	M	0.322	M	0.267	M	0.33	M	0.765	M	0.298	M
pH	1 pH Units	TM133	7.75	M	8.59	M	7.1	M	8.46	M	7.16	M	7.25	M
Chromium, Hexavalent	<0.6 mg/kg	TM151	<0.6	#	<0.6	#	<0.6	#	<0.6	#	<0.6	#	<0.6	#
Cyanide, Total	<1 mg/kg	TM153	<1	M	<1	M	<1	M	<1	M	<1	M	<1	M
Cyanide, Free	<1 mg/kg	TM153	<1	M	<1	M	<1	M	<1	M	<1	M	<1	M
Cyanide, Complex	<1 mg/kg	TM153	<1		<1		<1		<1		<1		<1	
PCB congener 28	<3 µg/kg	TM168	<3	M	<3	M	<3	M	<3	M	<3	M	<3	M
PCB congener 52	<3 µg/kg	TM168	<3	M	<3	M	<3	M	<3	M	<3	M	<3	M
PCB congener 101	<3 µg/kg	TM168	<3	M	<3	M	<3	M	<3	M	<3	M	<3	M
PCB congener 118	<3 µg/kg	TM168	<3	M	<3	M	<3	M	<3	M	<3	M	<3	M
PCB congener 138	<3 µg/kg	TM168	<3	M	<3	M	<3	M	<3	M	<3	M	<3	M
PCB congener 153	<3 µg/kg	TM168	<3	M	<3	M	<3	M	<3	M	<3	M	<3	M
PCB congener 180	<3 µg/kg	TM168	<3	M	<3	M	<3	M	<3	M	<3	M	<3	M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168	<21		<21		<21		<21		<21		<21	
Sulphide, Easily liberated	<15 mg/kg	TM180	<15	@ M	<15	@ M	<15	@ M	<15	@ M	<15	@ M	<15	@ M
Chromium, Trivalent	<0.9 mg/kg	TM181	21.6		29.8		20.4		25.6		26.5		21.2	
Antimony	<0.6 mg/kg	TM181	<0.6	#	<0.6	#	<0.6	#	<0.6	#	<0.6	#	<0.6	#
Arsenic	<0.6 mg/kg	TM181	11.5	M	15.5	M	13.8	M	9.12	M	5.99	M	11.5	M
Barium	<0.6 mg/kg	TM181	72.4	#	62	#	66	#	41.8	#	104	#	58.4	#
Cadmium	<0.02 mg/kg	TM181	0.114	M	0.132	M	0.257	M	0.136	M	0.106	M	0.231	M
Chromium	<0.9 mg/kg	TM181	21.6	M	29.8	M	20.4	M	25.6	M	26.5	M	21.2	M
Copper	<1.4 mg/kg	TM181	5.6	M	20.7	M	10.5	M	17.1	M	5.8	M	18.7	M
Lead	<0.7 mg/kg	TM181	15.3	M	14.6	M	12.5	M	14.2	M	16.5	M	11.4	M
Mercury	<0.14 mg/kg	TM181	<0.14	M	<0.14	M	0.151	M	<0.14	M	<0.14	M	<0.14	M
Molybdenum	<0.1 mg/kg	TM181	0.178	#	0.324	#	0.484	#	0.279	#	0.119	#	0.192	#
Nickel	<0.2 mg/kg	TM181	15.7	M	38.5	M	26	M	29.3	M	16.1	M	27	M
Selenium	<1 mg/kg	TM181	<1	#	<1	#	<1	#	<1	#	<1	#	<1	#
Zinc	<1.9 mg/kg	TM181	49	M	65.4	M	39	M	51.2	M	48.9	M	40.6	M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410	<318		<318		<318		<318		<318		<318	
Coronene	<200 µg/kg	TM410	<200		<200		<200		<200		<200		<200	

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
Moisture Content Ratio (% of as received sample)	%	PM024		6	27	28	29	24	1.4
Loss on ignition	<0.7 %	TM018		4.79 M	1.24	20	4.56 M	10.3 M	1.81 M
Organic Carbon, Total	<0.2 %	TM132		2.21 M	<0.2	<0.2	0.364 M	1.05 M	0.239 M
pH	1 pH Units	TM133		9.04 M	6.59	7.3	6.93 M	5.4 M	7.21 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6	6.86	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1	<1	<1 M	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1	<1	<1 M	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3	<3	<3 M	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3	<3	<3 M	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3	<3	<3 M	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3	<3	<3 M	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3	<3	<3 M	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3	<3	<3 M	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3	<3	<3 M	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 ♦ M	<15 ♦	<15 ♦	<15 ♦ M	<15 ♦ M	<15 ♦ M
Chromium, Trivalent	<0.9 mg/kg	TM181		1.79	<0.9	<0.9	21.2	27.7	125
Antimony	<0.6 mg/kg	TM181		<0.6 #	18.2	<0.6	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		2.91 M	2290	41	78.3 M	54.8 M	120 M
Barium	<0.6 mg/kg	TM181		7.44 #	24	38.6	47.2 #	97.7 #	96.4 #
Cadmium	<0.02 mg/kg	TM181		0.0585 M	12.6	1.19	0.816 M	0.611 M	0.517 M
Chromium	<0.9 mg/kg	TM181		1.79 M	<0.9	4.27	21.2 M	27.7 M	125 M
Copper	<1.4 mg/kg	TM181		5.01 M	3720	30.2	930 M	71.7 M	92.1 M
Lead	<0.7 mg/kg	TM181		3.83 M	1950	6.09	61.4 M	63.4 M	51 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	1.05	<0.14	<0.14 M	<0.14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181		0.431 #	62.1	3.53	1.5 #	1.23 #	7.4 #
Nickel	<0.2 mg/kg	TM181		3.57 M	6.73	0.321	22.5 M	31.1 M	81 M
Selenium	<1 mg/kg	TM181		<1 #	<1	<1	<1 #	<1 #	<1 #
Zinc	<1.9 mg/kg	TM181		22.4 M	3810	47.3	320 M	216 M	585 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
EPH >C8-C40	<35 mg/kg	TM415		<35	227	<35	<35	<35	216

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
Moisture Content Ratio (% of as received sample)	%	PM024		20	15	13	2.8	11	27
Loss on ignition	<0.7 %	TM018		<0.7 M	4.3 M	17.1 M	0.975 M	2.78	11.5 M
Organic Carbon, Total	<0.2 %	TM132		<0.2 M	0.336 M	0.519 M	0.335 M	0.452	1.33 M
pH	1 pH Units	TM133		6.98 M	6.78 M	5.58 M	8.62 M	6.8	7.46 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 M	<1	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<3 M	<3	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 ♦ M	<15 ♦ M	<15 ♦ M	<15 ♦ M	<15 ♦	296 ♦ M
Chromium, Trivalent	<0.9 mg/kg	TM181		<0.9	16.6	26	<0.9	21.4	21.7
Antimony	<0.6 mg/kg	TM181		13 #	<0.6 #	<0.6 #	<0.6 #	<0.6	<0.6 #
Arsenic	<0.6 mg/kg	TM181		1920 M	49 M	29.7 M	5.55 M	19.5	43 M
Barium	<0.6 mg/kg	TM181		28.5 #	23 #	64 #	20.1 #	45.7	51.1 #
Cadmium	<0.02 mg/kg	TM181		15.4 M	0.715 M	0.0984 M	0.354 M	0.171	0.411 M
Chromium	<0.9 mg/kg	TM181		<0.9 M	16.6 M	26 M	<0.9 M	21.4	21.7 M
Copper	<1.4 mg/kg	TM181		4430 M	315 M	23.7 M	31.2 M	41.9	41 M
Lead	<0.7 mg/kg	TM181		2250 M	32.5 M	50 M	8.4 M	22.5	39.2 M
Mercury	<0.14 mg/kg	TM181		1.2 M	<0.14 M	<0.14 M	<0.14 M	0.272	0.207 M
Molybdenum	<0.1 mg/kg	TM181		70.9 #	0.755 #	1.07 #	0.747 #	<0.1	0.818 #
Nickel	<0.2 mg/kg	TM181		3.96 M	18.4 M	23.6 M	16.6 M	47.3	22 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	<1	<1 #
Zinc	<1.9 mg/kg	TM181		4170 M	308 M	106 M	105 M	138	89.7 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
EPH >C8-C40	<35 mg/kg	TM415		<35	<35	<35	173	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
			Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
			AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1
Moisture Content Ratio (% of as received sample)	%	PM024		26	5.2	10	28	30	5.8
Loss on ignition	<0.7 %	TM018		2 M	1.85 M	3.61 M	19	3.99 M	2.53 M
Organic Carbon, Total	<0.2 %	TM132		0.416 M	0.319 M	0.448 M	<0.2	0.678 M	3.42 M
pH	1 pH Units	TM133		6.38 M	8.28 M	7.42 M	7.57	6.13 M	9.13 M
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1	<1 M	<1 M
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1	<1 M	<1 M
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<15 M	<3 M	<3	<3 M	<3 M
PCB congener 52	<3 µg/kg	TM168		<3 M	<15 M	<3 M	<3	<3 M	<3 M
PCB congener 101	<3 µg/kg	TM168		<3 M	<15 M	<3 M	<3	<3 M	<3 M
PCB congener 118	<3 µg/kg	TM168		<3 M	<15 M	<3 M	<3	<3 M	<3 M
PCB congener 138	<3 µg/kg	TM168		<3 M	<15 M	<3 M	<3	<3 M	<3 M
PCB congener 153	<3 µg/kg	TM168		<3 M	<15 M	<3 M	<3	<3 M	<3 M
PCB congener 180	<3 µg/kg	TM168		<3 M	<15 M	<3 M	<3	<3 M	<3 M
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<105	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 ♦ M	114 ♦ M	<15 ♦ M	<15 ♦	<15 ♦ M	<15 ♦ M
Chromium, Trivalent	<0.9 mg/kg	TM181		14.9	4.73	26.3	3.46	13.6	3.74
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #	<0.6	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		23.3 M	27.3 M	22.1 M	2.83	84.2 M	12.1 M
Barium	<0.6 mg/kg	TM181		25.5 #	17.6 #	69.3 #	28.8	72.7 #	11.4 #
Cadmium	<0.02 mg/kg	TM181		0.353 M	0.437 M	0.213 M	1.38	0.449 M	0.431 M
Chromium	<0.9 mg/kg	TM181		14.9 M	4.73 M	26.3 M	3.46	13.6 M	3.74 M
Copper	<1.4 mg/kg	TM181		16.8 M	59.6 M	44.2 M	<14	64.5 M	51.5 M
Lead	<0.7 mg/kg	TM181		21.8 M	37.9 M	24.8 M	3.31	71.7 M	13.1 M
Mercury	<0.14 mg/kg	TM181		<0.14 M	<0.14 M	<0.14 M	<0.14	<0.14 M	<0.14 M
Molybdenum	<0.1 mg/kg	TM181		0.411 #	1.57 #	<0.1 #	0.187	1.76 #	0.76 #
Nickel	<0.2 mg/kg	TM181		21.3 M	9.29 M	49.2 M	1.77	25.4 M	5.81 M
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1	<1 #	<1 #
Zinc	<1.9 mg/kg	TM181		115 M	161 M	124 M	6.83	138 M	182 M
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
Sampled Time	.	.	.	.	.	.
Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1

Component	LOD/Units	Method						
EPH >C8-C40	<35 mg/kg	TM415	<35	203	<35	<35	<35	<35

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
Moisture Content Ratio (% of as received sample)	%	PM024		7.2	30	39	41	6.1	4.3
Loss on ignition	<0.7 %	TM018		1.44 M	19.2 #	6.38 M	8.32 M	1.35 M	3.38
Organic Carbon, Total	<0.2 %	TM132		<0.2 M	<0.2 #	1.57 M	3.97 M	<0.2 M	<0.2
pH	1 pH Units	TM133		8.05 M	6.07 #	7.04 M	5.22 M	7.19 M	6.97
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	2.39 #	<0.6 #	<0.6 #	<0.6 #	<0.6
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 #	<1 M	<1 M	<1 M	<1
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 #	<1 M	<1 M	<1 M	<1
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 #	<3 M	<3 M	<3 M	<3
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 #	<3 M	<3 M	<3 M	<3
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 #	<3 M	<3 M	<3 M	<3
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 #	<3 M	<3 M	<3 M	<3
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 #	<3 M	<3 M	<3 M	<3
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 #	<3 M	<3 M	<3 M	<3
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 #	<3 M	<3 M	<3 M	<3
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<21	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		<15 ♦ M	<15 ♦ #	536 ♦ M	71.1 ♦ M	<15 ♦ M	<15 ♦
Chromium, Trivalent	<0.9 mg/kg	TM181		2.77	2.66	25.3	34.7	17.4	25.9
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6
Arsenic	<0.6 mg/kg	TM181		131 M	11.2 #	65 M	42.4 M	37 M	46.5
Barium	<0.6 mg/kg	TM181		39.3 #	40.8 #	69.4 #	107 #	28.9 #	72.3
Cadmium	<0.02 mg/kg	TM181		1.89 M	1.15 #	0.841 M	0.161 M	0.325 M	0.329
Chromium	<0.9 mg/kg	TM181		2.77 M	5.05 #	25.3 M	34.7 M	17.4 M	25.9
Copper	<1.4 mg/kg	TM181		361 M	48.9 #	135 M	29.1 M	73.3 M	89.2
Lead	<0.7 mg/kg	TM181		160 M	5.92 #	111 M	53.8 M	30.8 M	69.3
Mercury	<0.14 mg/kg	TM181		0.325 M	<0.14 #	<0.14 M	<0.14 M	<0.14 M	0.175
Molybdenum	<0.1 mg/kg	TM181		6.15 #	0.222 #	0.782 #	0.421 #	0.706 #	0.249
Nickel	<0.2 mg/kg	TM181		31.5 M	1.79 #	28.7 M	30.2 M	37.7 M	49.3
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	<1 #	<1
Zinc	<1.9 mg/kg	TM181		497 M	41.3 #	447 M	131 M	148 M	234
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<200	<200	<200

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
EPH >C8-C40	<35 mg/kg	TM415		81.1	<35	<35	73.3	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
Moisture Content Ratio (% of as received sample)	%	PM024		35	12	6.4	7.3	21	7.9
Loss on ignition	<0.7 %	TM018		5.72 M	<0.7 M	2.83 M	2.01 #	13.7 M	1.81 #
Organic Carbon, Total	<0.2 %	TM132		2.35 M	<0.2 M	<0.2 M	2.9 #	0.836 M	<0.2 #
pH	1 pH Units	TM133		6.9 M	7.01 M	4.89 M	7.98 #	6.88 M	7.27 #
Chromium, Hexavalent	<0.6 mg/kg	TM151		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Cyanide, Total	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 #	<1 M	<1 #
Cyanide, Free	<1 mg/kg	TM153		<1 M	<1 M	<1 M	<1 #	<1 M	<1 #
Cyanide, Complex	<1 mg/kg	TM153		<1	<1	<1	<1	<1	<1
PCB congener 28	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<150 #	<3 M	<3 #
PCB congener 52	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<150 #	<3 M	<3 #
PCB congener 101	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<150 #	<3 M	<3 #
PCB congener 118	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<150 #	<3 M	<3 #
PCB congener 138	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<150 #	<3 M	<3 #
PCB congener 153	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<150 #	<3 M	<3 #
PCB congener 180	<3 µg/kg	TM168		<3 M	<3 M	<3 M	<150 #	<3 M	<3 #
Sum of detected PCB 7 Congeners	<21 µg/kg	TM168		<21	<21	<21	<1050	<21	<21
Sulphide, Easily liberated	<15 mg/kg	TM180		34.1 ♦ M	<15 ♦ M	<15 ♦ M	<15 ♦ #	67 ♦ M	<15 ♦ #
Chromium, Trivalent	<0.9 mg/kg	TM181		22.8	15.8	14	15.4	17.5	8.13
Antimony	<0.6 mg/kg	TM181		<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #	<0.6 #
Arsenic	<0.6 mg/kg	TM181		21 M	8.29 M	30.9 M	13.6 #	46.5 M	5.35 #
Barium	<0.6 mg/kg	TM181		68 #	13.9 #	39.3 #	28.1 #	50.7 #	9.15 #
Cadmium	<0.02 mg/kg	TM181		0.21 M	0.147 M	<0.02 M	0.279 #	0.335 M	0.259 #
Chromium	<0.9 mg/kg	TM181		22.8 M	15.8 M	14 M	15.4 #	17.5 M	8.13 #
Copper	<1.4 mg/kg	TM181		25.4 M	19.4 M	49.7 M	35.1 #	45.1 M	14.3 #
Lead	<0.7 mg/kg	TM181		33.5 M	14.6 M	20.9 M	19.8 #	54 M	22.2 #
Mercury	<0.14 mg/kg	TM181		0.181 M	<0.14 M	0.15 M	<0.14 #	<0.14 M	<0.14 #
Molybdenum	<0.1 mg/kg	TM181		<0.1 #	0.254 #	<0.1 #	<0.1 #	1.12 #	0.365 #
Nickel	<0.2 mg/kg	TM181		27.3 M	27.9 M	47.2 M	35.1 #	22 M	11.9 #
Selenium	<1 mg/kg	TM181		<1 #	<1 #	<1 #	<1 #	1.82 #	<1 #
Zinc	<1.9 mg/kg	TM181		92.8 M	180 M	124 M	159 #	118 M	105 #
PAH, Total Detected USEPA 16 + Coronene	<318 µg/kg	TM410		<318	<318	<318	<318	<318	<318
Coronene	<200 µg/kg	TM410		<200	<200	<200	<2000	<200	<200

CERTIFICATE OF ANALYSIS

Validated

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
EPH >C8-C40	<35 mg/kg	TM415		49.3	<35	550	393	<35	<35

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
Naphthalene-d8 % recovery**	%	TM218		88.9	88.2	91	86.1	83.9	82.6
Acenaphthene-d10 % recovery**	%	TM218		90.3	91.3	92.2	82	84.5	80.2
Phenanthrene-d10 % recovery**	%	TM218		93.5	94.6	94.9	77.7	89	79.8
Chrysene-d12 % recovery**	%	TM218		98.9	97.9	102	65.1	83	72.2
Perylene-d12 % recovery**	%	TM218		96.7	93.8	98.2	65.7	84.4	73.4
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
Naphthalene-d8 % recovery**	%	TM218		88.6	87.1	83.6	83.9	83.1	89.2
Acenaphthene-d10 % recovery**	%	TM218		86.7	84.7	82.5	82.2	79.5	93.7
Phenanthrene-d10 % recovery**	%	TM218		85	84.1	82.6	82.5	74.3	99.9
Chrysene-d12 % recovery**	%	TM218		76.7	79	76.7	76.9	59.6	106
Perylene-d12 % recovery**	%	TM218		76.9	80.7	79.2	80.8	58.1	101
Naphthalene	<9 µg/kg	TM218		<9 M	<9 #	<9 #	<9 M	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 #	<12 #	<12 M	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 #	<8 #	<8 M	<8 M	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 #	<10 #	<10 M	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 #	<15 #	<15 M	<15 M	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 #	<16 #	<16 M	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 #	<17 #	<17 M	<17 M	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 #	<15 #	<15 M	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 #	<14 #	<14 M	<14 M	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 #	<10 #	<10 M	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 #	<15 #	<15 M	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 #	<14 #	<14 M	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 #	<15 #	<15 M	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 #	<18 #	<18 M	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 #	<23 #	<23 M	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 #	<24 #	<24 M	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
Naphthalene-d8 % recovery**	%	TM218		83.7	89.4	88	80.6	91.2	79.8
Acenaphthene-d10 % recovery**	%	TM218		81.8	93.6	92.3	84.6	93.4	79.1
Phenanthrene-d10 % recovery**	%	TM218		81	98.8	97.4	85.1	96.5	80.1
Chrysene-d12 % recovery**	%	TM218		78.7	105	103	79.8	103	72.9
Perylene-d12 % recovery**	%	TM218		81.3	102	99	79.8	100	75.1
Naphthalene	<9 µg/kg	TM218		<9 M	<9 M	<9 M	<9 M	<9	<9 M
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 M	<12 M	<12 M	<12	<12 M
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 M	<8 M	<8 M	<8	<8 M
Fluorene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15	<15 M
Anthracene	<16 µg/kg	TM218		<16 M	<16 M	<16 M	<16 M	<16	<16 M
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 M	<17 M	<17 M	<17	<17 M
Pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15	<15 M
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14	<14 M
Chrysene	<10 µg/kg	TM218		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 M	<14 M	<14 M	<14	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 M	<15 M	<15 M	<15	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 M	<18 M	<18 M	<18	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 M	<23 M	<23 M	<23	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 M	<24 M	<24 M	<24	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
Sampled Time	.	.	.	.	.	.
Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1

Component	LOD/Units	Method					
Naphthalene-d8 % recovery**	%	TM218	89.9	82.2	82.9	84.2	82	89.6
Acenaphthene-d10 % recovery**	%	TM218	92.1	79.6	80.7	81.8	81.2	93.5
Phenanthrene-d10 % recovery**	%	TM218	95.4	75	79.5	82.7	80.6	99.1
Chrysene-d12 % recovery**	%	TM218	102	63.1	76.3	78.8	74.3	106
Perylene-d12 % recovery**	%	TM218	100	61.2	76.1	79.2	77.1	101
Naphthalene	<9 µg/kg	TM218	<9 M	<90 M	<9 M	<9 #	<9 M	<9 M
Acenaphthylene	<12 µg/kg	TM218	<12 M	<120 M	<12 M	<12 #	<12 M	<12 M
Acenaphthene	<8 µg/kg	TM218	<8 M	<80 M	<8 M	<8 #	<8 M	<8 M
Fluorene	<10 µg/kg	TM218	<10 M	<100 M	<10 M	<10 #	<10 M	<10 M
Phenanthrene	<15 µg/kg	TM218	<15 M	<150 M	<15 M	<15 #	<15 M	<15 M
Anthracene	<16 µg/kg	TM218	<16 M	<160 M	<16 M	<16 #	<16 M	<16 M
Fluoranthene	<17 µg/kg	TM218	<17 M	<170 M	<17 M	<17 #	<17 M	<17 M
Pyrene	<15 µg/kg	TM218	<15 M	<150 M	<15 M	<15 #	<15 M	<15 M
Benz(a)anthracene	<14 µg/kg	TM218	<14 M	<140 M	<14 M	<14 #	<14 M	<14 M
Chrysene	<10 µg/kg	TM218	<10 M	<100 M	<10 M	<10 #	<10 M	<10 M
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15 M	<150 M	<15 M	<15 #	<15 M	<15 M
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14 M	<140 M	<14 M	<14 #	<14 M	<14 M
Benzo(a)pyrene	<15 µg/kg	TM218	<15 M	<150 M	<15 M	<15 #	<15 M	<15 M
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18 M	<180 M	<18 M	<18 #	<18 M	<18 M
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23 M	<230 M	<23 M	<23 #	<23 M	<23 M
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24 M	<240 M	<24 M	<24 #	<24 M	<24 M
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118	<1180	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
Naphthalene-d8 % recovery**	%	TM218		89.1	89.6	87.6	87.3	83.3	88.9
Acenaphthene-d10 % recovery**	%	TM218		94.1	92.1	91	91.3	83.9	89.9
Phenanthrene-d10 % recovery**	%	TM218		100	96.5	97.7	96.4	82.2	92.2
Chrysene-d12 % recovery**	%	TM218		107	102	104	103	70.8	97.3
Perylene-d12 % recovery**	%	TM218		103	98.9	99.4	99.1	57.4	94.2
Naphthalene	<9 µg/kg	TM218		<9 M	<9 #	<9 M	<9 M	<9 M	<9
Acenaphthylene	<12 µg/kg	TM218		<12 M	<12 #	<12 M	<12 M	<12 M	<12
Acenaphthene	<8 µg/kg	TM218		<8 M	<8 #	<8 M	<8 M	<8 M	<8
Fluorene	<10 µg/kg	TM218		<10 M	<10 #	<10 M	<10 M	<10 M	<10
Phenanthrene	<15 µg/kg	TM218		<15 M	<15 #	<15 M	<15 M	<15 M	<15
Anthracene	<16 µg/kg	TM218		<16 M	<16 #	<16 M	<16 M	<16 M	<16
Fluoranthene	<17 µg/kg	TM218		<17 M	<17 #	<17 M	<17 M	<17 M	<17
Pyrene	<15 µg/kg	TM218		<15 M	<15 #	<15 M	<15 M	<15 M	<15
Benz(a)anthracene	<14 µg/kg	TM218		<14 M	<14 #	<14 M	<14 M	<14 M	<14
Chrysene	<10 µg/kg	TM218		<10 M	<10 #	<10 M	<10 M	<10 M	<10
Benzo(b)fluoranthene	<15 µg/kg	TM218		<15 M	<15 #	<15 M	<15 M	<15 M	<15
Benzo(k)fluoranthene	<14 µg/kg	TM218		<14 M	<14 #	<14 M	<14 M	<14 M	<14
Benzo(a)pyrene	<15 µg/kg	TM218		<15 M	<15 #	<15 M	<15 M	<15 M	<15
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218		<18 M	<18 #	<18 M	<18 M	<18 M	<18
Dibenzo(a,h)anthracene	<23 µg/kg	TM218		<23 M	<23 #	<23 M	<23 M	<23 M	<23
Benzo(g,h,i)perylene	<24 µg/kg	TM218		<24 M	<24 #	<24 M	<24 M	<24 M	<24
PAH, Total Detected USEPA 16	<118 µg/kg	TM218		<118	<118	<118	<118	<118	<118

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

PAH by GCMS

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
Sampled Time	.	.	.	.	.	.
Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5

Component	LOD/Units	Method											
Naphthalene-d8 % recovery**	%	TM218	86		82.8		79		80.6		86.4		83.6	
Acenaphthene-d10 % recovery**	%	TM218	90		82		84.9		88		86.9		83.2	
Phenanthrene-d10 % recovery**	%	TM218	95.8		84.1		83.5		93		85		83.8	
Chrysene-d12 % recovery**	%	TM218	102		79.5		75.8		99.8		82.3		73.4	
Perylene-d12 % recovery**	%	TM218	98.7		79.3		73.1		93.7		76		76.5	
Naphthalene	<9 µg/kg	TM218	<9	M	<9	M	<9	M	<90	#	<9	M	<9	#
Acenaphthylene	<12 µg/kg	TM218	<12	M	<12	M	<12	M	<120	#	<12	M	<12	#
Acenaphthene	<8 µg/kg	TM218	<8	M	<8	M	<8	M	<80	#	<8	M	<8	#
Fluorene	<10 µg/kg	TM218	<10	M	<10	M	<10	M	<100	#	<10	M	<10	#
Phenanthrene	<15 µg/kg	TM218	<15	M	<15	M	<15	M	<150	#	<15	M	<15	#
Anthracene	<16 µg/kg	TM218	<16	M	<16	M	<16	M	<160	#	<16	M	<16	#
Fluoranthene	<17 µg/kg	TM218	<17	M	<17	M	<17	M	<170	#	<17	M	<17	#
Pyrene	<15 µg/kg	TM218	<15	M	<15	M	<15	M	<150	#	<15	M	<15	#
Benz(a)anthracene	<14 µg/kg	TM218	<14	M	<14	M	<14	M	<140	#	<14	M	<14	#
Chrysene	<10 µg/kg	TM218	<10	M	<10	M	<10	M	<100	#	<10	M	<10	#
Benzo(b)fluoranthene	<15 µg/kg	TM218	<15	M	<15	M	<15	M	<150	#	<15	M	<15	#
Benzo(k)fluoranthene	<14 µg/kg	TM218	<14	M	<14	M	<14	M	<140	#	<14	M	<14	#
Benzo(a)pyrene	<15 µg/kg	TM218	<15	M	<15	M	<15	M	<150	#	<15	M	<15	#
Indeno(1,2,3-cd)pyrene	<18 µg/kg	TM218	<18	M	<18	M	<18	M	<180	#	<18	M	<18	#
Dibenzo(a,h)anthracene	<23 µg/kg	TM218	<23	M	<23	M	<23	M	<230	#	<23	M	<23	#
Benzo(g,h,i)perylene	<24 µg/kg	TM218	<24	M	<24	M	<24	M	<240	#	<24	M	<24	#
PAH, Total Detected USEPA 16	<118 µg/kg	TM218	<118		<118		<118		<1180		<118		<118	

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG: 201031-64 Client Reference: 2020WW102 Report Number: 579788
Location: Arklow Bank Order Number: 9028 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<100	<1000	<100	<100	<1000	<100

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<1000	<1000	<100	<1000	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG: 201031-64 Client Reference: 2020WW102 Report Number: 579788
Location: Arklow Bank Order Number: 9028 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<100	<100	<1000	<100	<1000	<100

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
			Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
			AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1
Phenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
			Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
			AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1
2-Chlorophenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<500	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<100	<5000	<100	<100	<1000	<100

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
Phenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Semi Volatile Organic Compounds

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<100	<100	<100	<100	<100	<1000

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
Phenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Pentachlorophenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
n-Nitroso-n-dipropylamine	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Nitrobenzene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Isophorone	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Hexachloroethane	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Hexachlorocyclopentadiene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Hexachlorobutadiene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Hexachlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
n-Dioctyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Dimethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Diethyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
n-Dibutyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Dibenzofuran	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Carbazole	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Butylbenzyl phthalate	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
bis(2-Ethylhexyl) phthalate	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
bis(2-Chloroethoxy)methane	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
bis(2-Chloroethyl)ether	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Azobenzene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
4-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
4-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
4-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
4-Chlorophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
4-Chloroaniline	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
4-Chloro-3-methylphenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
4-Bromophenylphenylether	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
3-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2-Nitrophenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2-Nitroaniline	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2-Methylphenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
1,2,4-Trichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100

CERTIFICATE OF ANALYSIS

SDG: 201031-64 Client Reference: 2020WW102 Report Number: 579788
Location: Arklow Bank Order Number: 9028 Superseded Report:

Semi Volatile Organic Compounds

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
2-Chlorophenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2,6-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2,4-Dinitrotoluene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2,4-Dimethylphenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2,4-Dichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2,4,6-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2,4,5-Trichlorophenol	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
1,4-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
1,3-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
1,2-Dichlorobenzene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2-Chloronaphthalene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
2-Methylnaphthalene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Acenaphthylene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Acenaphthene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Anthracene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Benzo(a)anthracene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Benzo(b)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Benzo(k)fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Benzo(a)pyrene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Benzo(g,h,i)perylene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Chrysene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Fluoranthene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Fluorene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Indeno(1,2,3-cd)pyrene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Phenanthrene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Pyrene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Naphthalene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Dibenzo(a,h)anthracene	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
Bis(2-chloroisopropyl) ether	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<100
TIC report		TM157		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Total SVOC TIC	<100 µg/kg	TM157		<100	<100	<100	<1000	<100	<1000

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
GRO Surrogate % recovery**	%	TM089		98.1	94.9	129	118	102	112
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	<1000	1780	<1000	4290	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	<5000	<5000	<5000	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	1260	<1000	4060	<1000	6080
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	<5000	5150	<5000	7080
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	<10000	<10000	<10000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
GRO Surrogate % recovery**	%	TM089		93.9	92.2	132 4	82.7	118	99.9
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10 4	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10 4	<10	<10	12.2
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10 4	<10	<10	22.3
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	7270	<1000	<1000	<1000	5280
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	34300	<1000	<1000	<1000	23400
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	190000	2120	<1000	10600	114000
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	63900	<1000	<1000	<1000	19800
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	296000	<5000	<5000	11600	163000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	330000	<10000	<10000	26600	222000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10 4	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10 4	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10 4	<10	<10	15.2
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	5960	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		1360	26300	<1000	<1000	13500	56000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	1620	<1000	<1000	1380	2310
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	34400	<5000	<5000	15000	58700
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	330000	<10000	<10000	26600	222000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50 4	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50 4	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20 4	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
GRO Surrogate % recovery**	%	TM089		98.4	100	119	93.2	84.3	98.7
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	<1000	<1000	2680	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		<1000	1770	5790	22000	<1000	6310
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	<1000	<1000	22200	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		<5000	<5000	6340	47400	<5000	6930
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		<10000	<10000	17600	183000	<10000	10100
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	1890	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		<1000	<1000	9470	106000	1760	1830
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	1810	27800	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	6900	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		<5000	<5000	11300	136000	<5000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		<10000	<10000	17600	183000	<10000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

TPH CWG (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
			Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
			AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1
GRO Surrogate % recovery**	%	TM089		102	90.5	94.4	121	93.9	108
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	10.5	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	10100	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		<1000	26100	<1000	<1000	<1000	1070
Aliphatics >C21-C35	<1000 µg/kg	TM414		5810	57100	3920	<1000	2700	17100
Aliphatics >C35-C44	<1000 µg/kg	TM414		<1000	52600	<1000	<1000	<1000	3590
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		6360	147000	<5000	<5000	<5000	21800
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		12100	231000	<10000	<10000	<10000	25000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	1300	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		3940	60500	<1000	<1000	3200	1960
Aromatics >EC35-EC44	<1000 µg/kg	TM414		1780	22200	<1000	<1000	1530	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	17700	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		5720	84000	<5000	<5000	<5000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		12100	231000	<10000	<10000	<10000	21800
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
GRO Surrogate % recovery**	%	TM089		104	93.3	107	73.3	83.9	89.1
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		5600	3140	1040	3730	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		61400	5980	13600	47800	7290	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		16000	<1000	1880	3850	1170	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		83300	9850	16500	55600	8830	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		90300	13100	23300	127000	15400	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		5940	2250	4380	51700	5590	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		<1000	<1000	2450	18100	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	<1000	<1000	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		6980	<5000	6830	71400	6590	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		90300	<10000	23300	127000	15400	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	<50	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	<20	<20	<20

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	-	-	-	-	-	-
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
GRO Surrogate % recovery**	%	TM089		103	98	86.5	74.6	120	91.9
Aliphatics >C5-C6	<10 µg/kg	TM089		<10	<10	<10	<10	10.2	<10
Aliphatics >C6-C8	<10 µg/kg	TM089		<10	<10	<10	57.2	25.4	<10
Aliphatics >C8-C10	<10 µg/kg	TM089		<10	<10	<10	2770	44.5	<10
Aliphatics >C10-C12	<1000 µg/kg	TM414		<1000	<1000	<1000	23800	<1000	<1000
Aliphatics >C12-C16	<1000 µg/kg	TM414		<1000	<1000	3610	54200	<1000	<1000
Aliphatics >C16-C21	<1000 µg/kg	TM414		1250	<1000	29700	<10000	<1000	<1000
Aliphatics >C21-C35	<1000 µg/kg	TM414		39000	<1000	139000	24600	8430	<1000
Aliphatics >C35-C44	<1000 µg/kg	TM414		4600	<1000	23200	20500	<1000	<1000
Total Aliphatics >C10-C44	<5000 µg/kg	TM414		44800	<5000	196000	124000	9110	<5000
Total Aliphatics & Aromatics >C10-C44	<10000 µg/kg	TM414		77300	<10000	589000	499000	13000	<10000
Aromatics >EC5-EC7	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/kg	TM089		<10	<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/kg	TM089		<10	<10	<10	1850	29.2	<10
Aromatics > EC10-EC12	<1000 µg/kg	TM414		<1000	<1000	<1000	<10000	<1000	<1000
Aromatics > EC12-EC16	<1000 µg/kg	TM414		<1000	<1000	<1000	<10000	<1000	<1000
Aromatics > EC16-EC21	<1000 µg/kg	TM414		<1000	<1000	5150	<10000	<1000	<1000
Aromatics > EC21-EC35	<1000 µg/kg	TM414		27700	<1000	385000	216000	2870	<1000
Aromatics >EC35-EC44	<1000 µg/kg	TM414		4270	<1000	2690	156000	<1000	<1000
Aromatics > EC40-EC44	<1000 µg/kg	TM414		<1000	<1000	1560	77900	<1000	<1000
Total Aromatics > EC10-EC44	<5000 µg/kg	TM414		32500	<5000	393000	375000	<5000	<5000
Total Aliphatics & Aromatics >C5-C44	<10000 µg/kg	TM414		77300	<10000	589000	504000	<10000	<10000
Total Aliphatics >C5-C10	<50 µg/kg	TM089		<50	<50	<50	2830	80	<50
Total Aromatics >EC5-EC10	<50 µg/kg	TM089		<50	<50	<50	1850	<50	<50
GRO >C5-C10	<20 µg/kg	TM089		<20	<20	<20	4680	80	<20

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
Dibromofluoromethane**	%	TM116		136	112	109	124	108	110
Toluene-d8**	%	TM116		101	96.1	98.6	96.1	96.8	98.4
4-Bromofluorobenzene**	%	TM116		94.5	84.6	96.2	85.6	92.2	97.5
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<7 #	<7 #	<7 #	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	25.1 #	<10 #	17.4 #	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 Client Reference: 2020WW102 Report Number: 579788
Location: Arklow Bank Order Number: 9028 Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210
			Depth (m)	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020	27/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156344	23156351	23156204	23156295	23156329	23156337
			AGS Reference	ES1	ES5	ES1	ES5	ES1	ES5
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
Dibromofluoromethane**	%	TM116		111	107	109	108	115	118
Toluene-d8**	%	TM116		98.9	99.9	95.5	98.9	98.2	92.3
4-Bromofluorobenzene**	%	TM116		104	106	91.5	101	97.4	88.5
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6	<6	<6 M	<60 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<7	<7	<7 #	<70 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 #	<6	<6 M	<60 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 #	<6	<6 M	<60 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10	<10	<10 #	<100 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7	<7	<7 M	<70 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<10	<10	<10 #	<100 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 #	<10	<10 M	<100 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 #	<10	<10 M	<100 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8	<8	<8 M	<80 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6	<6	<6 M	<60 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<100	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8	<8	<8 M	<80 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7	<7	<7 M	<70 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5	<5	<5 M	<50 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9	<9	<9 M	<90 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9	<9 #	<90 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9	<9	<9 M	<90 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7	<7	<7 M	<70 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 #	<7	<7 M	<70 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<100	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7	<7	<7 M	<70 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 #	<5	<5 M	<50 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5	<5	<5 M	<50 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4	<4	<4 M	<40 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10	<10 #	<100 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10	<10 #	<100 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5	<5	<5 #	<50 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10	<10	<10 #	<100 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16	<16	<16 M	<160 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 #	<10	<10 M	<100 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9	<9	<9 M	<90 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8	<8	<8 M	<80 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 #	<14	<14 M	<140 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9	<9	<9 #	<90 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<100	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8	<8	<8 M	<80 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5	<5	<5 M	<50 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<110	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10	<10	<10 M	<100 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14	<14	<14 M	<140 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10	<10 #	<100 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<200	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<200	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13	<13	<13 M	<130 M	<13 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP301	TP301	TP301	TP301	TP301	TP302
			Depth (m)	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70	2.90 - 3.00	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156138	23156148	23156162	23156171	23156180	23156259
			AGS Reference	ES1	ES2	ES3	ES4	ES6	ES1
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20	<20	<20 #	<200 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.2	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<400	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<500	<50

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
Dibromofluoromethane**	%	TM116		107	107	105	110	109	109
Toluene-d8**	%	TM116		99	98.5	90.5	95.5	99.6	97
4-Bromofluorobenzene**	%	TM116		103	96	72.6	96.1	95.3	91.4
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<7 #	<7 #	<7 #	<7	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6 M	<6	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 Client Reference: 2020WW102 Report Number: 579788
Location: Arklow Bank Order Number: 9028 Superseded Report:

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7 M	<7	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4 M	<4	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5 #	<5	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16 M	<16	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9 M	<9	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9 #	<9	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8 M	<8	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5 M	<5	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10 M	<10	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14 M	<14	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10 #	<10	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13 M	<13	<13 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP302	TP302	TP302	TP304	TP304	TP304
			Depth (m)	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156273	23156285	23156303	23156226	23156239	23156246
			AGS Reference	ES2	ES3	ES5	ES1	ES2	ES3
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20 #	<20	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

VOC MS (S)

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
			Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
			AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1
Dibromofluoromethane**	%	TM116		110	115	113	119	117	115
Toluene-d8**	%	TM116		96.6	90.8	99.4	99.2	98.4	98.6
4-Bromofluorobenzene**	%	TM116		91.5	83.9	92.4	97.9	88.6	100
Dichlorodifluoromethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6	<6 M	<6 M
Chloromethane	<7 µg/kg	TM116		<7 #	<7 #	<7 #	<7	<7 #	<7 #
Vinyl Chloride	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6	<6 M	<6 M
Bromomethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Chloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Trichlorofluorormethane	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6	<6 M	<6 M
1,1-Dichloroethene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10	<10 #	<10 #
Carbon Disulphide	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7	<7 M	<7 M
Dichloromethane	<10 µg/kg	TM116		<10 #	<10 #	12.8 #	16.7	<10 #	<10 #
Methyl Tertiary Butyl Ether	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
trans-1,2-Dichloroethene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
1,1-Dichloroethane	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8	<8 M	<8 M
cis-1,2-Dichloroethene	<6 µg/kg	TM116		<6 M	<6 M	<6 M	<6	<6 M	<6 M
2,2-Dichloropropane	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
Bromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Chloroform	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8	<8 M	<8 M
1,1,1-Trichloroethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7	<7 M	<7 M
1,1-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Carbontetrachloride	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
1,2-Dichloroethane	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5	<5 M	<5 M
Benzene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9	<9 M	<9 M
Trichloroethene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9	<9 #	<9 #
1,2-Dichloropropane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Dibromomethane	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9	<9 M	<9 M
Bromodichloromethane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7	<7 M	<7 M
cis-1,3-Dichloropropene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Toluene	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7	<7 M	<7 M
trans-1,3-Dichloropropene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
1,1,2-Trichloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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♦5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
			Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
			AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<7 M	<7 M	<7	<7 M	<7 M
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5	<5 M	<5 M
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Chlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5	<5 M	<5 M
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Ethylbenzene	<4 µg/kg	TM116		<4 M	<4 M	<4 M	<4	<4 M	<4 M
p/m-Xylene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Styrene	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<5 #	<5 #	<5	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<16 M	<16 M	<16	<16 M	<16 M
Bromobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
Propylbenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<9 M	<9 M	<9	<9 M	<9 M
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8	<8 M	<8 M
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14	<14 M	<14 M
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<9 #	<9 #	<9	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<10	<10	<10	<10	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<8 M	<8 M	<8	<8 M	<8 M
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<5 M	<5 M	<5	<5 M	<5 M
n-Butylbenzene	<11 µg/kg	TM116		<11	<11	<11	<11	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<10 M	<10 M	<10	<10 M	<10 M
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<14 M	<14 M	<14	<14 M	<14 M
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<10 #	<10 #	<10	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<20	<20	<20	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<13 M	<13 M	<13	<13 M	<13 M

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP304	TP310	TP310	TP310	TP310	TP312
			Depth (m)	3.20 - 3.30	0.50 - 0.60	1.00 - 1.10	1.40 - 1.50	2.50 - 2.60	0.40 - 0.50
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156253	23156390	23156402	23156116	23156124	23156107
			AGS Reference	ES5	ES1	ES2	ES4	ES5	ES1
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<20 #	<20 #	<20	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<40	<40	<40	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
Dibromofluoromethane**	%	TM116		112	118	113	110	118	117
Toluene-d8**	%	TM116		96.8	99.2	95.9	97.7	98.8	98.5
4-Bromofluorobenzene**	%	TM116		91.5	103	91.3	93.3	95.1	99.3
Dichlorodifluoromethane	µg/kg	TM116	<6 M	<6 M	<60 M	<6 M	<120 M	<6 M	<6
Chloromethane	µg/kg	TM116	<7 #	<7 #	<70 #	<7 #	<140 #	<7 #	<7
Vinyl Chloride	µg/kg	TM116	<6 M	<6 M	<60 M	<6 M	<120 M	<6 M	<6
Bromomethane	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
Chloroethane	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
Trichlorofluorormethane	µg/kg	TM116	<6 M	<6 M	<60 M	<6 M	<120 M	<6 M	<6
1,1-Dichloroethene	µg/kg	TM116	<10 #	<10 #	<100 #	<10 #	<200 #	<10 #	<10
Carbon Disulphide	µg/kg	TM116	<7 M	<7 M	<70 M	<7 M	<140 M	<7 M	<7
Dichloromethane	µg/kg	TM116	<10 #	<10 #	<100 #	<10 #	<200 #	19.7 #	<10
Methyl Tertiary Butyl Ether	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
trans-1,2-Dichloroethene	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
1,1-Dichloroethane	µg/kg	TM116	<8 M	<8 M	<80 M	<8 M	<160 M	<8 M	<8
cis-1,2-Dichloroethene	µg/kg	TM116	<6 M	<6 M	<60 M	<6 M	<120 M	<6 M	<6
2,2-Dichloropropane	µg/kg	TM116	<10	<10	<100	<10	<200	<10	<10
Bromochloromethane	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
Chloroform	µg/kg	TM116	<8 M	<8 M	<80 M	<8 M	<160 M	<8 M	<8
1,1,1-Trichloroethane	µg/kg	TM116	<7 M	<7 M	<70 M	<7 M	<140 M	<7 M	<7
1,1-Dichloropropene	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
Carbontetrachloride	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
1,2-Dichloroethane	µg/kg	TM116	<5 M	<5 M	<50 M	<5 M	<100 M	<5 M	<5
Benzene	µg/kg	TM116	<9 M	<9 M	<90 M	<9 M	<180 M	<9 M	<9
Trichloroethene	µg/kg	TM116	<9 #	<9 #	<90 #	<9 #	<180 #	<9 #	<9
1,2-Dichloropropane	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
Dibromomethane	µg/kg	TM116	<9 M	<9 M	<90 M	<9 M	<180 M	<9 M	<9
Bromodichloromethane	µg/kg	TM116	<7 M	<7 M	<70 M	<7 M	<140 M	<7 M	<7
cis-1,3-Dichloropropene	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10
Toluene	µg/kg	TM116	<7 M	<7 M	<70 M	<7 M	<140 M	<7 M	<7
trans-1,3-Dichloropropene	µg/kg	TM116	<10	<10	<100	<10	<200	<10	<10
1,1,2-Trichloroethane	µg/kg	TM116	<10 M	<10 M	<100 M	<10 M	<200 M	<10 M	<10

VOC MS (S)

Results Legend	
#	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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
1,3-Dichloropropane	<7 µg/kg	TM116		<7 M	<70 M	<7 M	<140 M	<7 M	<7
Tetrachloroethene	<5 µg/kg	TM116		<5 M	<50 M	<5 M	<100 M	<5 M	<5
Dibromochloromethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
1,2-Dibromoethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
Chlorobenzene	<5 µg/kg	TM116		<5 M	<50 M	<5 M	<100 M	<5 M	<5
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
Ethylbenzene	<4 µg/kg	TM116		<4 M	<40 M	<4 M	<80 M	<4 M	<4
p/m-Xylene	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<200 #	<10 #	<10
o-Xylene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
Styrene	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<200 #	<10 #	<10
Bromoform	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
Isopropylbenzene	<5 µg/kg	TM116		<5 #	<50 #	<5 #	<100 #	<5 #	<5
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<200 #	<10 #	<10
1,2,3-Trichloropropane	<16 µg/kg	TM116		<16 M	<160 M	<16 M	<320 M	<16 M	<16
Bromobenzene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
Propylbenzene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
2-Chlorotoluene	<9 µg/kg	TM116		<9 M	<90 M	<9 M	<180 M	<9 M	<9
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<8 M	<80 M	<8 M	<160 M	<8 M	<8
4-Chlorotoluene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
tert-Butylbenzene	<14 µg/kg	TM116		<14 M	<140 M	<14 M	<280 M	<14 M	<14
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<9 #	<90 #	<9 #	<180 #	<9 #	<9
sec-Butylbenzene	<10 µg/kg	TM116		<10	<100	<10	<200	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
1,3-Dichlorobenzene	<8 µg/kg	TM116		<8 M	<80 M	<8 M	<160 M	<8 M	<8
1,4-Dichlorobenzene	<5 µg/kg	TM116		<5 M	<50 M	<5 M	<100 M	<5 M	<5
n-Butylbenzene	<11 µg/kg	TM116		<11	<110	<11	<220	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<10 M	<100 M	<10 M	<200 M	<10 M	<10
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<14 M	<140 M	<14 M	<280 M	<14 M	<14
Tert-amyl methyl ether	<10 µg/kg	TM116		<10 #	<100 #	<10 #	<200 #	<10 #	<10
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<20	<200	<20	<400	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<20	<200	<20	<400	<20	<20
Naphthalene	<13 µg/kg	TM116		<13 M	<130 M	<13 M	<260 M	<13 M	<13

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP312	TP312	TP312	TP312	TP314	TP314
			Depth (m)	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156130	23156234	23156310	23156322	23156358	23156366
			AGS Reference	ES2	ES3	ES4	ES6	ES1	ES2
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<20 #	<200 #	<20 #	<400 #	<20 #	<20
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.02	<0.2	<0.02	<0.4	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<40	<400	<40	<800	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<500	<50	<50

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
Dibromofluoromethane**	%	TM116		118	107	112	124	108	109
Toluene-d8**	%	TM116		97.6	99.9	92.6	94.5	94.5	99.1
4-Bromofluorobenzene**	%	TM116		92.3	106	85.4	89.9	78.8	101
Dichlorodifluoromethane	µg/kg	TM116	<6	M	<6	M	<6	M	<120	M	<6	M	<6	#
Chloromethane	µg/kg	TM116	<140	#	<7	#	<7	#	<140	#	<7	#	<7	#
Vinyl Chloride	µg/kg	TM116	<120	M	<6	M	<6	M	<120	M	<6	M	<6	#
Bromomethane	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
Chloroethane	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
Trichlorofluorormethane	µg/kg	TM116	<120	M	<6	M	<6	M	<120	M	<6	M	<6	#
1,1-Dichloroethene	µg/kg	TM116	<200	#	<10	#	<10	#	<200	#	<10	#	<10	#
Carbon Disulphide	µg/kg	TM116	<140	M	<7	M	<7	M	<140	M	<7	M	<7	#
Dichloromethane	µg/kg	TM116	<200	#	<10	#	<10	#	<200	#	35.1	#	<10	#
Methyl Tertiary Butyl Ether	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
trans-1,2-Dichloroethene	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
1,1-Dichloroethane	µg/kg	TM116	<160	M	<8	M	<8	M	<160	M	<8	M	<8	#
cis-1,2-Dichloroethene	µg/kg	TM116	<120	M	<6	M	<6	M	<120	M	<6	M	<6	#
2,2-Dichloropropane	µg/kg	TM116	<200		<10		<10		<200		<10		<10	
Bromochloromethane	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
Chloroform	µg/kg	TM116	<160	M	<8	M	<8	M	<160	M	<8	M	<8	#
1,1,1-Trichloroethane	µg/kg	TM116	<140	M	<7	M	<7	M	<140	M	<7	M	<7	#
1,1-Dichloropropene	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
Carbontetrachloride	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
1,2-Dichloroethane	µg/kg	TM116	<100	M	<5	M	<5	M	<100	M	<5	M	<5	#
Benzene	µg/kg	TM116	<180	M	<9	M	<9	M	<180	M	<9	M	<9	#
Trichloroethene	µg/kg	TM116	<180	#	<9	#	<9	#	<180	#	<9	#	<9	#
1,2-Dichloropropane	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
Dibromomethane	µg/kg	TM116	<180	M	<9	M	<9	M	<180	M	<9	M	<9	#
Bromodichloromethane	µg/kg	TM116	<140	M	<7	M	<7	M	<140	M	<7	M	<7	#
cis-1,3-Dichloropropene	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#
Toluene	µg/kg	TM116	<140	M	<7	M	<7	M	<140	M	<7	M	<7	#
trans-1,3-Dichloropropene	µg/kg	TM116	<200		<10		<10		<200		<10		<10	
1,1,2-Trichloroethane	µg/kg	TM116	<200	M	<10	M	<10	M	<200	M	<10	M	<10	#

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
1,3-Dichloropropane	<7 µg/kg	TM116		<140 M	<7 M	<7 M	<140 M	<7 M	<7 #
Tetrachloroethene	<5 µg/kg	TM116		<100 M	<5 M	<5 M	<100 M	<5 M	<5 #
Dibromochloromethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
1,2-Dibromoethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
Chlorobenzene	<5 µg/kg	TM116		<100 M	<5 M	<5 M	<100 M	<5 M	<5 #
1,1,1,2-Tetrachloroethane	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
Ethylbenzene	<4 µg/kg	TM116		<80 M	<4 M	<4 M	<80 M	<4 M	<4 #
p/m-Xylene	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<200 #	<10 #	<10 #
o-Xylene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
Styrene	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<200 #	<10 #	<10 #
Bromoform	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
Isopropylbenzene	<5 µg/kg	TM116		<100 #	<5 #	<5 #	<100 #	<5 #	<5 #
1,1,2,2-Tetrachloroethane	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<200 #	<10 #	<10 #
1,2,3-Trichloropropane	<16 µg/kg	TM116		<320 M	<16 M	<16 M	<320 M	<16 M	<16 #
Bromobenzene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
Propylbenzene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
2-Chlorotoluene	<9 µg/kg	TM116		<180 M	<9 M	<9 M	<180 M	<9 M	<9 #
1,3,5-Trimethylbenzene	<8 µg/kg	TM116		<160 M	<8 M	<8 M	<160 M	<8 M	<8 #
4-Chlorotoluene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
tert-Butylbenzene	<14 µg/kg	TM116		<280 M	<14 M	<14 M	<280 M	<14 M	<14 #
1,2,4-Trimethylbenzene	<9 µg/kg	TM116		<180 #	<9 #	<9 #	<180 #	<9 #	<9 #
sec-Butylbenzene	<10 µg/kg	TM116		<200	<10	<10	<200	<10	<10
4-Isopropyltoluene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
1,3-Dichlorobenzene	<8 µg/kg	TM116		<160 M	<8 M	<8 M	<160 M	<8 M	<8 #
1,4-Dichlorobenzene	<5 µg/kg	TM116		<100 M	<5 M	<5 M	<100 M	<5 M	<5 #
n-Butylbenzene	<11 µg/kg	TM116		<220	<11	<11	<220	<11	<11
1,2-Dichlorobenzene	<10 µg/kg	TM116		<200 M	<10 M	<10 M	<200 M	<10 M	<10 #
1,2-Dibromo-3-chloropropane	<14 µg/kg	TM116		<280 M	<14 M	<14 M	<280 M	<14 M	<14 #
Tert-amyl methyl ether	<10 µg/kg	TM116		<200 #	<10 #	<10 #	<200 #	<10 #	<10 #
1,2,4-Trichlorobenzene	<20 µg/kg	TM116		<400	<20	<20	<400	<20	<20
Hexachlorobutadiene	<20 µg/kg	TM116		<400	<20	<20	<400	<20	<20
Naphthalene	<13 µg/kg	TM116		<260 M	<13 M	<13 M	<260 M	<13 M	<13 #

CERTIFICATE OF ANALYSIS

Validated

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

VOC MS (S)

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
			Depth (m)	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
			Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
			Date Sampled	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020	29/10/2020
			Sampled Time	.	.	.	.	.	.
			Date Received	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020	31/10/2020
			SDG Ref	201031-64	201031-64	201031-64	201031-64	201031-64	201031-64
			Lab Sample No.(s)	23156371	23156383	23156190	23156196	23156210	23156217
			AGS Reference	ES4	ES6	ES1	ES2	ES3	ES5
1,2,3-Trichlorobenzene	<20 µg/kg	TM116		<400 #	<20 #	<20 #	<400 #	<20 #	<20 #
VOC TIC		TM116		Not Detected	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
Sum of Detected Xylenes	<0.02 mg/kg	TM116		<0.4	<0.02	<0.02	<0.4	<0.02	<0.02
Sum of BTEX	<40 µg/kg	TM116		<800	<40	<40	<800	<40	<40
Total VOC TIC	<50 µg/kg	TM116		<50	<50	<50	<50	<50	<50

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Asbestos Identification - Solid Samples

Results Legend

#	ISO17025 accredited.
M	*m*CERTS accredited.
*	Subcontracted test.
(F)	Trigger breach confirmed
1-5&♦§@	Sample deviation (see appendix)

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP207ES1 0.40 - 0.50 SOLID 27/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156344 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP207ES5 1.60 - 1.70 SOLID 27/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156351 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP209ES1 0.50 - 0.60 SOLID 27/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156204 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP209ES5 1.50 - 1.60 SOLID 27/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156295 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP210ES1 0.40 - 0.50 SOLID 27/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156329 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP210ES5 1.50 - 1.60 SOLID 27/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156337 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP301ES1 0.40 - 0.50 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156138 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP301ES2 0.90 - 1.00 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156148 TM048	11/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP301ES3 1.00 - 1.10 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156162 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP301ES4 1.60 - 1.70 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156171 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP301ES6 2.90 - 3.00 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156180 TM048	11/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP302ES1 0.40 - 0.50 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156259 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP302ES2 1.00 - 1.10 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156273 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP302ES3 1.60 - 1.70 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156285 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP302ES5 3.10 - 3.20 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156303 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP304ES1 0.40 - 0.50 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156226 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP304ES2 1.00 - 1.10 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156239 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP304ES3 1.60 - 1.70 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156246 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP304ES5 3.20 - 3.30 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156253 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP310ES1 0.50 - 0.60 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156390 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP310ES2 1.00 - 1.10 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156402 TM048	11/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP310ES4 1.40 - 1.50 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156116 TM048	11/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP310ES5 2.50 - 2.60 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156124 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP312ES1 0.40 - 0.50 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156107 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP312ES2 0.80 - 0.90 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156130 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP312ES3 1.40 - 1.50 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156234 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP312ES4 2.10 - 2.20 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156310 TM048	11/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP312ES6 3.00 - 3.10 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156322 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP314ES1 0.50 - 0.60 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156358 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP314ES2 1.10 - 1.20 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156366 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP314ES4 1.80 - 1.90 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156371 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP314ES6 2.90 - 3.00 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156383 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP315ES1 0.40 - 0.50 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156190 TM048	10/11/2020	James Richards	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP315ES2 0.90 - 1.00 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156196 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP315ES3 1.50 - 1.60 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156210 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

Validated

SDG: 201031-64 **Client Reference:** 2020WW102 **Report Number:** 579788
Location: Arklow Bank **Order Number:** 9028 **Superseded Report:**

		Date of Analysis	Analysed By	Comments	Amosite (Brown) Asbestos	Chrysotile (White) Asbestos	Crocidolite (Blue) Asbestos	Fibrous Actinolite	Fibrous Anthophyllite	Fibrous Tremolite	Non-Asbestos Fibre
Cust. Sample Ref. Depth (m) Sample Type Date Sampled Date Receieved SDG Original Sample Method Number	TP315ES5 2.50 - 2.60 SOLID 29/10/2020 00:00:00 31/10/2020 09:00:00 201031-64 23156217 TM048	10/11/2020	Barbara Urbanek-Walsh	-	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected (#)	Not Detected

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	5.73
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.6
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156107
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP312 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00746	<0.0005	0.0746	<0.005	-	-	-
Barium	0.00325	<0.0002	0.0325	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00374	<0.0003	0.0374	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00552	<0.003	0.0552	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00129	<0.001	0.0129	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	71.2	<5	712	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	8.57
Conductivity (µS/cm)	76.50
Temperature (°C)	20.30
Volume Leachant (Litres)	0.895

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.108	**Natural Moisture Content (%)**	20
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156116
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP310 ES4
Depth (m)	1.40 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	1.98	<0.5	19.8	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00636	<0.0005	0.0636	<0.005	-	-	-
Barium	0.0236	<0.0002	0.236	<0.002	-	-	-
Cadmium	0.00012	<0.00008	0.0012	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00163	<0.0003	0.0163	<0.003	-	-	-
Lead	0.000204	<0.0002	0.00204	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.0065	<0.0004	0.065	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00469	<0.001	0.0469	<0.01	-	-	-
Chloride	2.5	<2	25	<20	-	-	-
Sulphate (soluble)	1430	<10	14300	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	1550	<5	15500	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	6.86
Conductivity (µS/cm)	2,030.00
Temperature (°C)	21.40
Volume Leachant (Litres)	0.882

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.131	**Natural Moisture Content (%)**	44.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	69.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156124
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP310 ES5
Depth (m)	2.50 - 2.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.19	<3	31.9	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00599	<0.0005	0.0599	<0.005	-	-	-
Barium	0.0175	<0.0002	0.175	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00289	<0.0003	0.0289	<0.003	-	-	-
Lead	0.000598	<0.0002	0.00598	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00046	<0.0004	0.0046	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00482	<0.001	0.0482	<0.01	-	-	-
Chloride	3.1	<2	31	<20	-	-	-
Sulphate (soluble)	42.6	<2	426	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	99.7	<5	997	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.41
Conductivity (µS/cm)	124.00
Temperature (°C)	20.40
Volume Leachant (Litres)	0.860

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.096	**Natural Moisture Content (%)**	6.26
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.1
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156130
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP312 ES2
Depth (m)	0.80 - 0.90

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	5.8	<3	58	<30	-	-	-
Fluoride	2.72	<0.5	27.2	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0552	<0.0005	0.552	<0.005	-	-	-
Barium	0.00785	<0.0002	0.0785	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00872	<0.0003	0.0872	<0.003	-	-	-
Lead	0.00106	<0.0002	0.0106	<0.002	-	-	-
Molybdenum	0.025	<0.003	0.25	<0.03	-	-	-
Nickel	0.000411	<0.0004	0.00411	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00372	<0.001	0.0372	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	61.6	<2	616	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	171	<5	1710	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.68
Conductivity (µS/cm)	208.00
Temperature (°C)	20.40
Volume Leachant (Litres)	0.894

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	5.62
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.7
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156138
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP301 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00352	<0.0005	0.0352	<0.005	-	-	-
Barium	0.00199	<0.0002	0.0199	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00147	<0.0003	0.0147	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00165	<0.001	0.0165	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	55.4	<5	554	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.69
Conductivity (µS/cm)	74.60
Temperature (°C)	20.70
Volume Leachant (Litres)	0.895

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.122	**Natural Moisture Content (%)**	34.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156148
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP301 ES2
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	1.43	<0.5	14.3	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.01	<0.01	<0.1	<0.1	-	-	-
Arsenic	2.84	<0.0234	28.4	<0.234	-	-	-
Barium	0.00461	<0.002	0.0461	<0.02	-	-	-
Cadmium	0.00111	<0.0008	0.0111	<0.008	-	-	-
Chromium	<0.01	<0.01	<0.1	<0.1	-	-	-
Copper	0.00341	<0.003	0.0341	<0.03	-	-	-
Lead	<0.002	<0.002	<0.02	<0.02	-	-	-
Molybdenum	0.235	<0.03	2.35	<0.3	-	-	-
Nickel	<0.004	<0.004	<0.04	<0.04	-	-	-
Selenium	<0.01	<0.01	<0.1	<0.1	-	-	-
Zinc	0.198	<0.01	1.98	<0.1	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	49.5	<2	495	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	108	<5	1080	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	6.45
Conductivity (µS/cm)	127.00
Temperature (°C)	21.50
Volume Leachant (Litres)	0.868

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.127	**Natural Moisture Content (%)**	41.5
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	70.6
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156162
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP301 ES3
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.66	<3	36.6	<30	-	-	-
Fluoride	2.94	<0.5	29.4	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00324	<0.001	0.0324	<0.01	-	-	-
Arsenic	0.662	<0.00551	6.62	<0.0551	-	-	-
Barium	0.0248	<0.0002	0.248	<0.002	-	-	-
Cadmium	0.00381	<0.00008	0.0381	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00629	<0.0003	0.0629	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.99	<0.003	9.9	<0.03	-	-	-
Nickel	0.0106	<0.0004	0.106	<0.004	-	-	-
Selenium	0.00135	<0.001	0.0135	<0.01	-	-	-
Zinc	2.07	<0.001	20.7	<0.01	-	-	-
Chloride	2.3	<2	23	<20	-	-	-
Sulphate (soluble)	1370	<10	13700	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	1440	<5	14400	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	6.63
Conductivity (µS/cm)	1,960.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.863

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.136	**Natural Moisture Content (%)**	51.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	65.8
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156171
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP301 ES4
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11.4	<3	114	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0104	<0.0005	0.104	<0.005	-	-	-
Barium	0.0223	<0.0002	0.223	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00394	<0.0003	0.0394	<0.003	-	-	-
Lead	0.000774	<0.0002	0.00774	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000761	<0.0004	0.00761	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00711	<0.001	0.0711	<0.01	-	-	-
Chloride	3.2	<2	32	<20	-	-	-
Sulphate (soluble)	60.3	<2	603	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	162	<5	1620	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.46
Conductivity (µS/cm)	212.00
Temperature (°C)	20.40
Volume Leachant (Litres)	0.854

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.141	**Natural Moisture Content (%)**	55.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	64.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156180
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP301 ES6
Depth (m)	2.90 - 3.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	5.33	<3	53.3	<30	-	-	-
Fluoride	1.24	<0.5	12.4	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0894	<0.0005	0.894	<0.005	-	-	-
Barium	0.0369	<0.0002	0.369	<0.002	-	-	-
Cadmium	0.000137	<0.00008	0.00137	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000649	<0.0003	0.00649	<0.003	-	-	-
Lead	0.000244	<0.0002	0.00244	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00776	<0.0004	0.0776	<0.004	-	-	-
Selenium	0.00142	<0.001	0.0142	<0.01	-	-	-
Zinc	0.0681	<0.001	0.681	<0.01	-	-	-
Chloride	4	<2	40	<20	-	-	-
Sulphate (soluble)	87	<2	870	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	151	<5	1510	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	6.79
Conductivity (µS/cm)	193.00
Temperature (°C)	20.90
Volume Leachant (Litres)	0.849

Mcerts Certification does not apply to leachates

14/12/2020 14:50:59

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	11
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.1
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156190
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP315 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0248	<0.0002	0.248	<0.002	-	-	-
Cadmium	0.000158	<0.00008	0.00158	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00389	<0.0003	0.0389	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00533	<0.0004	0.0533	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0276	<0.001	0.276	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	57.7	<2	577	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	106	<5	1060	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.22
Conductivity (µS/cm)	130.00
Temperature (°C)	20.90
Volume Leachant (Litres)	0.890

Mcerts Certification does not apply to leachates

14/12/2020 14:50:59

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	11.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	89.9
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156196
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP315 ES2
Depth (m)	0.90 - 1.00

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.09	<3	30.9	<30	-	-	-
Fluoride	1.35	<0.5	13.5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00431	<0.0005	0.0431	<0.005	-	-	-
Barium	0.00227	<0.0002	0.0227	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00106	<0.0003	0.0106	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	3.1	<2	31	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	56.7	<5	567	<50	-	-	-

Leach Test Information

Date Prepared	06-Nov-2020
pH (pH Units)	7.71
Conductivity (µS/cm)	69.60
Temperature (°C)	20.90
Volume Leachant (Litres)	0.890

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.105	**Natural Moisture Content (%)**	15.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	86.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156204
Sampled Date	27-Oct-2020
Customer Sample Ref.	TP209 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.000614	<0.0002	0.00614	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00103	<0.0003	0.0103	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00153	<0.001	0.0153	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	9.61	<5	96.1	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.37
Conductivity (µS/cm)	9.14
Temperature (°C)	20.70
Volume Leachant (Litres)	0.885

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.132	**Natural Moisture Content (%)**	47.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	67.6
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156210
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP315 ES3
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	13.6	<3	136	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0472	<0.0005	0.472	<0.005	-	-	-
Barium	0.0123	<0.0002	0.123	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00475	<0.0003	0.0475	<0.003	-	-	-
Lead	0.00365	<0.0002	0.0365	<0.002	-	-	-
Molybdenum	0.00362	<0.003	0.0362	<0.03	-	-	-
Nickel	0.00152	<0.0004	0.0152	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.014	<0.001	0.14	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	45.9	<2	459	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	105	<5	1050	<50	-	-	-

Leach Test Information

Date Prepared	06-Nov-2020
pH (pH Units)	7.81
Conductivity (µS/cm)	145.00
Temperature (°C)	20.90
Volume Leachant (Litres)	0.858

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	10.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.6
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156217
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP315 ES5
Depth (m)	2.50 - 2.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00234	<0.001	0.0234	<0.01	-	-	-
Arsenic	0.00868	<0.0005	0.0868	<0.005	-	-	-
Barium	0.00144	<0.0002	0.0144	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00133	<0.0003	0.0133	<0.003	-	-	-
Lead	0.000277	<0.0002	0.00277	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00436	<0.001	0.0436	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	2.5	<2	25	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	14.2	<5	142	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	7.08
Conductivity (µS/cm)	17.80
Temperature (°C)	22.70
Volume Leachant (Litres)	0.891

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.109	**Natural Moisture Content (%)**	20.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.2
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156226
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP304 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	0.572	<0.5	5.72	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0018	<0.0005	0.018	<0.005	-	-	-
Barium	0.00265	<0.0002	0.0265	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00543	<0.0003	0.0543	<0.003	-	-	-
Lead	0.000604	<0.0002	0.00604	<0.002	-	-	-
Molybdenum	0.011	<0.003	0.11	<0.03	-	-	-
Nickel	0.000452	<0.0004	0.00452	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00566	<0.001	0.0566	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	46.5	<5	465	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.43
Conductivity (µS/cm)	59.50
Temperature (°C)	22.20
Volume Leachant (Litres)	0.882

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.122	**Natural Moisture Content (%)**	35.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	74
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156234
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP312 ES3
Depth (m)	1.40 - 1.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	1.88	<0.5	18.8	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.0015	<0.001	0.015	<0.01	-	-	-
Arsenic	0.0352	<0.0005	0.352	<0.005	-	-	-
Barium	0.0328	<0.0002	0.328	<0.002	-	-	-
Cadmium	0.00164	<0.00008	0.0164	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00431	<0.0003	0.0431	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00748	<0.0004	0.0748	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.631	<0.001	6.31	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	1380	<10	13800	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	1490	<5	14900	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	7.14
Conductivity (µS/cm)	1,980.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.868

Mcerts Certification does not apply to leachates

14/12/2020 14:50:59

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.097	**Natural Moisture Content (%)**	7.22
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	93.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156239
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP304 ES2
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00094	<0.0005	0.0094	<0.005	-	-	-
Barium	0.00926	<0.0002	0.0926	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00101	<0.0003	0.0101	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000517	<0.0004	0.00517	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00117	<0.001	0.0117	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	23	<2	230	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	60.8	<5	608	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	6.60
Conductivity (µS/cm)	75.10
Temperature (°C)	20.90
Volume Leachant (Litres)	0.894

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.116	**Natural Moisture Content (%)**	28.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	77.8
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156246
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP304 ES3
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	12.7	<3	127	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00104	<0.001	0.0104	<0.01	-	-	-
Arsenic	0.0205	<0.0005	0.205	<0.005	-	-	-
Barium	0.0173	<0.0002	0.173	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00141	<0.001	0.0141	<0.01	-	-	-
Copper	0.00611	<0.0003	0.0611	<0.003	-	-	-
Lead	0.00384	<0.0002	0.0384	<0.002	-	-	-
Molybdenum	0.00514	<0.003	0.0514	<0.03	-	-	-
Nickel	0.00129	<0.0004	0.0129	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00585	<0.001	0.0585	<0.01	-	-	-
Chloride	3.4	<2	34	<20	-	-	-
Sulphate (soluble)	103	<2	1030	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	232	<5	2320	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.76
Conductivity (µS/cm)	302.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.875

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	23.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	80.7
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156253
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP304 ES5
Depth (m)	3.20 - 3.30

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.47	<3	34.7	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00667	<0.001	0.0667	<0.01	-	-	-
Arsenic	0.0387	<0.0005	0.387	<0.005	-	-	-
Barium	0.00587	<0.0002	0.0587	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00179	<0.0003	0.0179	<0.003	-	-	-
Lead	0.000244	<0.0002	0.00244	<0.002	-	-	-
Molybdenum	0.00355	<0.003	0.0355	<0.03	-	-	-
Nickel	0.00231	<0.0004	0.0231	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00877	<0.001	0.0877	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	22.1	<2	221	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	51.5	<5	515	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.89
Conductivity (µS/cm)	59.50
Temperature (°C)	19.90
Volume Leachant (Litres)	0.879

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.094	**Natural Moisture Content (%)**	4.74
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	95.5
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156259
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP302 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	3.2	<1	32	<10	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00195	<0.0005	0.0195	<0.005	-	-	-
Barium	0.00486	<0.0002	0.0486	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00122	<0.001	0.0122	<0.01	-	-	-
Copper	0.00104	<0.0003	0.0104	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00508	<0.003	0.0508	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00186	<0.001	0.0186	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	49.6	<2	496	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	140	<5	1400	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	7.04
Conductivity (µS/cm)	179.00
Temperature (°C)	20.80
Volume Leachant (Litres)	0.896

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.114	**Natural Moisture Content (%)**	27
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	78.7
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156273
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP302 ES2
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	0.0000194	<0.00001	0.000194	<0.0001	-	-	-
Antimony	0.00328	<0.001	0.0328	<0.01	-	-	-
Arsenic	0.653	<0.00514	6.53	<0.0514	-	-	-
Barium	0.00147	<0.0002	0.0147	<0.002	-	-	-
Cadmium	0.000383	<0.00008	0.00383	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00511	<0.0003	0.0511	<0.003	-	-	-
Lead	0.00576	<0.0002	0.0576	<0.002	-	-	-
Molybdenum	0.143	<0.003	1.43	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	0.0035	<0.001	0.035	<0.01	-	-	-
Zinc	0.0342	<0.001	0.342	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	21.7	<2	217	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	51.4	<5	514	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	6.01
Conductivity (µS/cm)	59.00
Temperature (°C)	20.80
Volume Leachant (Litres)	0.876

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.118	**Natural Moisture Content (%)**	32.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	75.6
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156285
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP302 ES3
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	11	<3	110	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0184	<0.0005	0.184	<0.005	-	-	-
Barium	0.00803	<0.0002	0.0803	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00309	<0.0003	0.0309	<0.003	-	-	-
Lead	0.00108	<0.0002	0.0108	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00445	<0.001	0.0445	<0.01	-	-	-
Chloride	4.5	<2	45	<20	-	-	-
Sulphate (soluble)	31.9	<2	319	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	91	<5	910	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	7.52
Conductivity (µS/cm)	113.00
Temperature (°C)	21.10
Volume Leachant (Litres)	0.872

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	10.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156295
Sampled Date	27-Oct-2020
Customer Sample Ref.	TP209 ES5
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.0037	<0.001	0.037	<0.01	-	-	-
Arsenic	0.00116	<0.0005	0.0116	<0.005	-	-	-
Barium	0.00807	<0.0002	0.0807	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000656	<0.0003	0.00656	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00774	<0.003	0.0774	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	7	<2	70	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	76.5	<5	765	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	6.73
Conductivity (µS/cm)	95.50
Temperature (°C)	20.10
Volume Leachant (Litres)	0.890

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.130	**Natural Moisture Content (%)**	45.4
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	68.8
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156303
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP302 ES5
Depth (m)	3.10 - 3.20

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	5.83	<3	58.3	<30	-	-	-
Fluoride	1.6	<0.5	16	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.075	<0.0005	0.75	<0.005	-	-	-
Barium	0.0154	<0.0002	0.154	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00428	<0.0004	0.0428	<0.004	-	-	-
Selenium	0.00112	<0.001	0.0112	<0.01	-	-	-
Zinc	0.00535	<0.001	0.0535	<0.01	-	-	-
Chloride	2.4	<2	24	<20	-	-	-
Sulphate (soluble)	69.5	<2	695	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	126	<5	1260	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	6.32
Conductivity (µS/cm)	160.00
Temperature (°C)	20.80
Volume Leachant (Litres)	0.860

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.155	**Natural Moisture Content (%)**	73.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	57.7
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156310
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP312 ES4
Depth (m)	2.10 - 2.20

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	13.6	<3	136	<30	-	-	-
Fluoride	0.724	<0.5	7.24	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00779	<0.0005	0.0779	<0.005	-	-	-
Barium	0.111	<0.0002	1.11	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00131	<0.0003	0.0131	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	0.00605	<0.003	0.0605	<0.03	-	-	-
Nickel	0.00202	<0.0004	0.0202	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0111	<0.001	0.111	<0.01	-	-	-
Chloride	2.7	<2	27	<20	-	-	-
Sulphate (soluble)	954	<10	9540	<100	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	1130	<5	11300	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.23
Conductivity (µS/cm)	1,500.00
Temperature (°C)	21.20
Volume Leachant (Litres)	0.835

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.170	**Natural Moisture Content (%)**	87.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	53.4
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156322
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP312 ES6
Depth (m)	3.00 - 3.10

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.64	<3	36.4	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00105	<0.001	0.0105	<0.01	-	-	-
Arsenic	0.0877	<0.0005	0.877	<0.005	-	-	-
Barium	0.0626	<0.0002	0.626	<0.002	-	-	-
Cadmium	0.00109	<0.00008	0.0109	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00358	<0.0003	0.0358	<0.003	-	-	-
Lead	0.00239	<0.0002	0.0239	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00309	<0.0004	0.0309	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0234	<0.001	0.234	<0.01	-	-	-
Chloride	3.9	<2	39	<20	-	-	-
Sulphate (soluble)	188	<2	1880	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	301	<5	3010	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	6.95
Conductivity (µS/cm)	400.00
Temperature (°C)	20.20
Volume Leachant (Litres)	0.820

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.108	**Natural Moisture Content (%)**	20.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	82.9
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156329
Sampled Date	27-Oct-2020
Customer Sample Ref.	TP210 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.000704	<0.0002	0.00704	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	10.5	<5	105	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	7.70
Conductivity (µS/cm)	9.68
Temperature (°C)	20.20
Volume Leachant (Litres)	0.882

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.100	**Natural Moisture Content (%)**	11.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	89.6
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156337
Sampled Date	27-Oct-2020
Customer Sample Ref.	TP210 ES5
Depth (m)	1.50 - 1.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.000575	<0.0005	0.00575	<0.005	-	-	-
Barium	0.00571	<0.0002	0.0571	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00291	<0.0003	0.0291	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	66.1	<5	661	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	7.72
Conductivity (µS/cm)	70.70
Temperature (°C)	20.30
Volume Leachant (Litres)	0.890

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.101	**Natural Moisture Content (%)**	12.6
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	88.8
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156344
Sampled Date	27-Oct-2020
Customer Sample Ref.	TP207 ES1
Depth (m)	0.40 - 0.50

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.000795	<0.0002	0.00795	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000678	<0.0003	0.00678	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	15.2	<5	152	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.89
Conductivity (µS/cm)	16.30
Temperature (°C)	22.60
Volume Leachant (Litres)	0.889

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.105	**Natural Moisture Content (%)**	16.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	85.7
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156351
Sampled Date	27-Oct-2020
Customer Sample Ref.	TP207 ES5
Depth (m)	1.60 - 1.70

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.0013	<0.0002	0.013	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	<2	<2	<20	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	58.8	<5	588	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.70
Conductivity (µS/cm)	75.30
Temperature (°C)	21.30
Volume Leachant (Litres)	0.885

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.096	**Natural Moisture Content (%)**	6.47
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	93.9
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156358
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP314 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	<0.0005	<0.0005	<0.005	<0.005	-	-	-
Barium	0.00183	<0.0002	0.0183	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	<0.0003	<0.0003	<0.003	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000738	<0.0004	0.00738	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00652	<0.001	0.0652	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	19.2	<2	192	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	48.4	<5	484	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.46
Conductivity (µS/cm)	68.40
Temperature (°C)	21.10
Volume Leachant (Litres)	0.894

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.111	**Natural Moisture Content (%)**	22.7
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	81.5
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156366
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP314 ES2
Depth (m)	1.10 - 1.20

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00215	<0.0005	0.0215	<0.005	-	-	-
Barium	0.00357	<0.0002	0.0357	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.000531	<0.0003	0.00531	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00176	<0.0004	0.0176	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.00426	<0.001	0.0426	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	20.4	<2	204	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	58.8	<5	588	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.12
Conductivity (µS/cm)	69.10
Temperature (°C)	20.50
Volume Leachant (Litres)	0.879

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.137	**Natural Moisture Content (%)**	50.9
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	66.3
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156371
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP314 ES4
Depth (m)	1.80 - 1.90

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	19.1	<3	191	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.0288	<0.0005	0.288	<0.005	-	-	-
Barium	0.00767	<0.0002	0.0767	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	0.00139	<0.001	0.0139	<0.01	-	-	-
Copper	0.0154	<0.0003	0.154	<0.003	-	-	-
Lead	0.00477	<0.0002	0.0477	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.00203	<0.0004	0.0203	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0106	<0.001	0.106	<0.01	-	-	-
Chloride	2.8	<2	28	<20	-	-	-
Sulphate (soluble)	24	<2	240	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	76.5	<5	765	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.71
Conductivity (µS/cm)	90.30
Temperature (°C)	20.90
Volume Leachant (Litres)	0.854

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.109	**Natural Moisture Content (%)**	20.3
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	83.1
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156383
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP314 ES6
Depth (m)	2.90 - 3.00

Eluate Analysis	**C_2** Concⁿ in 10:1 eluate (mg/l)		**A_2** 10:1 concⁿ leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.36	<3	33.6	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00992	<0.001	0.0992	<0.01	-	-	-
Arsenic	0.0206	<0.0005	0.206	<0.005	-	-	-
Barium	0.00446	<0.0002	0.0446	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00433	<0.0003	0.0433	<0.003	-	-	-
Lead	0.00268	<0.0002	0.0268	<0.002	-	-	-
Molybdenum	0.0105	<0.003	0.105	<0.03	-	-	-
Nickel	0.00124	<0.0004	0.0124	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	0.0365	<0.001	0.365	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	5.7	<2	57	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	25	<5	250	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	8.17
Conductivity (µS/cm)	28.10
Temperature (°C)	21.20
Volume Leachant (Litres)	0.882

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.095	**Natural Moisture Content (%)**	5.48
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	94.8
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156390
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP310 ES1
Depth (m)	0.50 - 0.60

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	3.1	<3	31	<30	-	-	-
Fluoride	1.52	<0.5	15.2	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	0.00178	<0.001	0.0178	<0.01	-	-	-
Arsenic	0.0077	<0.0005	0.077	<0.005	-	-	-
Barium	0.00476	<0.0002	0.0476	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00574	<0.0003	0.0574	<0.003	-	-	-
Lead	0.00045	<0.0002	0.0045	<0.002	-	-	-
Molybdenum	0.00878	<0.003	0.0878	<0.03	-	-	-
Nickel	<0.0004	<0.0004	<0.004	<0.004	-	-	-
Selenium	0.0015	<0.001	0.015	<0.01	-	-	-
Zinc	0.00207	<0.001	0.0207	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	28.2	<2	282	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	110	<5	1100	<50	-	-	-

Leach Test Information

Date Prepared	05-Nov-2020
pH (pH Units)	7.92
Conductivity (µS/cm)	136.00
Temperature (°C)	20.30
Volume Leachant (Litres)	0.895

Mcerts Certification does not apply to leachates

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CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

CEN 10:1 SINGLE STAGE LEACHATE TEST

CEN ANALYTICAL RESULTS

REF : BS EN 12457/2

Client Reference		**Site Location**	Arklow Bank
Mass Sample taken (kg)	0.099	**Natural Moisture Content (%)**	10.2
Mass of dry sample (kg)	0.090	**Dry Matter Content (%)**	90.8
Particle Size <4mm	>95%		

Case	
SDG	201031-64
Lab Sample Number(s)	23156402
Sampled Date	29-Oct-2020
Customer Sample Ref.	TP310 ES2
Depth (m)	1.00 - 1.10

Eluate Analysis	**C_2** Conc^n in 10:1 eluate (mg/l)		**A_2** 10:1 conc^n leached (mg/kg)				
	Result	**Limit of Detection**	**Result**	**Limit of Detection**			
Dissolved Organic Carbon	<3	<3	<30	<30	-	-	-
Fluoride	<0.5	<0.5	<5	<5	-	-	-
Mercury Dissolved (CVAF)	<0.00001	<0.00001	<0.0001	<0.0001	-	-	-
Antimony	<0.001	<0.001	<0.01	<0.01	-	-	-
Arsenic	0.00102	<0.0005	0.0102	<0.005	-	-	-
Barium	0.0101	<0.0002	0.101	<0.002	-	-	-
Cadmium	<0.00008	<0.00008	<0.0008	<0.0008	-	-	-
Chromium	<0.001	<0.001	<0.01	<0.01	-	-	-
Copper	0.00134	<0.0003	0.0134	<0.003	-	-	-
Lead	<0.0002	<0.0002	<0.002	<0.002	-	-	-
Molybdenum	<0.003	<0.003	<0.03	<0.03	-	-	-
Nickel	0.000441	<0.0004	0.00441	<0.004	-	-	-
Selenium	<0.001	<0.001	<0.01	<0.01	-	-	-
Zinc	<0.001	<0.001	<0.01	<0.01	-	-	-
Chloride	<2	<2	<20	<20	-	-	-
Sulphate (soluble)	37.8	<2	378	<20	-	-	-
Cresols by HPLC (W)	<0.006	<0.006	<0.06	<0.06	-	-	-
Phenol by HPLC (W)	<0.002	<0.002	<0.02	<0.02	-	-	-
Total Monohydric Phenols (W)	<0.016	<0.016	<0.16	<0.16	-	-	-
Xylenols by HPLC (W)	<0.008	<0.008	<0.08	<0.08	-	-	-
Total Dissolved Solids	84.6	<5	846	<50	-	-	-

Leach Test Information

Date Prepared	04-Nov-2020
pH (pH Units)	8.15
Conductivity (µS/cm)	105.00
Temperature (°C)	21.30
Volume Leachant (Litres)	0.891

Mcerts Certification does not apply to leachates

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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
TM048	HSG 248, Asbestos: The analysts' guide for sampling, analysis and clearance procedures	Identification of Asbestos in Bulk Material
TM089	Modified: US EPA Methods 8020 & 602	Determination of Gasoline Range Hydrocarbons (GRO) 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
TM116	Modified: US EPA Method 8260, 8120, 8020, 624, 610 & 602	Determination of Volatile Organic Compounds by Headspace / GC-MS
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
TM151	Method 3500D, AWWA/APHA, 20th Ed., 1999	Determination of Hexavalent Chromium using Kone analyser
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM153	Method 4500A,B,C, I, M AWWA/APHA, 20th Ed., 1999	Determination of Total Cyanide, Free (Easily Liberatable) Cyanide and Thiocyanate using the Skalar SANS+ System Segmented Flow Analyser
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM180	Sulphide in waters and waste waters 1991 ISBN 01 175 7186 SCA rec. 2007 (unpublished)'	The Determination Of Easily Liberated Sulphide In Soil Samples by Ion Selective Electrode Technique
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
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	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM259	by HPLC	Determination of Phenols in Waters and Leachates by HPLC
TM410	Shaker extraction-In house coronene method	Determination of Coronene in soils by GCMS
TM414	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID
TM415	Analysis of Petroleum Hydrocarbons in Environmental Media.	Determination of Extractable Petroleum Hydrocarbons in Soils by GCxGC-FID

NA = not applicable.

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

Test Completion Dates

Lab Sample No(s)	23156344	23156351	23156204	23156295	23156329	23156337	23156138	23156148	23156162	23156171
Customer Sample Ref.	TP207	TP207	TP209	TP209	TP210	TP210	TP301	TP301	TP301	TP301
AGS Ref.	ES1	ES5	ES1	ES5	ES1	ES5	ES1	ES2	ES3	ES4
Depth	0.40 - 0.50	1.60 - 1.70	0.50 - 0.60	1.50 - 1.60	0.40 - 0.50	1.50 - 1.60	0.40 - 0.50	0.90 - 1.00	1.00 - 1.10	1.60 - 1.70
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	10-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Asbestos ID in Solid Samples	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020
CEN 10:1 Leachate (1 Stage)	07-Nov-2020	07-Nov-2020	07-Nov-2020	07-Nov-2020	07-Nov-2020	06-Nov-2020	06-Nov-2020	07-Nov-2020	06-Nov-2020	06-Nov-2020
CEN Readings	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	08-Nov-2020	10-Nov-2020	10-Nov-2020
Chromium III	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Coronene	09-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
Cyanide Comp/Free/Total/Thiocyanate	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
Dissolved Metals by ICP-MS	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	18-Nov-2020	12-Nov-2020	13-Nov-2020	12-Nov-2020	12-Nov-2020
Dissolved Organic/Inorganic Carbon	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Easily Liberated Sulphide	11-Nov-2020	09-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	09-Nov-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
Fluoride	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020
GRO by GC-FID (S)	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	04-Nov-2020
Hexavalent Chromium (s)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Loss on Ignition in soils	06-Nov-2020	06-Nov-2020	10-Nov-2020	06-Nov-2020	10-Nov-2020	10-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020
Mercury Dissolved	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Metals in solid samples by OES	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020
Moisture at 105C	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020
PAH 16 & 17 Calc	09-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
PAH by GCMS	09-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
PCBs by GCMS	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
pH	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	06-Nov-2020	05-Nov-2020	06-Nov-2020
Phenols by HPLC (W)	12-Nov-2020	12-Nov-2020	11-Nov-2020	12-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	12-Nov-2020	10-Nov-2020	11-Nov-2020
Sample description	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	04-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020	03-Nov-2020
Semi Volatile Organic Compounds	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020
Total Dissolved Solids	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020
Total Organic Carbon	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
TPH CWG GC (S)	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
VOC MS (S)	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	05-Nov-2020	05-Nov-2020	04-Nov-2020	05-Nov-2020

Lab Sample No(s)	23156180	23156259	23156273	23156285	23156303	23156226	23156239	23156246	23156253	23156116
Customer Sample Ref.	TP301	TP302	TP302	TP302	TP302	TP304	TP304	TP304	TP304	TP310
AGS Ref.	ES6	ES1	ES2	ES3	ES5	ES1	ES2	ES3	ES5	ES4
Depth	2.90 - 3.00	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70	3.10 - 3.20	0.40 - 0.50	1.00 - 1.10	1.60 - 1.70	3.20 - 3.30	1.40 - 1.50
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Asbestos ID in Solid Samples	11-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	11-Nov-2020
CEN 10:1 Leachate (1 Stage)	07-Nov-2020	07-Nov-2020	07-Nov-2020	07-Nov-2020	07-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	07-Nov-2020
CEN Readings	08-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020
Chromium III	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Coronene	06-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020
Cyanide Comp/Free/Total/Thiocyanate	06-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	09-Nov-2020
Dissolved Metals by ICP-MS	12-Nov-2020	12-Nov-2020	12-Nov-2020	11-Nov-2020	11-Nov-2020	12-Nov-2020	12-Nov-2020	12-Nov-2020	12-Nov-2020	12-Nov-2020
Dissolved Organic/Inorganic Carbon	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Easily Liberated Sulphide	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	06-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020
Fluoride	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	10-Nov-2020
GRO by GC-FID (S)	04-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
Hexavalent Chromium (s)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Loss on Ignition in soils	05-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
Mercury Dissolved	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Metals in solid samples by OES	10-Nov-2020	09-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	11-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020
Moisture at 105C	05-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	04-Nov-2020
PAH 16 & 17 Calc	11-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020
PAH by GCMS	11-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020
PCBs by GCMS	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
pH	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	06-Nov-2020	05-Nov-2020	06-Nov-2020	05-Nov-2020
Phenols by HPLC (W)	12-Nov-2020	12-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	12-Nov-2020	11-Nov-2020	12-Nov-2020	12-Nov-2020
Sample description	03-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	03-Nov-2020
Semi Volatile Organic Compounds	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
Total Dissolved Solids	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	10-Nov-2020
Total Organic Carbon	10-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
TPH CWG GC (S)	06-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020
VOC MS (S)	05-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020

CERTIFICATE OF ANALYSIS

Validated

SDG: 201031-64 Client Reference: 2020WW102 Report Number: 579788
Location: Arklow Bank Order Number: 9028 Superseded Report:

Lab Sample No(s)	23156124	23156390	23156402	23156107	23156130	23156234	23156310	23156322	23156358	23156366
Customer Sample Ref.	TP310	TP310	TP310	TP312	TP312	TP312	TP312	TP312	TP314	TP314
AGS Ref.	ES5	ES1	ES2	ES1	ES2	ES3	ES4	ES6	ES1	ES2
Depth	2.50 - 2.60	0.50 - 0.60	1.00 - 1.10	0.40 - 0.50	0.80 - 0.90	1.40 - 1.50	2.10 - 2.20	3.00 - 3.10	0.50 - 0.60	1.10 - 1.20
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	10-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Asbestos ID in Solid Samples	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
CEN 10:1 Leachate (1 Stage)	06-Nov-2020	06-Nov-2020	07-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	07-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
CEN Readings	10-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	08-Nov-2020	10-Nov-2020	08-Nov-2020	07-Nov-2020
Chromium III	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Coronene	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
Cyanide Comp/Free/Total/Thiocyanate	10-Nov-2020	06-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
Dissolved Metals by ICP-MS	12-Nov-2020	12-Nov-2020	12-Nov-2020	12-Nov-2020	12-Nov-2020	12-Nov-2020	12-Nov-2020	18-Nov-2020	13-Nov-2020	18-Nov-2020
Dissolved Organic/Inorganic Carbon	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Easily Liberated Sulphide	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	09-Nov-2020
Fluoride	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
GRO by GC-FID (S)	06-Nov-2020	04-Nov-2020	04-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
Hexavalent Chromium (s)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Loss on Ignition in soils	06-Nov-2020	05-Nov-2020	05-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	06-Nov-2020
Mercury Dissolved	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Metals in solid samples by OES	06-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
Moisture at 105C	05-Nov-2020	05-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020
PAH 16 & 17 Calc	11-Nov-2020	11-Nov-2020	11-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020
PAH by GCMS	11-Nov-2020	11-Nov-2020	11-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020
PCBs by GCMS	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
pH	05-Nov-2020	06-Nov-2020	06-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	06-Nov-2020	05-Nov-2020
Phenols by HPLC (W)	11-Nov-2020	11-Nov-2020	12-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	12-Nov-2020	11-Nov-2020	11-Nov-2020	10-Nov-2020
Sample description	03-Nov-2020	03-Nov-2020	03-Nov-2020	04-Nov-2020	05-Nov-2020	04-Nov-2020	04-Nov-2020	04-Nov-2020	05-Nov-2020	04-Nov-2020
Semi Volatile Organic Compounds	09-Nov-2020	11-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020
Total Dissolved Solids	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
Total Organic Carbon	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
TPH CWG GC (S)	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020	09-Nov-2020
VOC MS (S)	06-Nov-2020	04-Nov-2020	05-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020

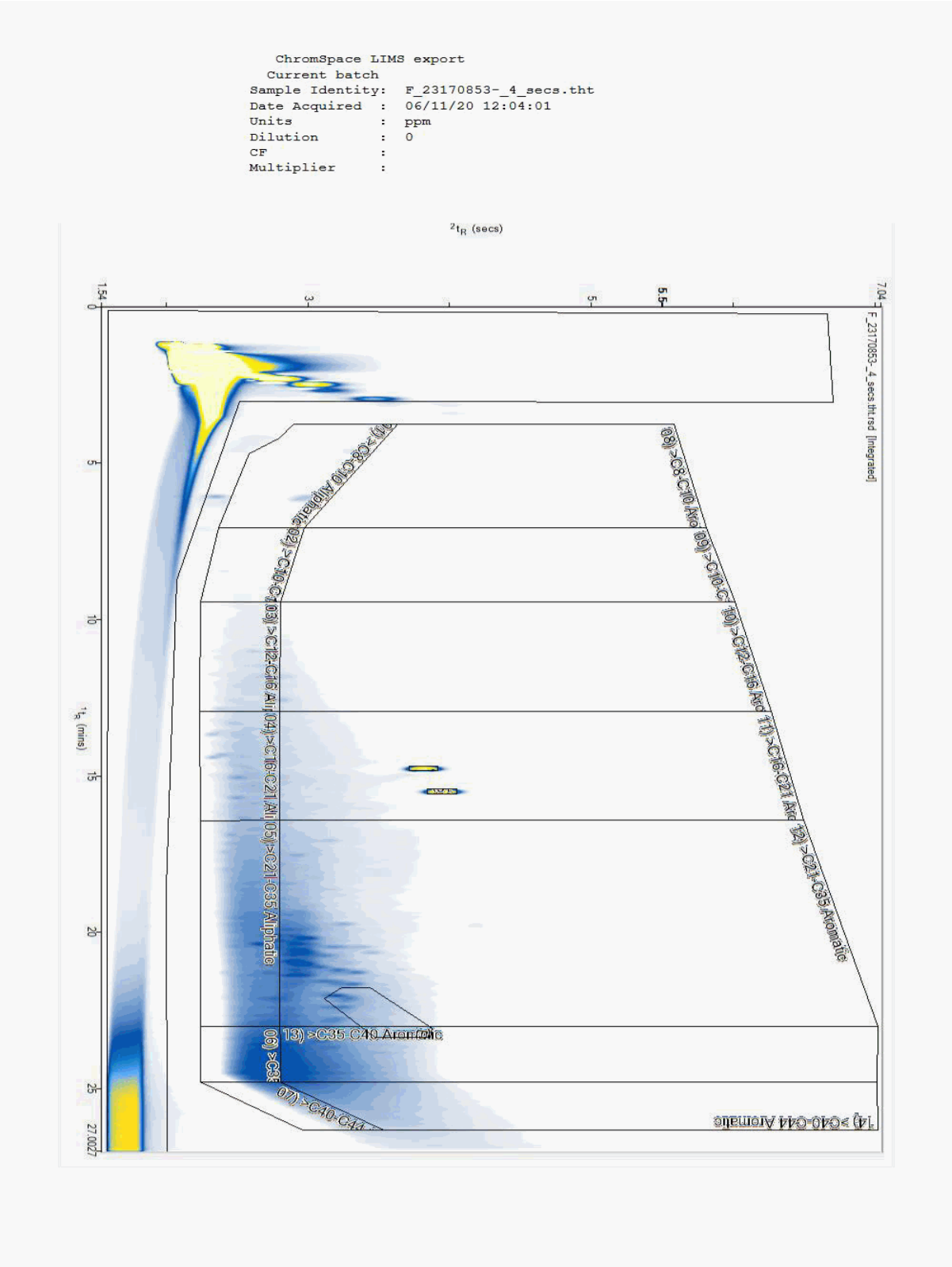
Lab Sample No(s)	23156371	23156383	23156190	23156196	23156210	23156217
Customer Sample Ref.	TP314	TP314	TP315	TP315	TP315	TP315
AGS Ref.	ES4	ES6	ES1	ES2	ES3	ES5
Depth	1.80 - 1.90	2.90 - 3.00	0.40 - 0.50	0.90 - 1.00	1.50 - 1.60	2.50 - 2.60
Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Anions by Kone (w)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Asbestos ID in Solid Samples	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
CEN 10:1 Leachate (1 Stage)	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	07-Nov-2020
CEN Readings	08-Nov-2020	08-Nov-2020	09-Nov-2020	08-Nov-2020	08-Nov-2020	09-Nov-2020
Chromium III	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Coronene	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020
Cyanide Comp/Free/Total/Thiocyanate	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
Dissolved Metals by ICP-MS	18-Nov-2020	18-Nov-2020	12-Nov-2020	13-Nov-2020	13-Nov-2020	11-Nov-2020
Dissolved Organic/Inorganic Carbon	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Easily Liberated Sulphide	11-Nov-2020	09-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
EPH by GCxGC-FID	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
EPH CWG GC (S)	06-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
Fluoride	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020
GRO by GC-FID (S)	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020
Hexavalent Chromium (s)	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Loss on Ignition in soils	10-Nov-2020	10-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
Mercury Dissolved	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020	11-Nov-2020
Metals in solid samples by OES	10-Nov-2020	10-Nov-2020	09-Nov-2020	10-Nov-2020	10-Nov-2020	09-Nov-2020
Moisture at 105C	05-Nov-2020	05-Nov-2020	05-Nov-2020	06-Nov-2020	06-Nov-2020	04-Nov-2020
PAH 16 & 17 Calc	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020
PAH by GCMS	09-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020	11-Nov-2020	09-Nov-2020
PCBs by GCMS	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020
pH	05-Nov-2020	05-Nov-2020	05-Nov-2020	06-Nov-2020	05-Nov-2020	05-Nov-2020
Phenols by HPLC (W)	10-Nov-2020	10-Nov-2020	11-Nov-2020	10-Nov-2020	10-Nov-2020	12-Nov-2020
Sample description	04-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020	05-Nov-2020
Semi Volatile Organic Compounds	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	09-Nov-2020
Total Dissolved Solids	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	10-Nov-2020
Total Organic Carbon	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020	10-Nov-2020
TPH CWG GC (S)	06-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020	09-Nov-2020
VOC MS (S)	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020	06-Nov-2020

CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23170853 **Sample ID :** TP310 **Depth :** 0.50 - 0.60

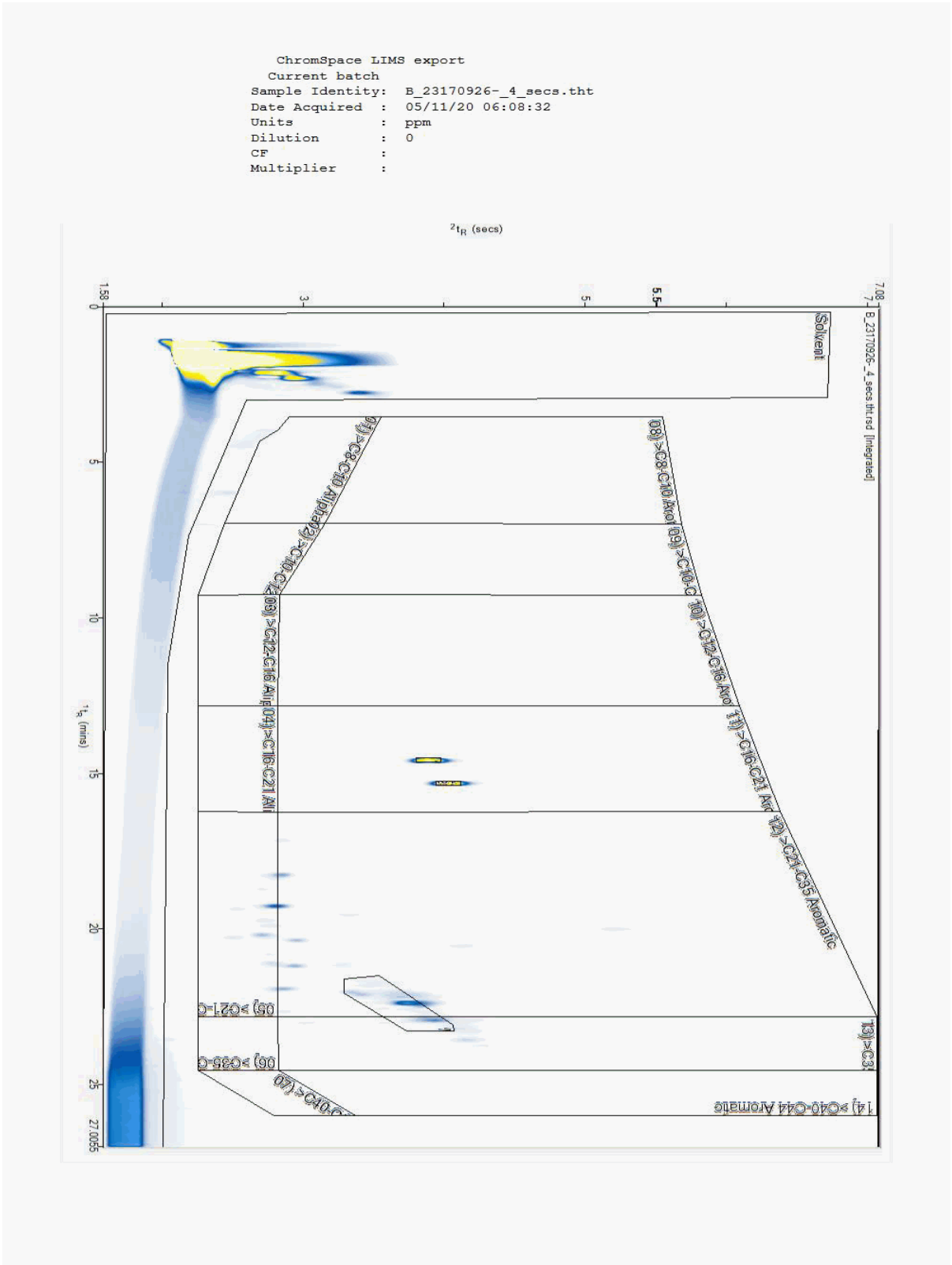


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23170926 **Depth :** 2.50 - 2.60
Sample ID : TP310



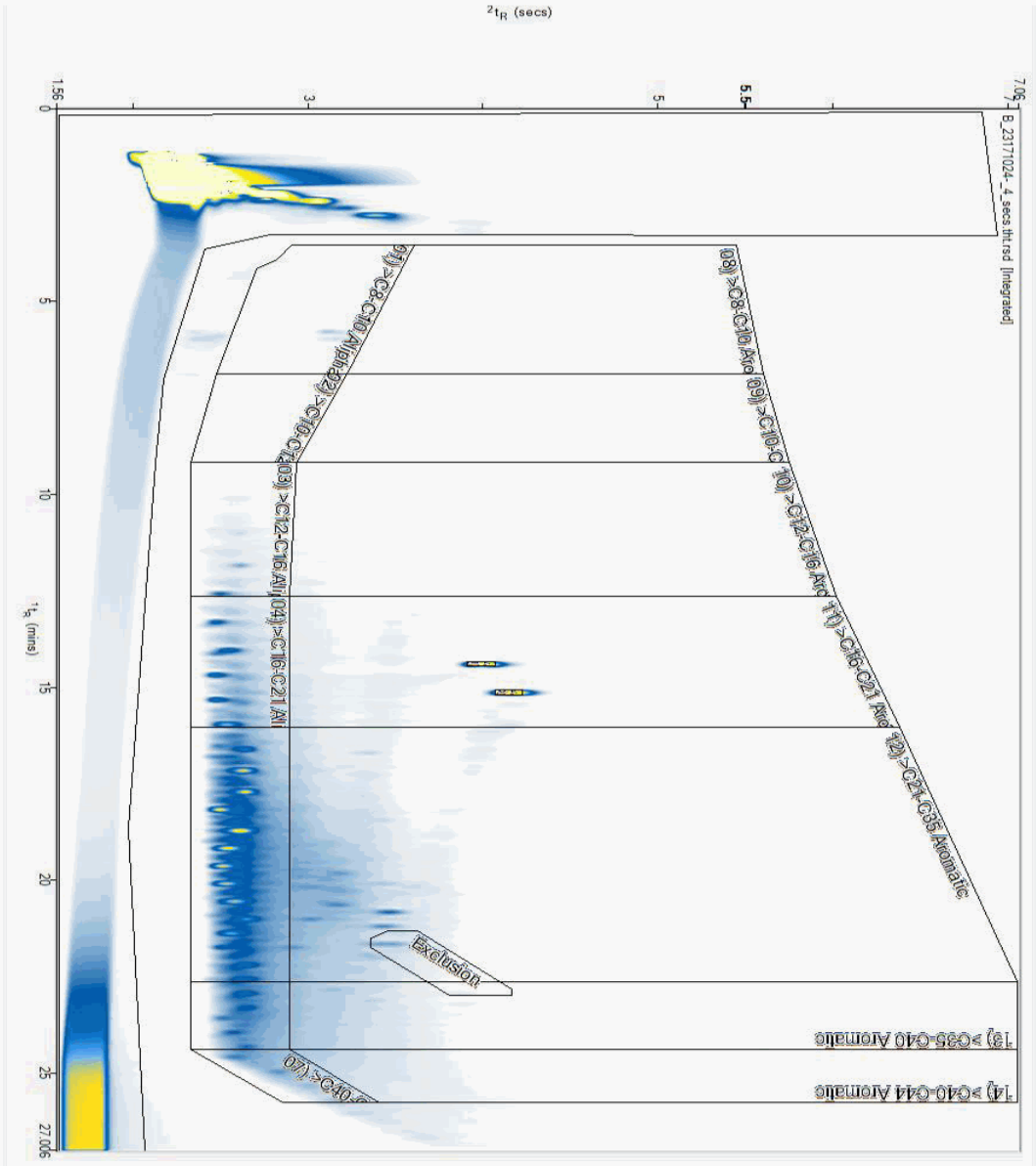
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23171024 **Sample ID :** TP301 **Depth :** 0.90 - 1.00

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23171024-_4_secs.tht
Date Acquired   :  05/11/20 09:04:38
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



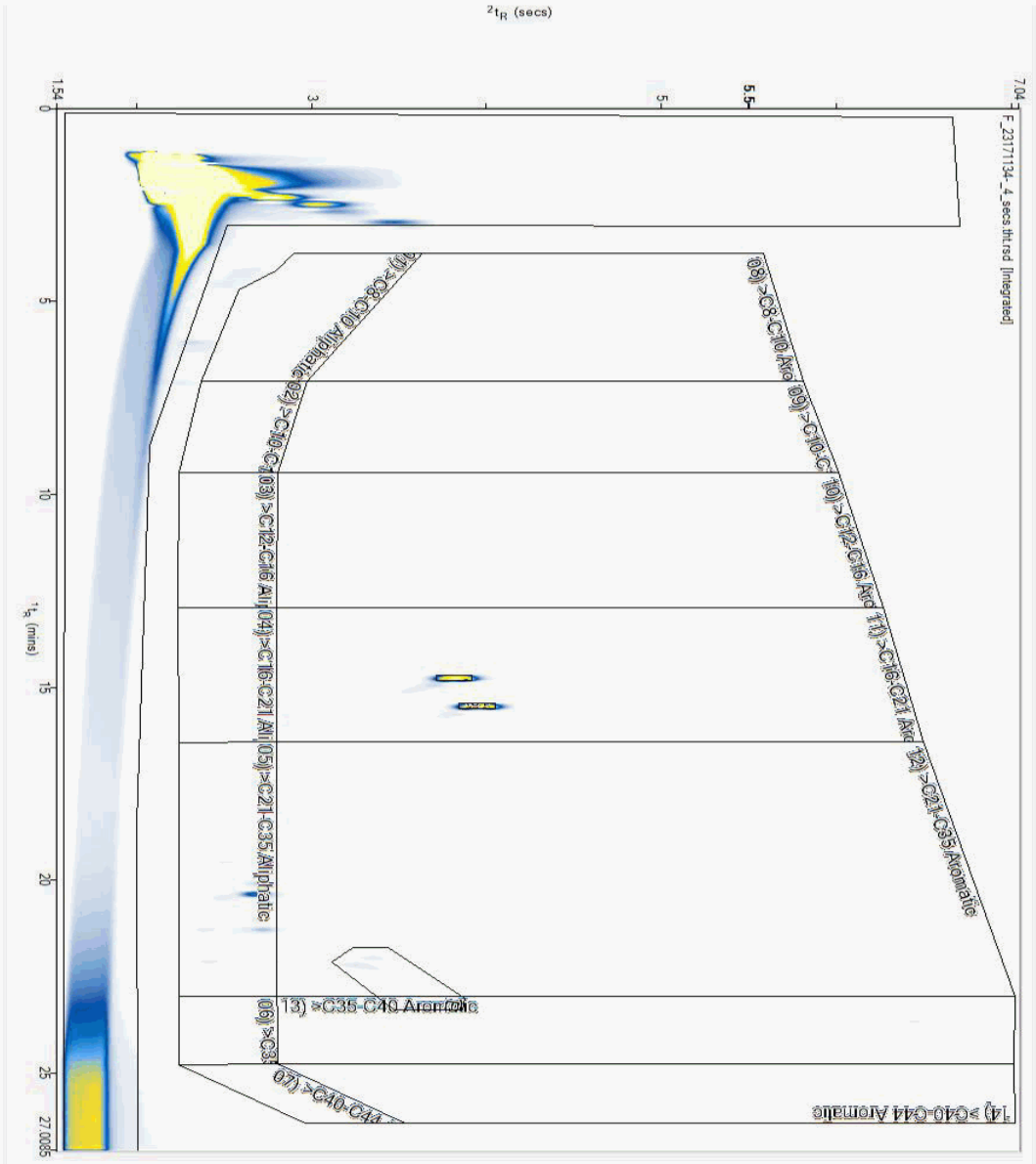
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23171134 **Sample ID :** TP301 **Depth :** 1.00 - 1.10

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23171134-_4_secs.tht
Date Acquired   :  05/11/20 09:27:48
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
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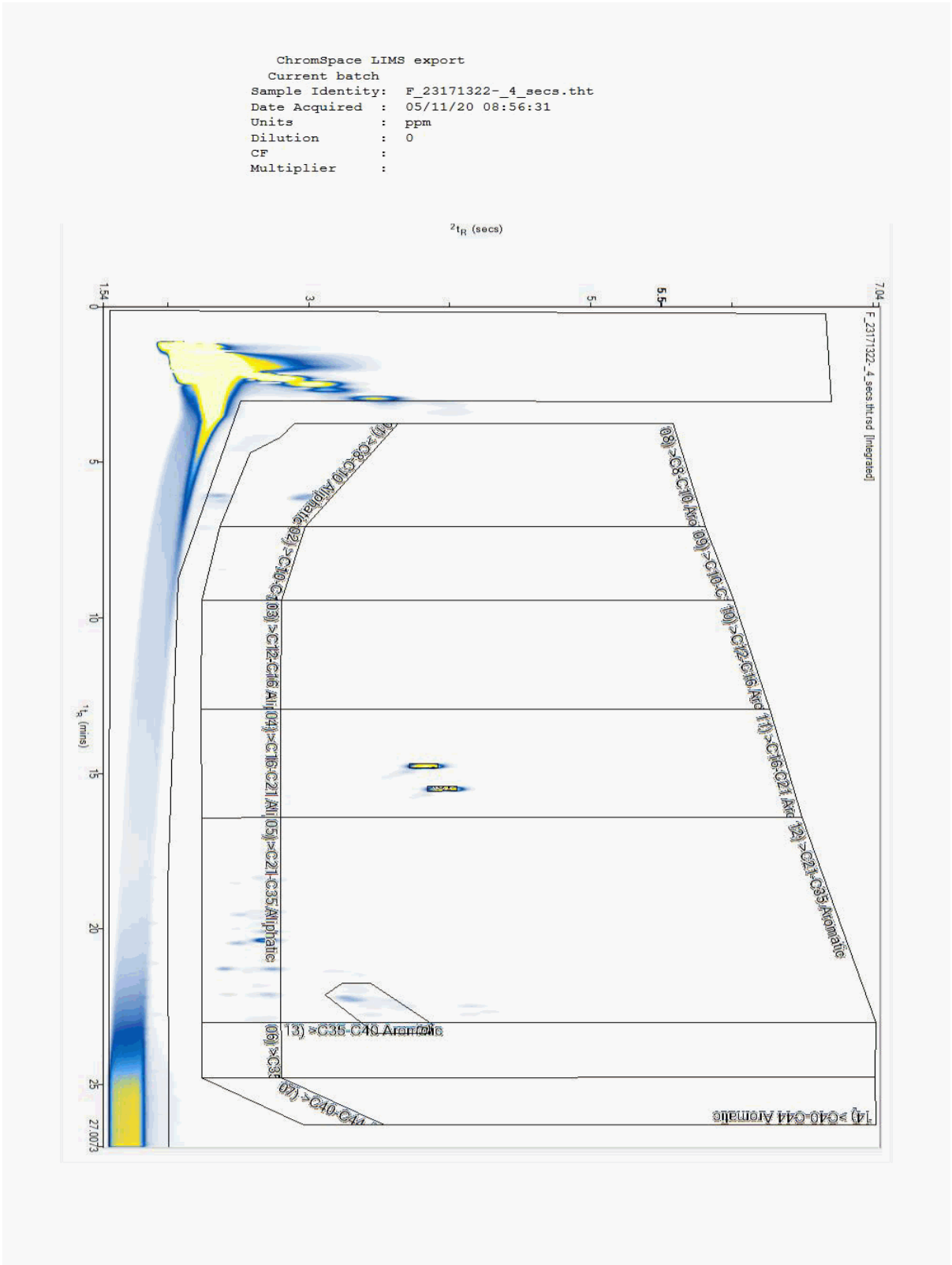


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23171322 **Sample ID :** TP310 **Depth :** 1.00 - 1.10



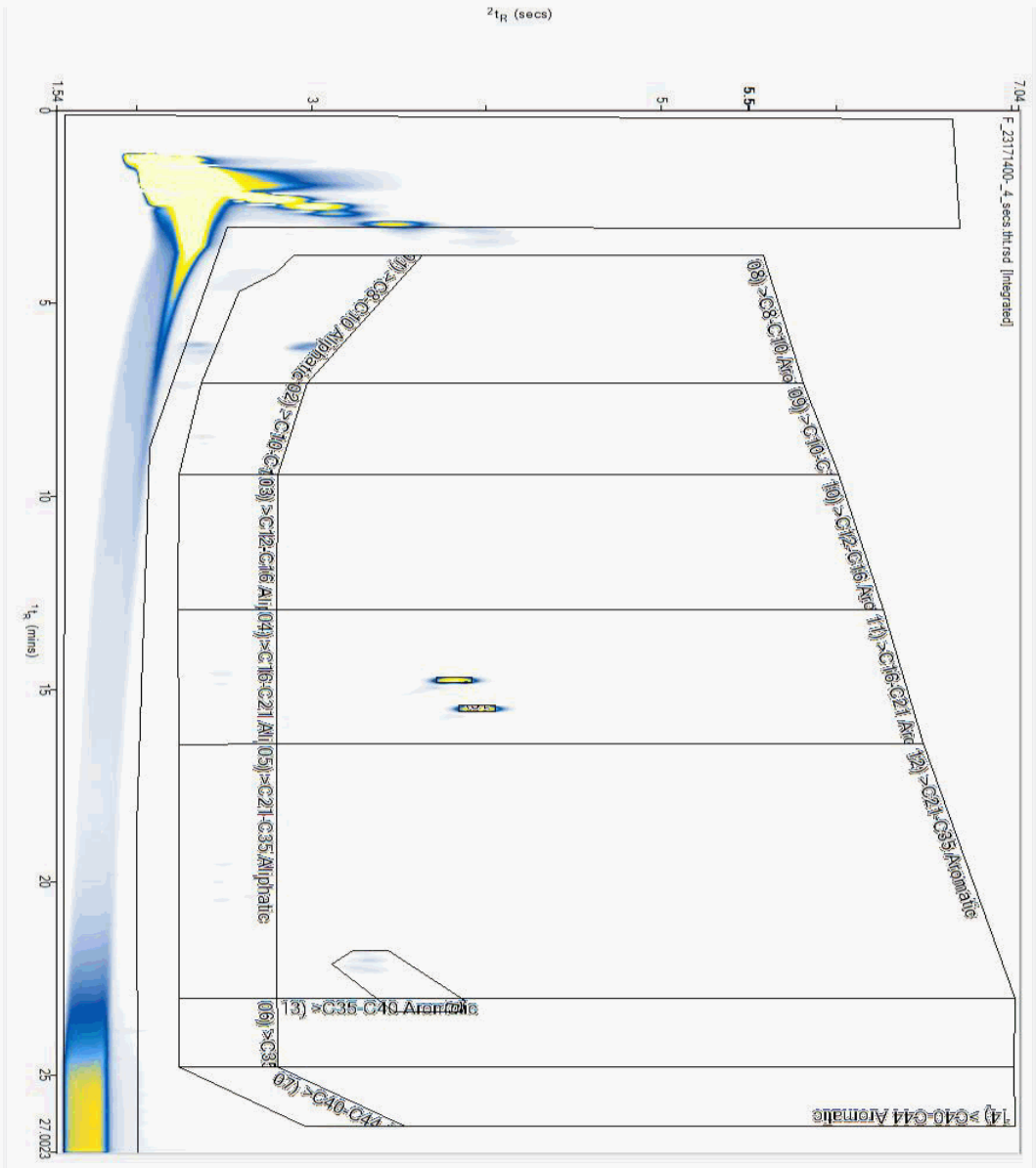
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23171400 **Sample ID :** TP310 **Depth :** 1.40 - 1.50

```
  ChromSpace LIMS export
 Current batch
Sample Identity:  F_23171400-_4_secs.tht
Date Acquired   :  05/11/20 07:53:57
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



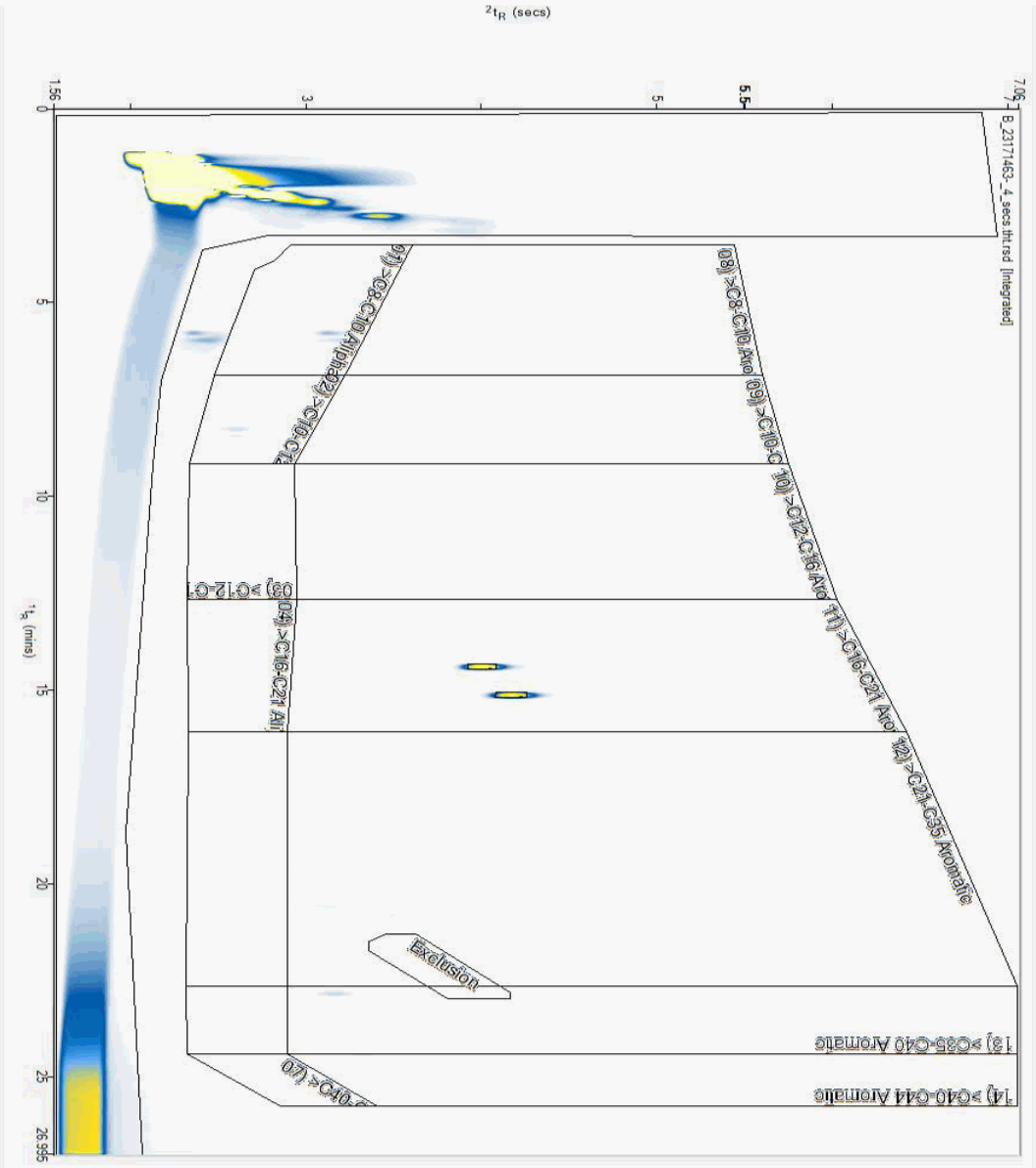
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23171463 **Sample ID :** TP301 **Depth :** 0.40 - 0.50

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23171463-_4_secs.tht
Date Acquired   :  07/11/20 08:07:44
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



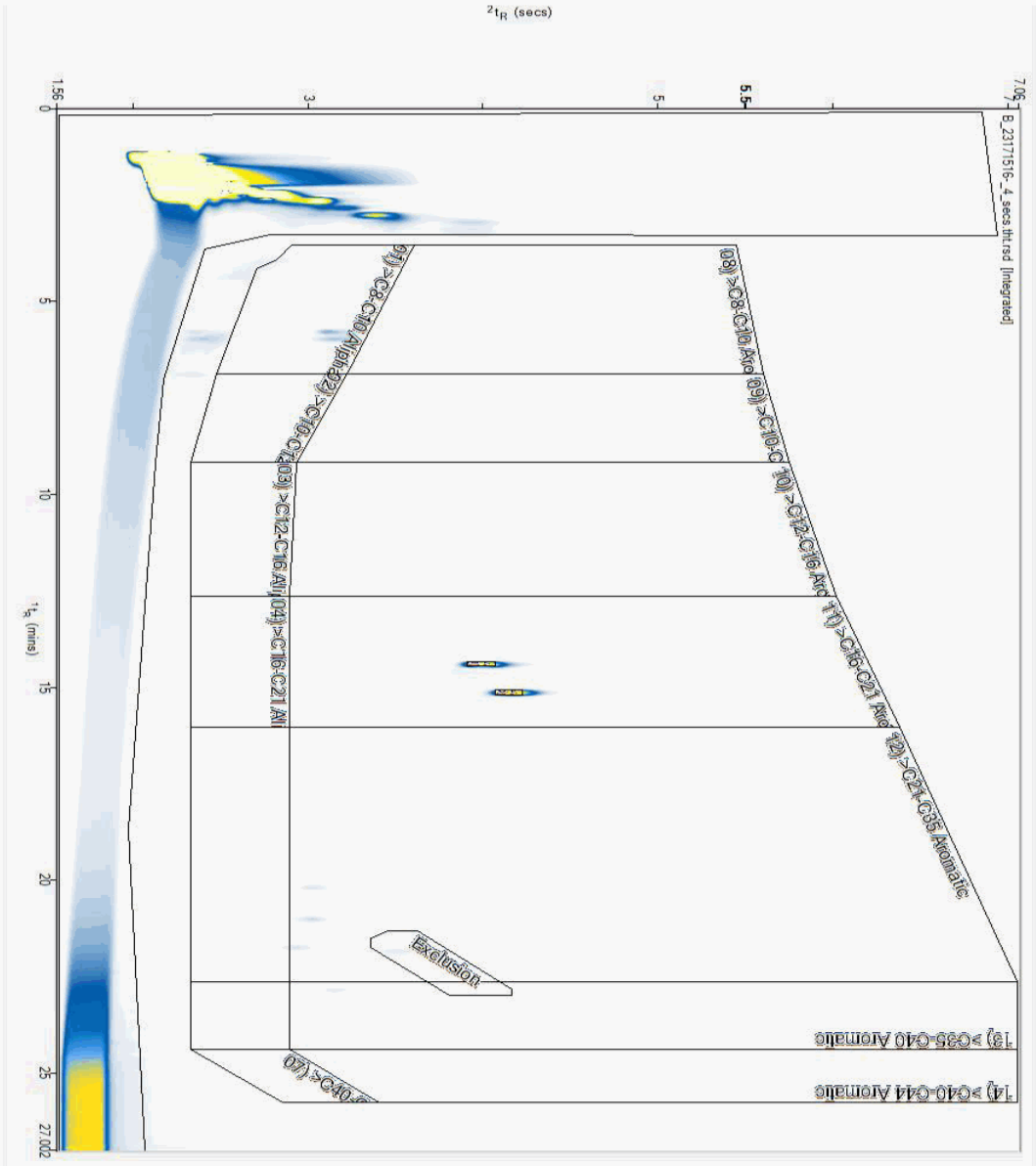
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23171516 **Sample ID :** TP301 **Depth :** 1.60 - 1.70

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23171516-_4_secs.tht
Date Acquired   :  05/11/20 06:58:48
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



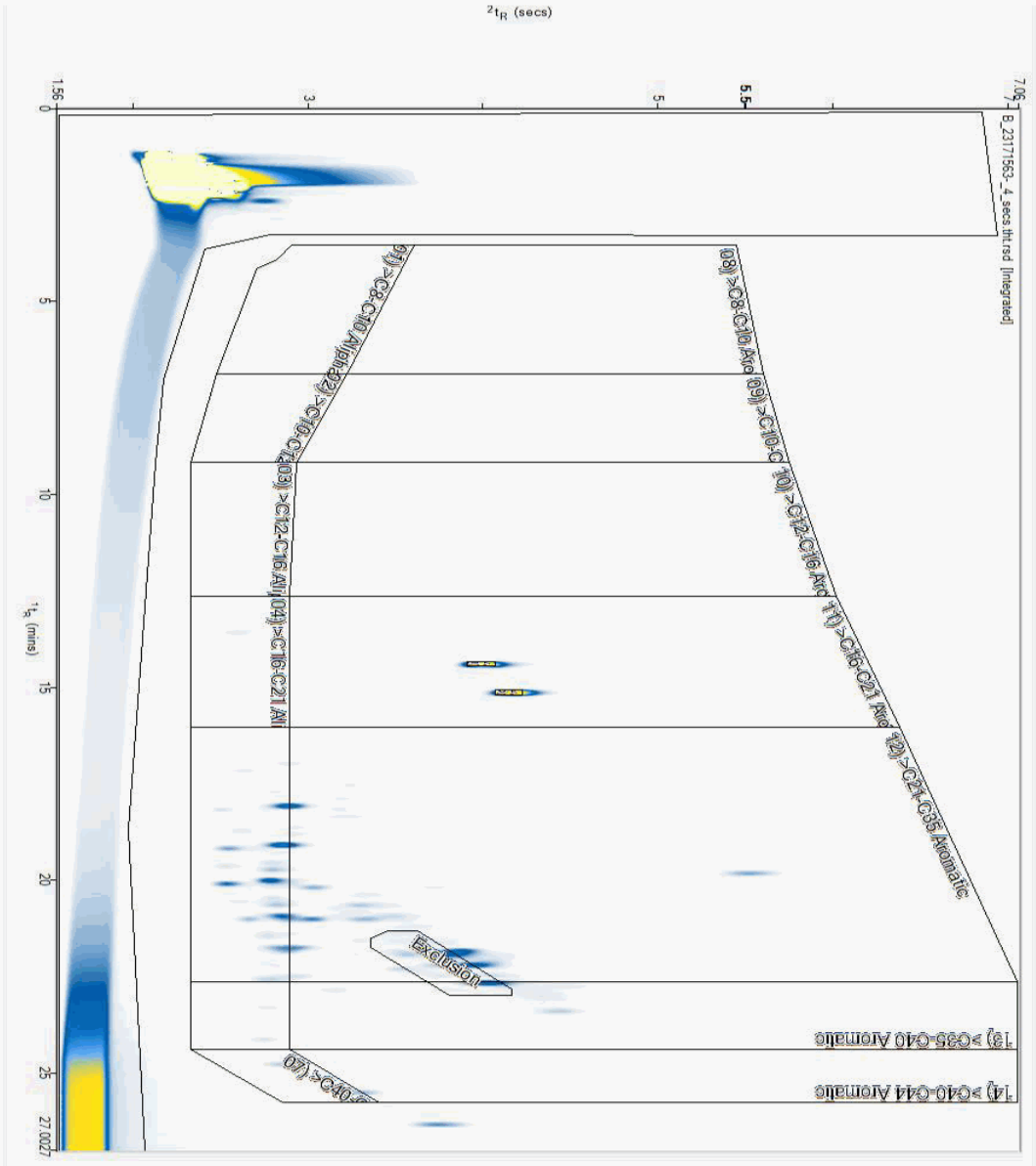
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23171563 **Sample ID :** TP301 **Depth :** 2.90 - 3.00

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23171563-_4_secs.tht
Date Acquired   :  05/11/20 08:01:42
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

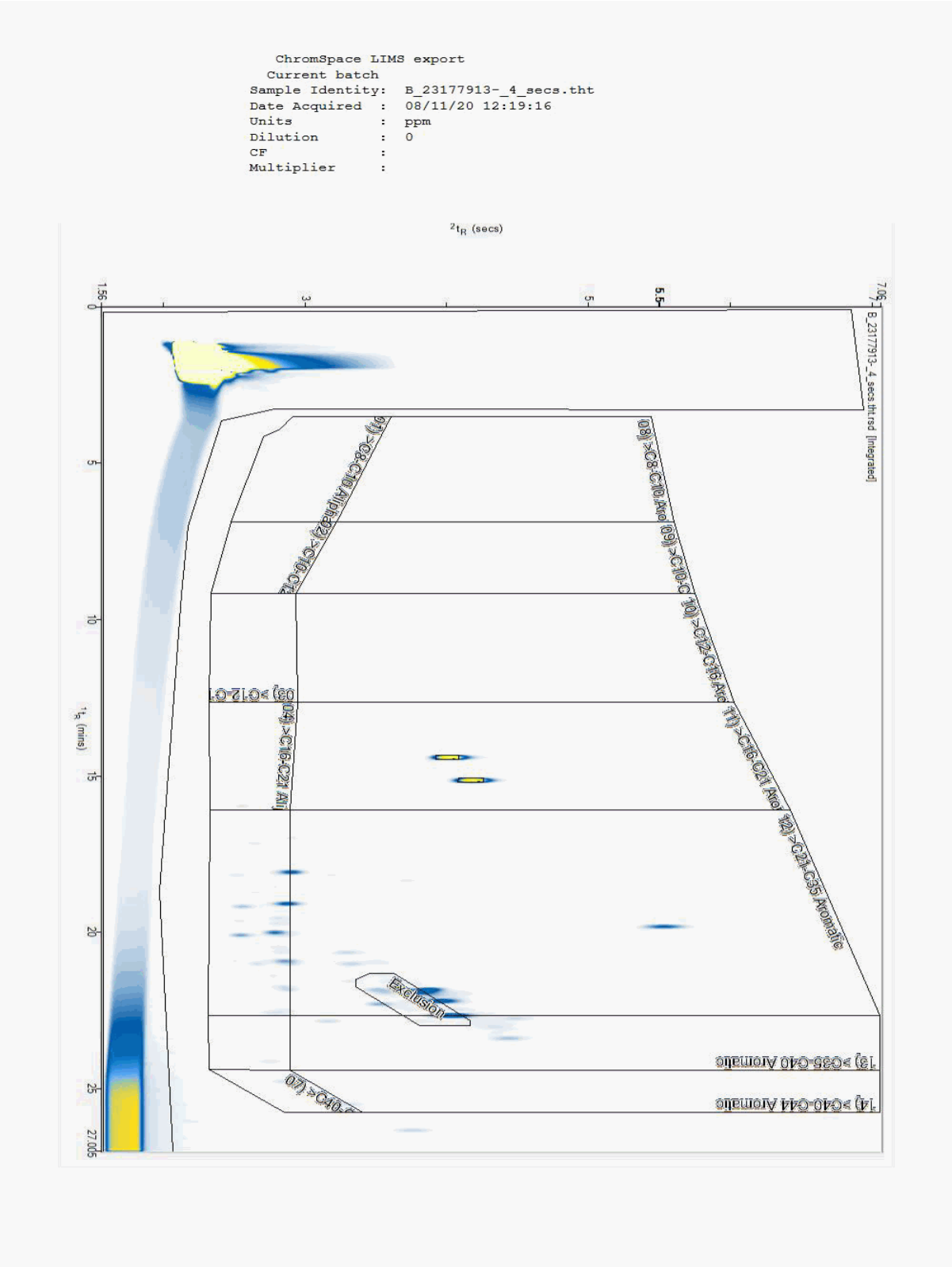


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23177913 **Sample ID :** TP302 **Depth :** 3.10 - 3.20



CERTIFICATE OF ANALYSIS

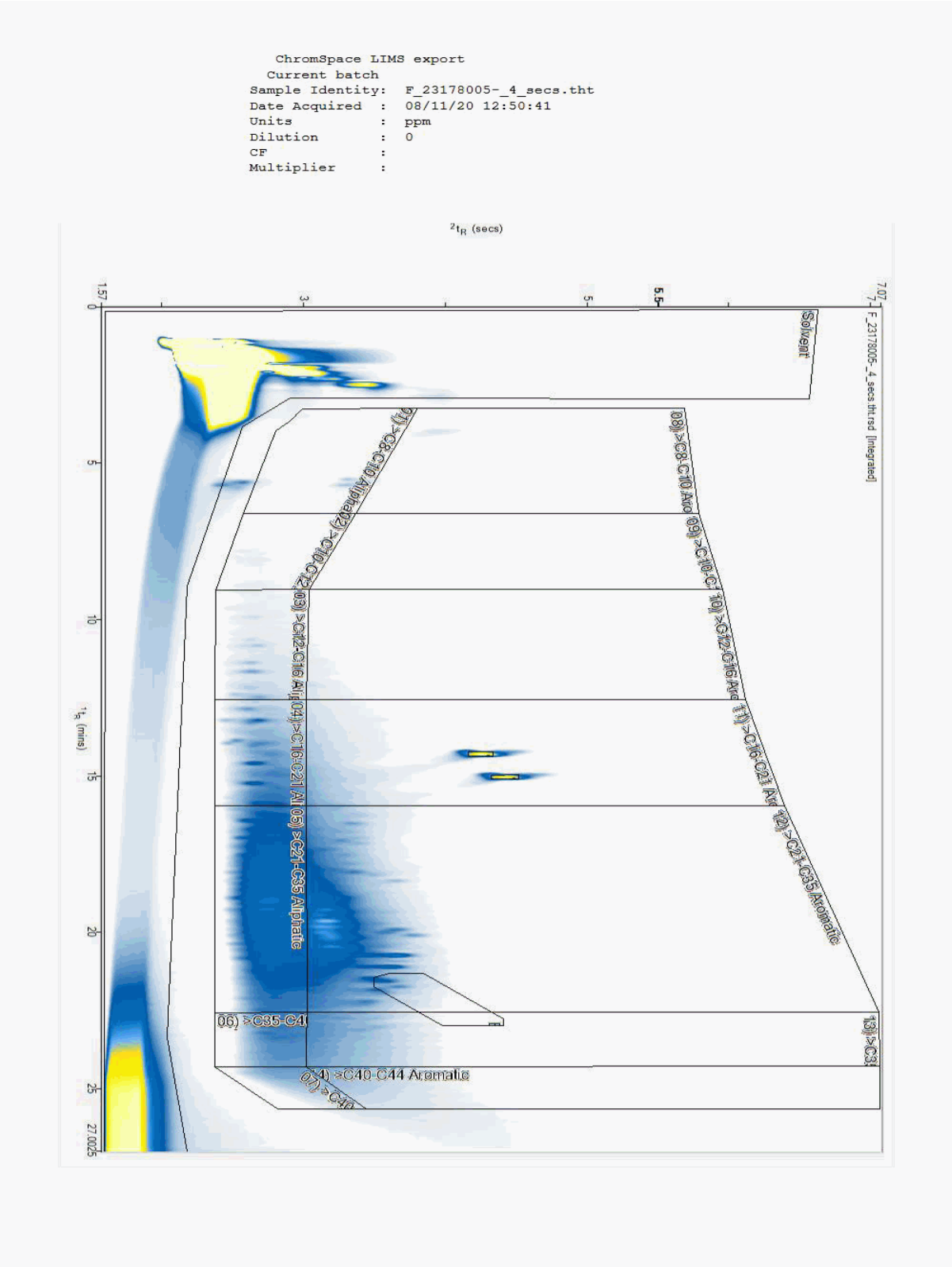
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23178005
Sample ID : TP302

Depth : 0.40 - 0.50

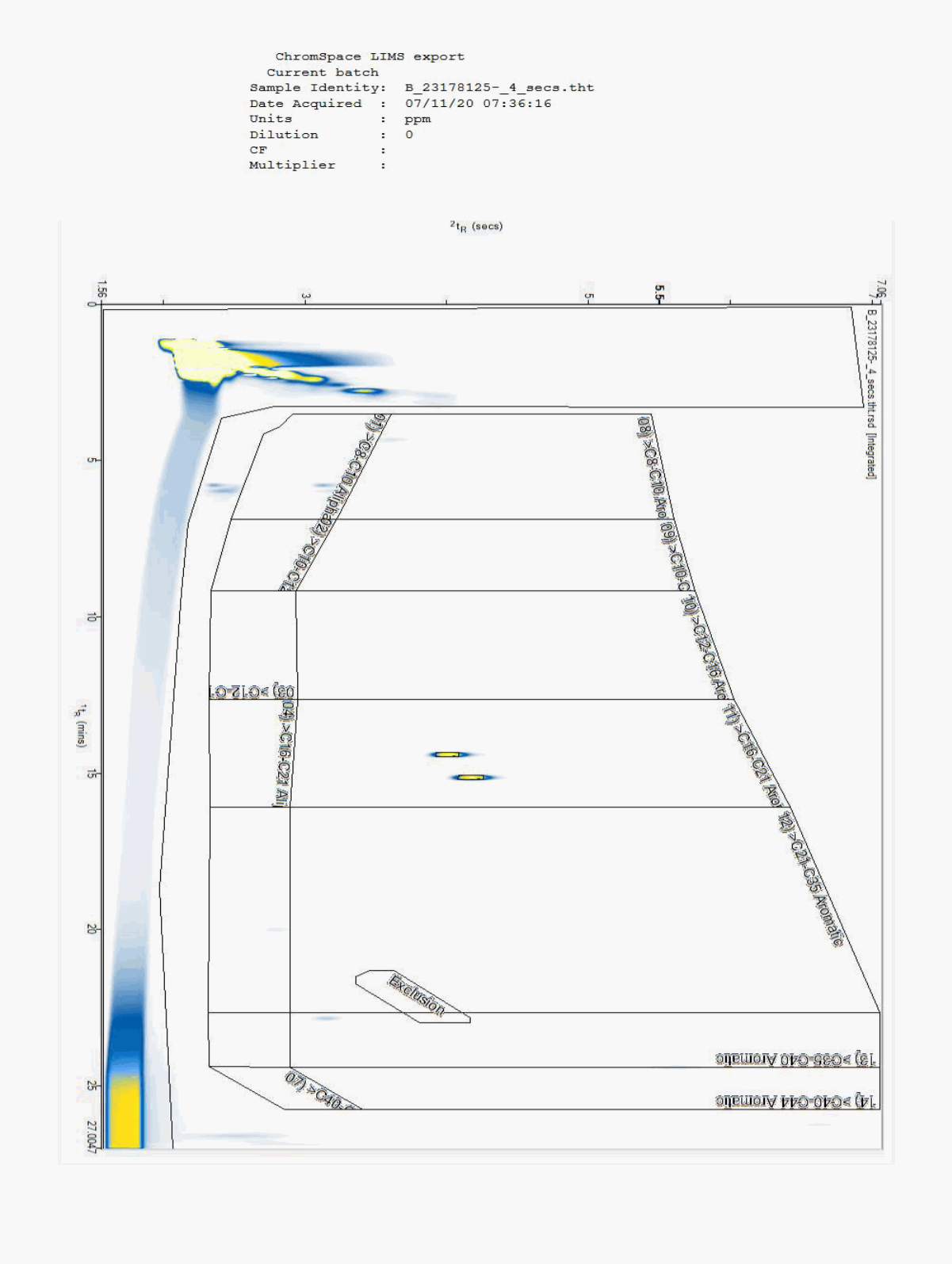


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23178125 **Sample ID :** TP302 **Depth :** 1.00 - 1.10



CERTIFICATE OF ANALYSIS

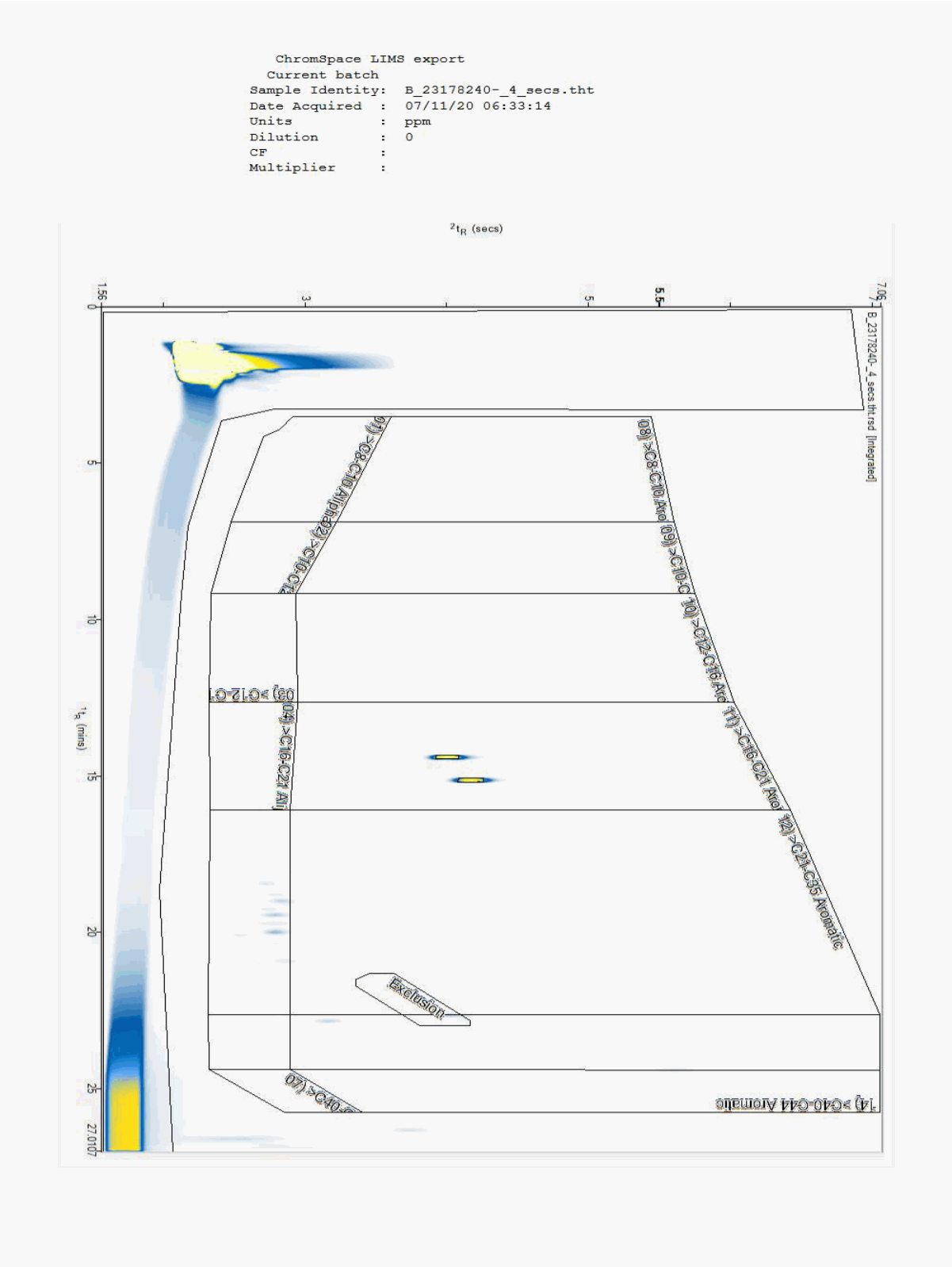
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23178240
Sample ID : TP302

Depth : 1.60 - 1.70

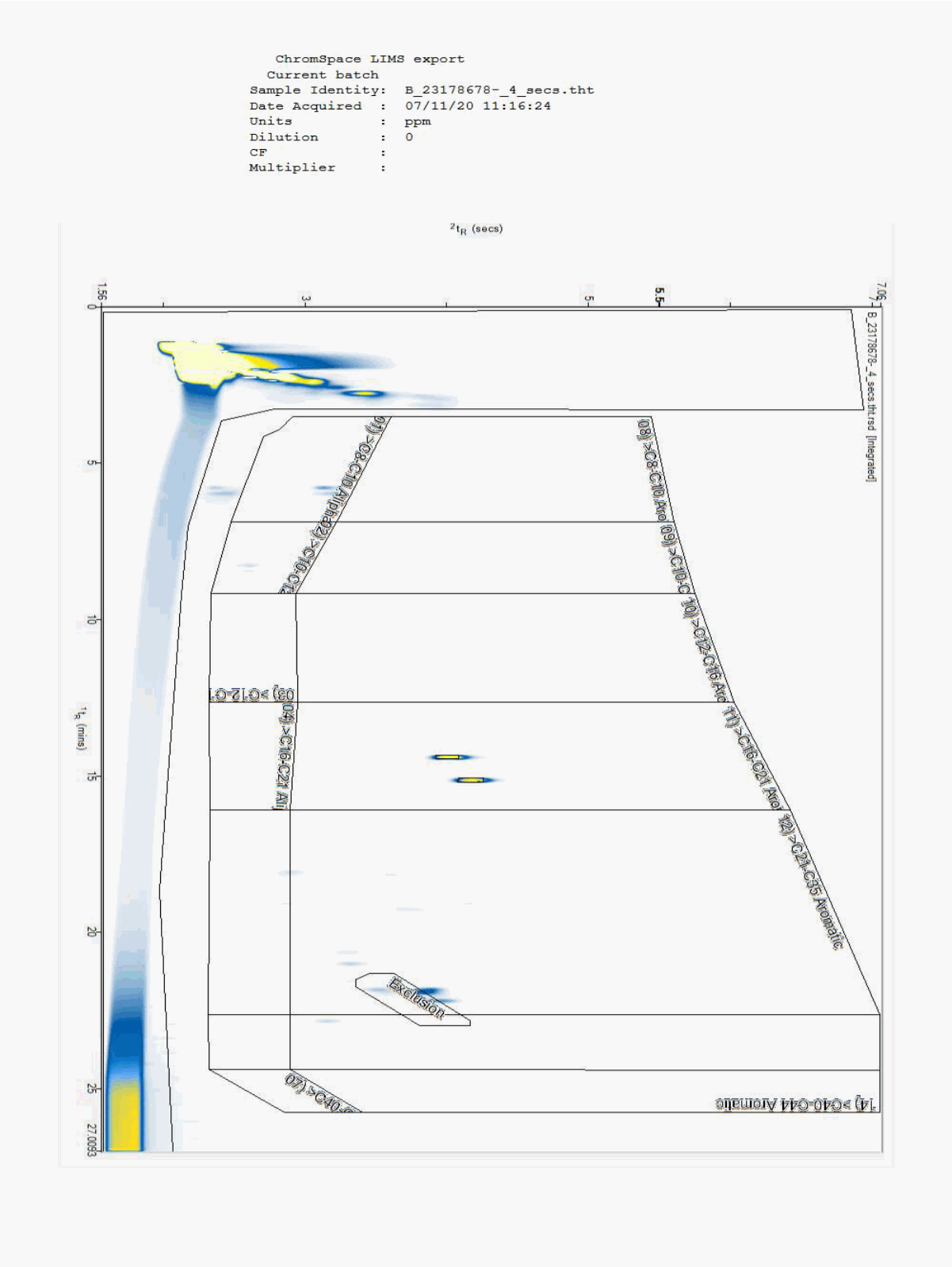


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23178678 **Sample ID :** TP209 **Depth :** 1.50 - 1.60

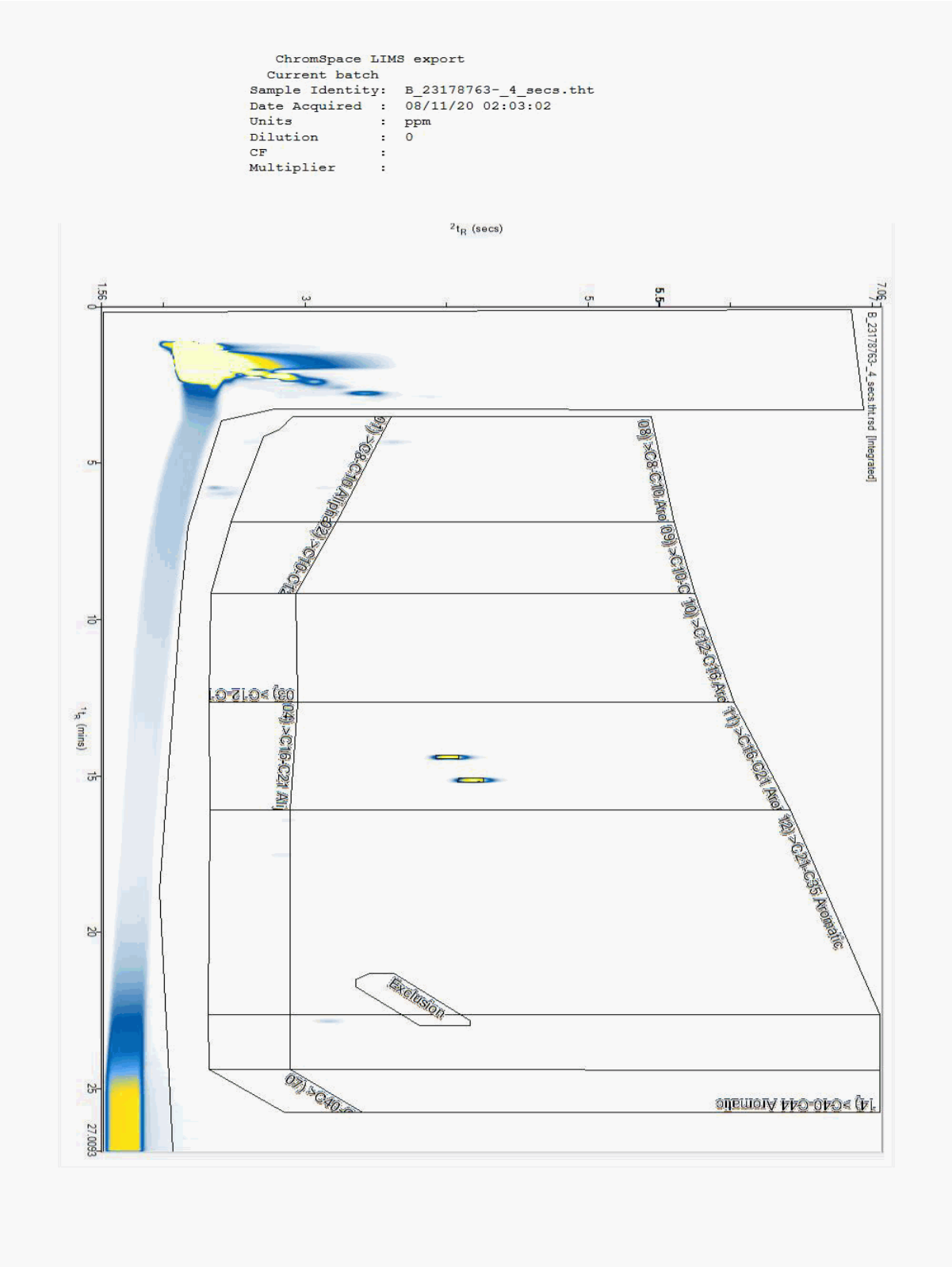


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23178763 **Sample ID :** TP314 **Depth :** 1.10 - 1.20



CERTIFICATE OF ANALYSIS

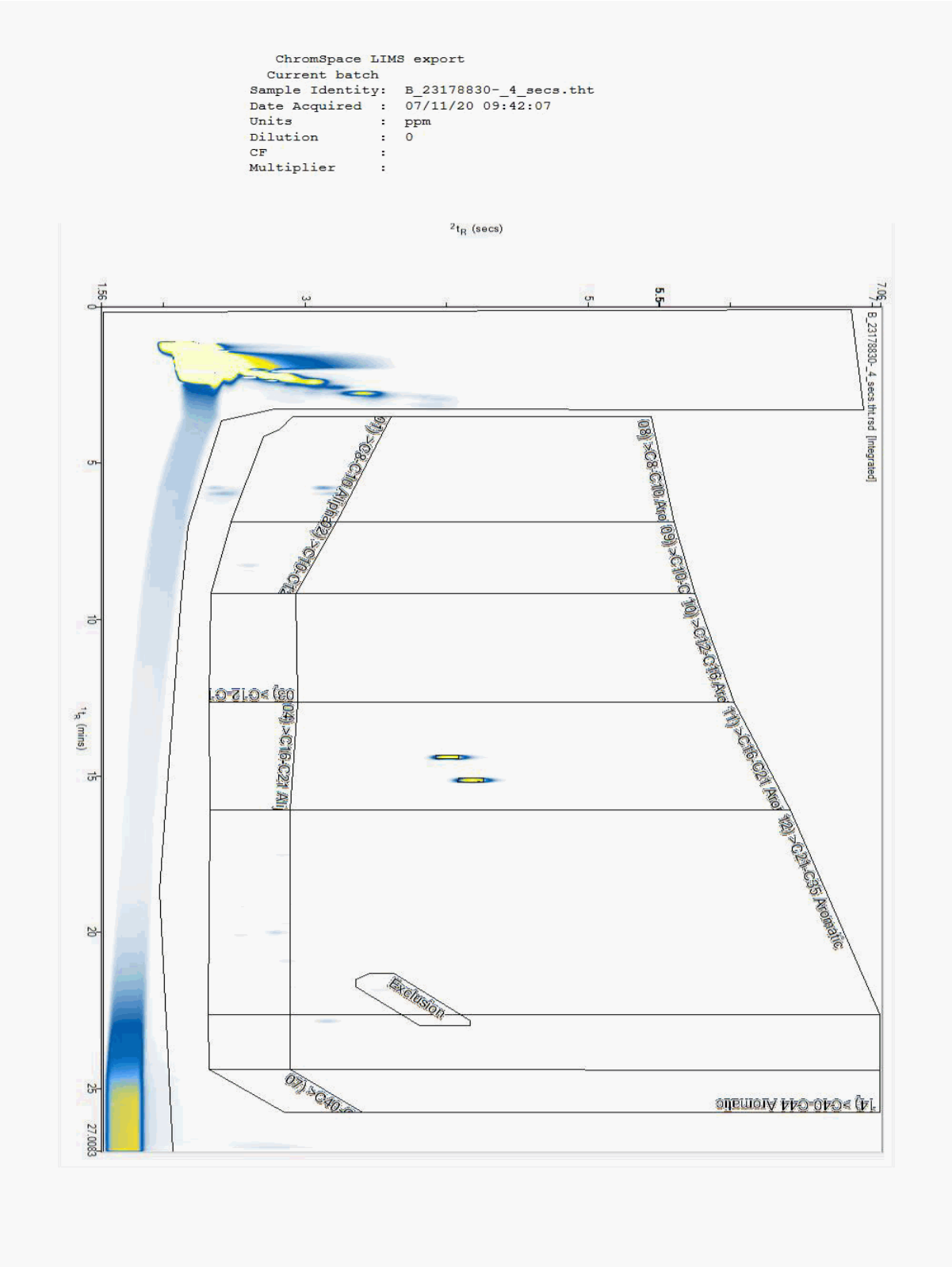
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23178830
Sample ID : TP207

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

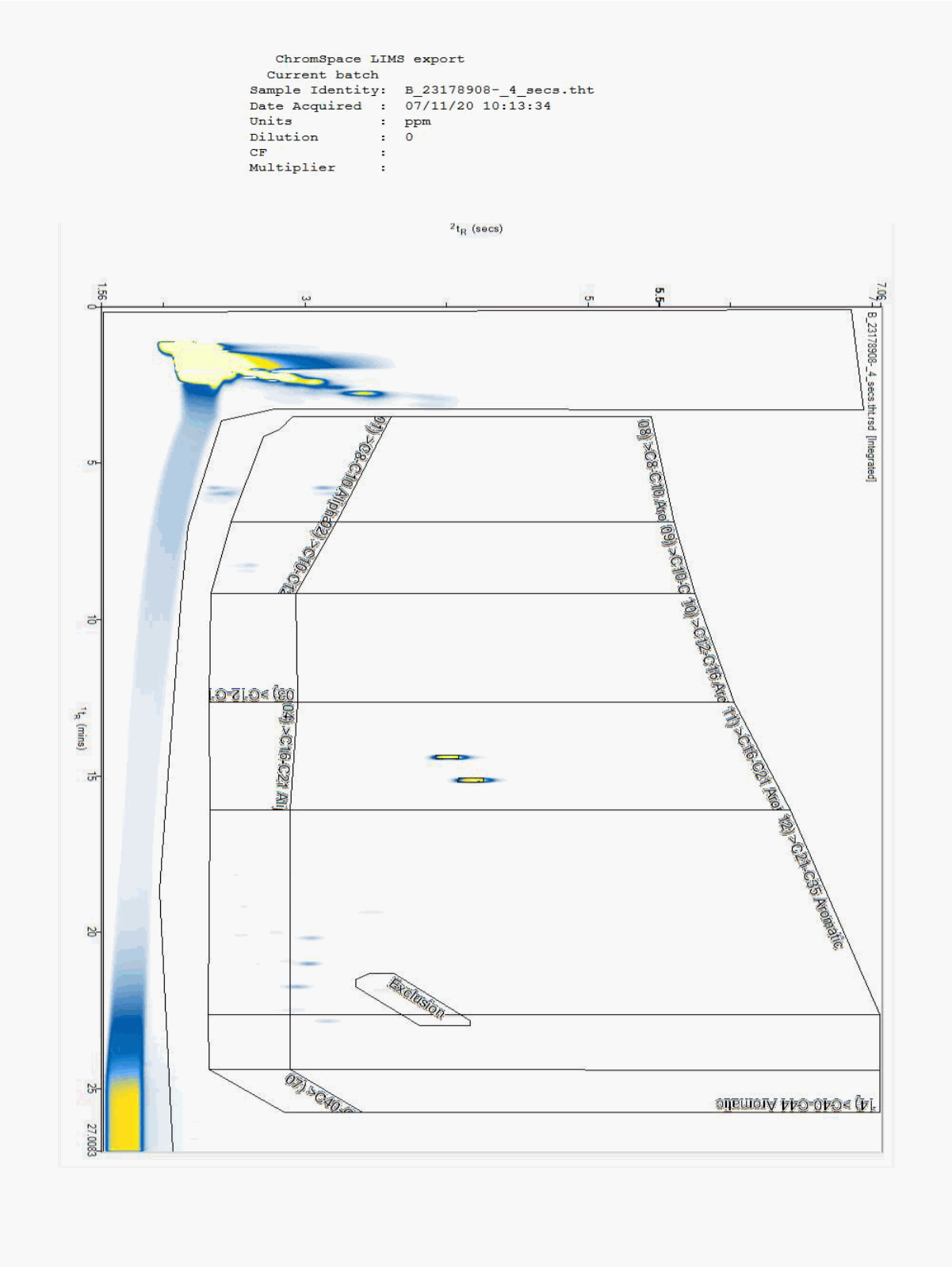
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23178908
Sample ID : TP207

Depth : 1.60 - 1.70

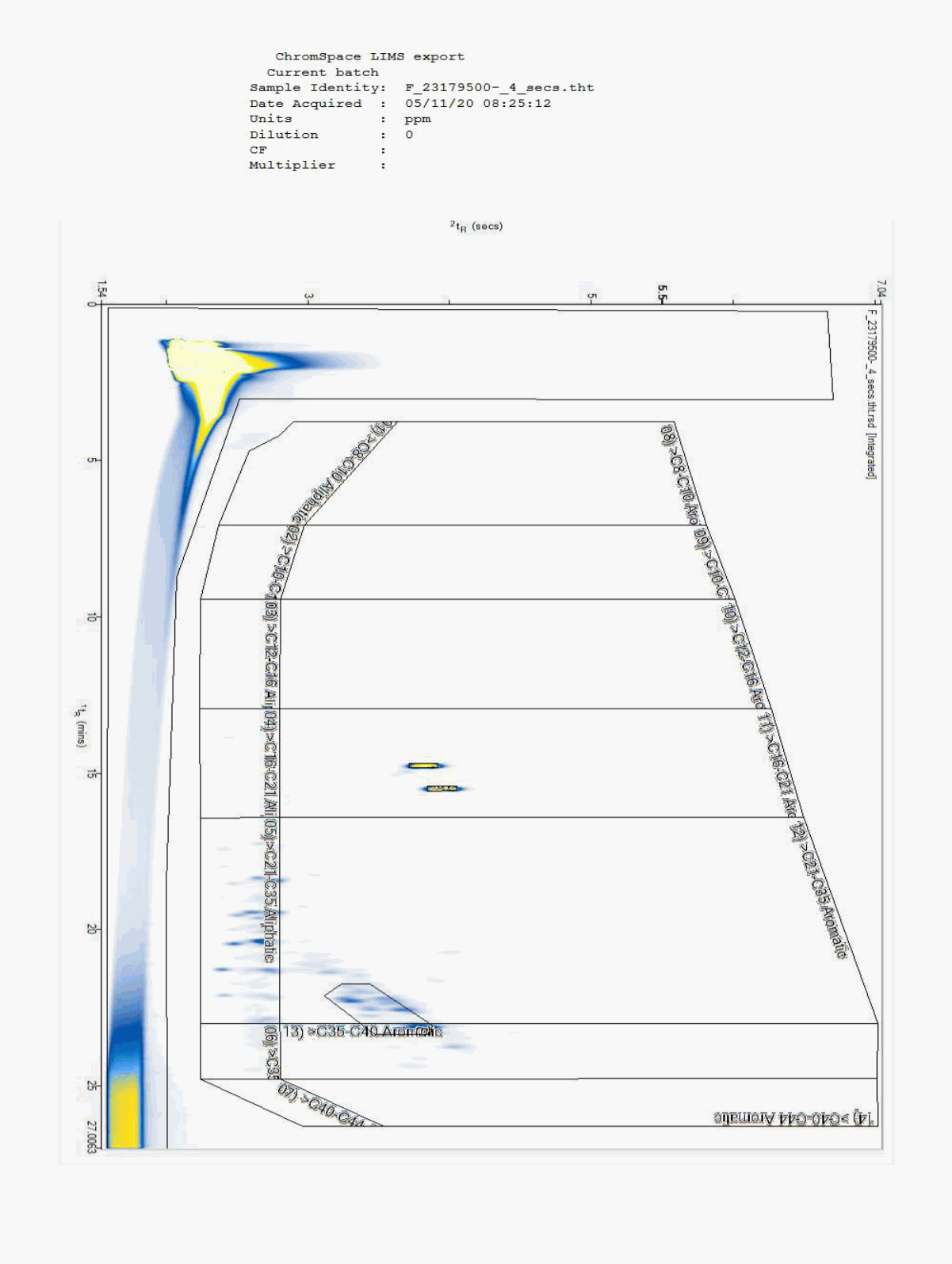


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23179500 **Sample ID :** TP312 **Depth :** 2.10 - 2.20



CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

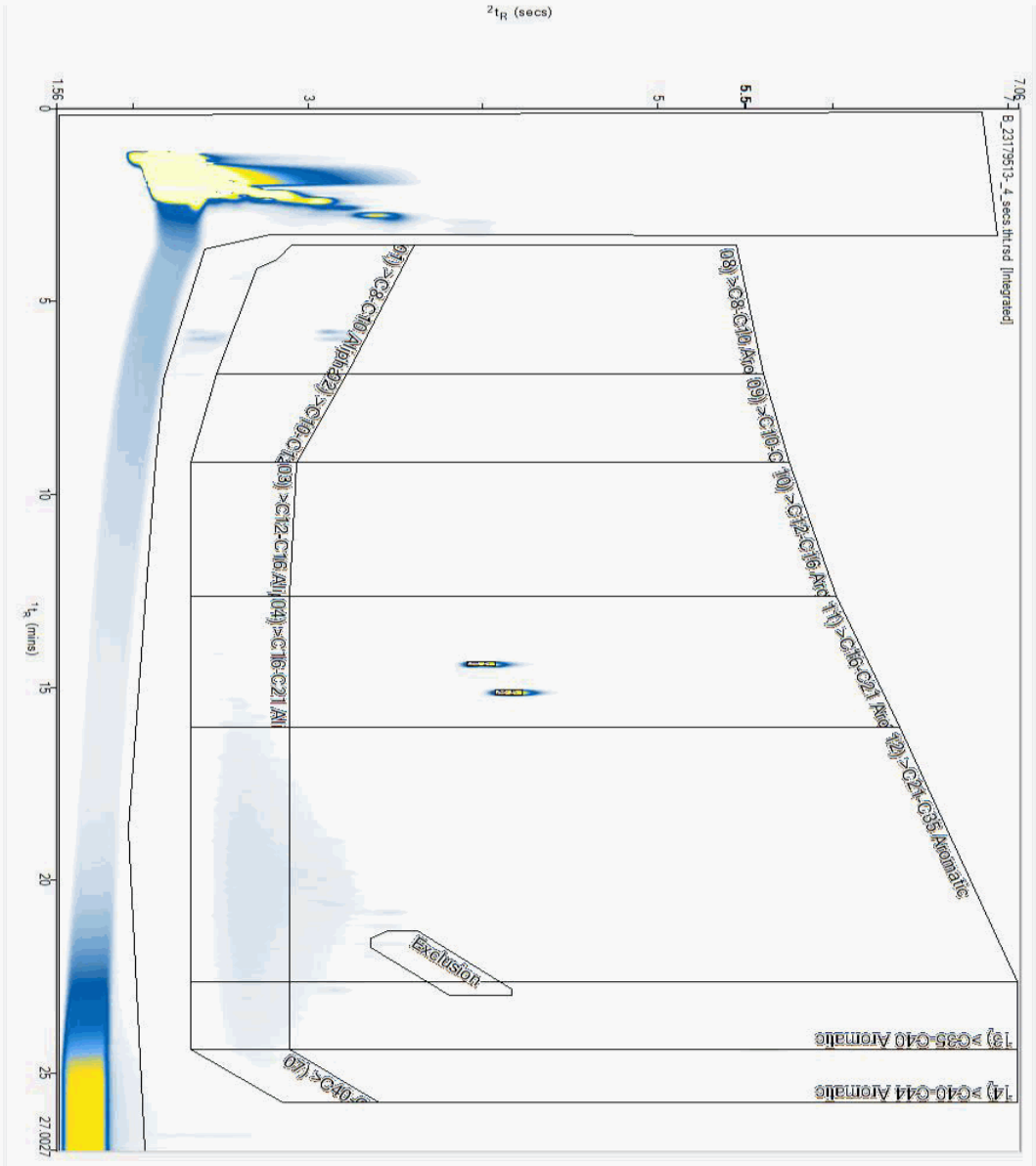
Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23179513
Sample ID : TP312

Depth : 0.40 - 0.50

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23179513-_4_secs.tht
Date Acquired   :  05/11/20 06:27:20
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



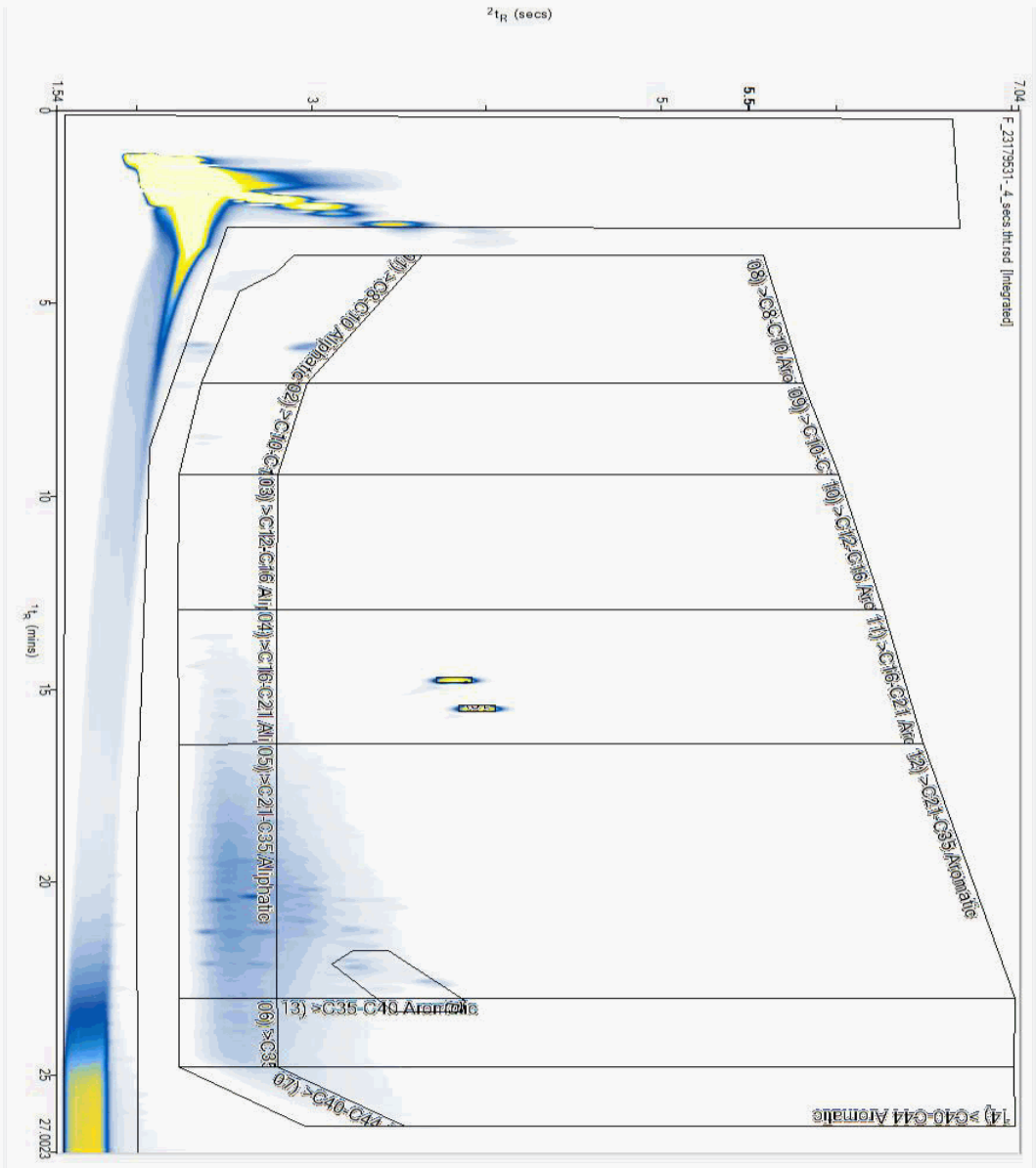
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23179531 **Sample ID :** TP312 **Depth :** 0.80 - 0.90

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23179531-_4_secs.tht
Date Acquired   :  05/11/20 09:59:00
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

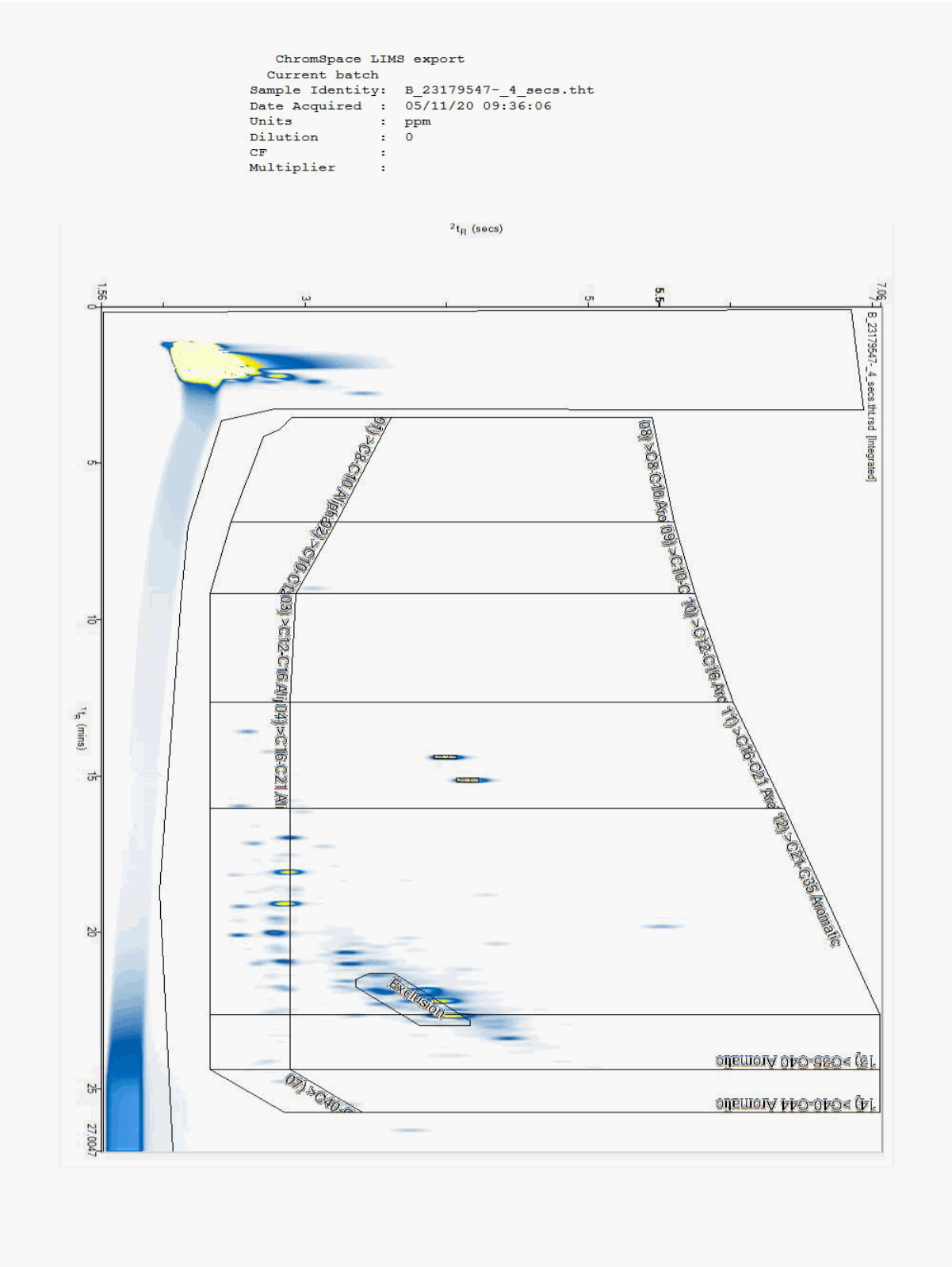


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23179547 **Sample ID :** TP312 **Depth :** 3.00 - 3.10

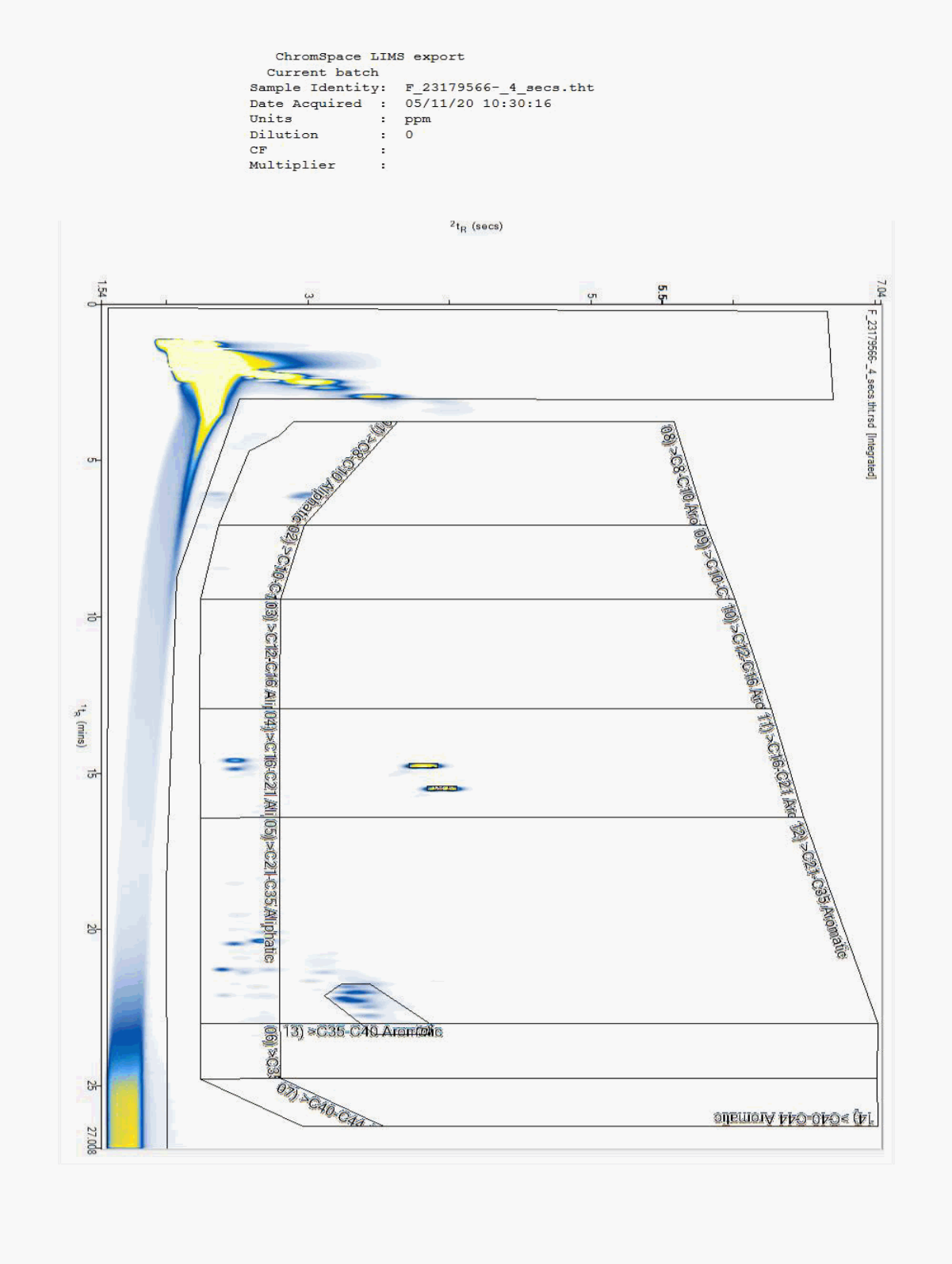


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23179566 **Sample ID :** TP312 **Depth :** 1.40 - 1.50



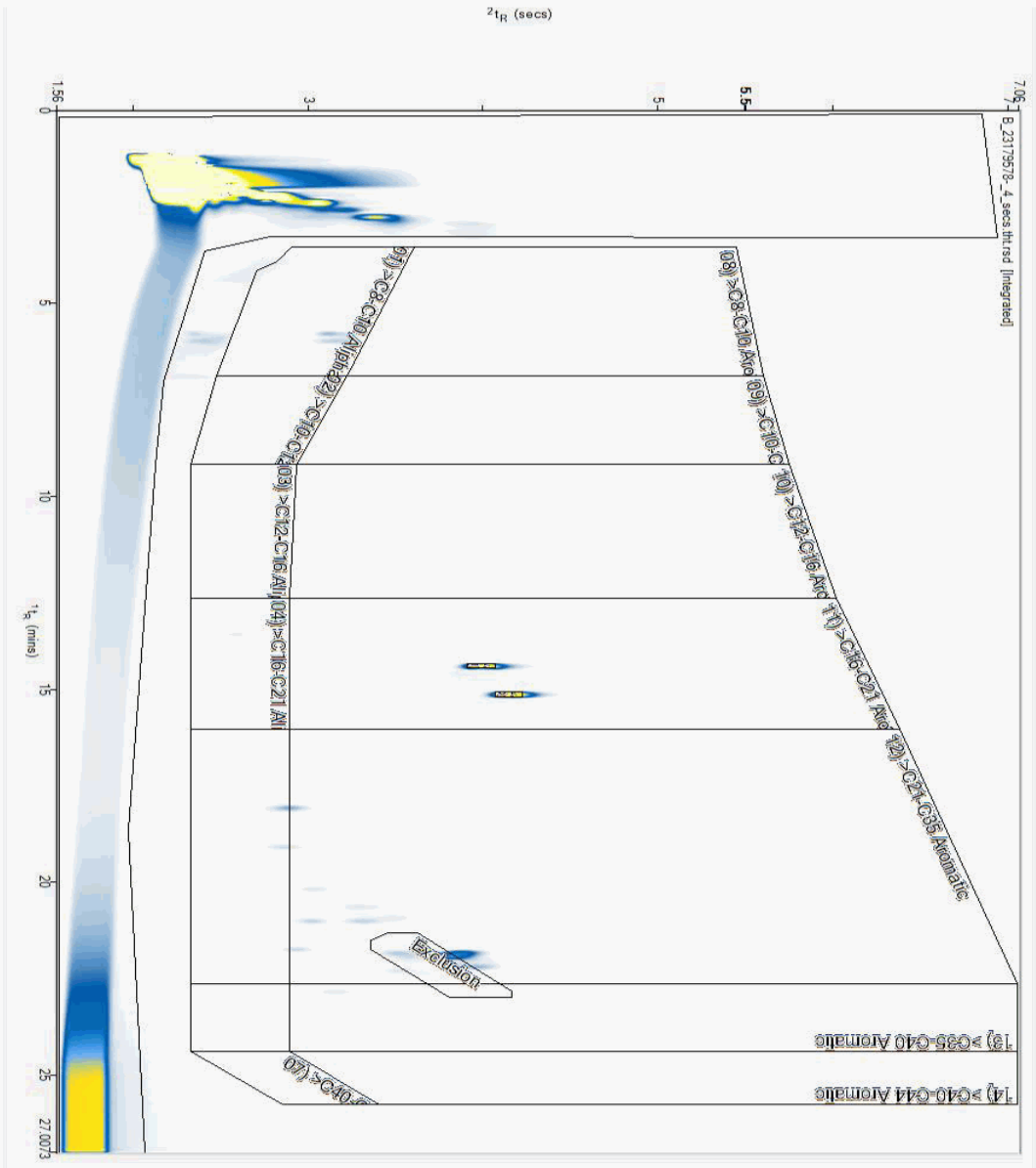
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23179578 **Sample ID :** TP210 **Depth :** 1.50 - 1.60

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23179578-_4_secs.tht
Date Acquired   :  05/11/20 07:30:17
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

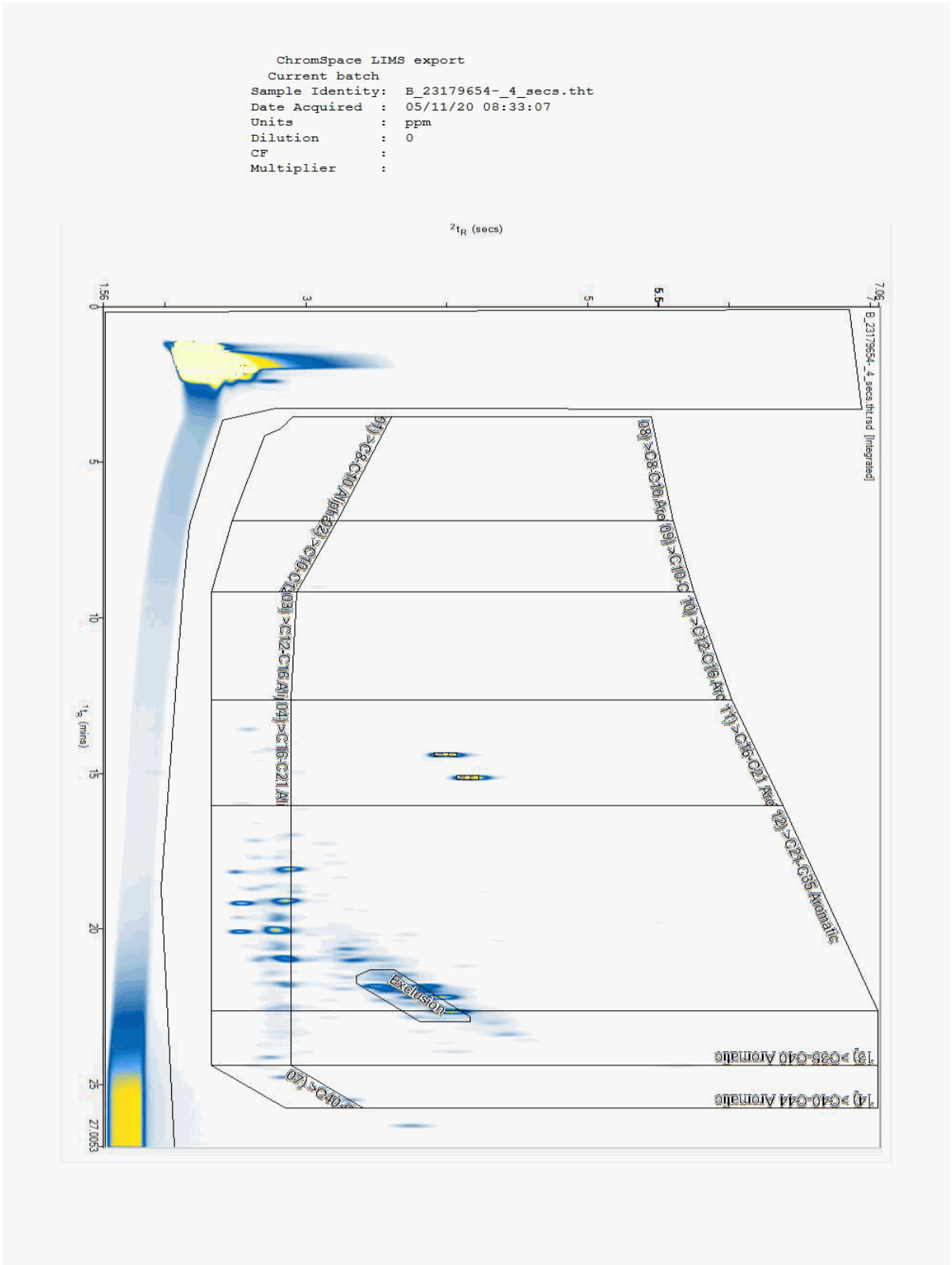


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23179654 **Sample ID :** TP314 **Depth :** 1.80 - 1.90



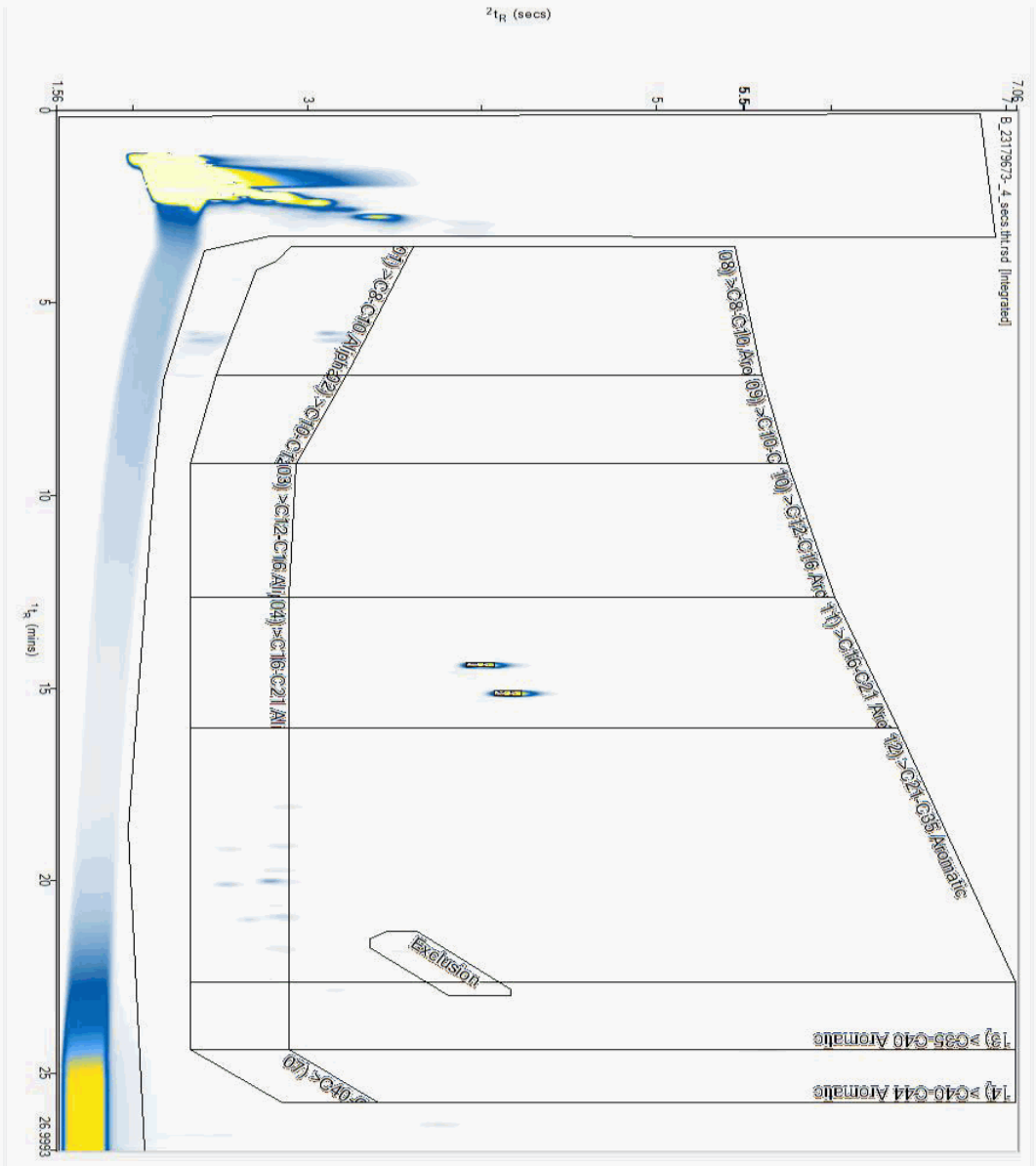
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23179673 **Depth :** 0.50 - 0.60
Sample ID : TP209

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  B_23179673-_4_secs.tht
Date Acquired   :  05/11/20 05:24:27
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



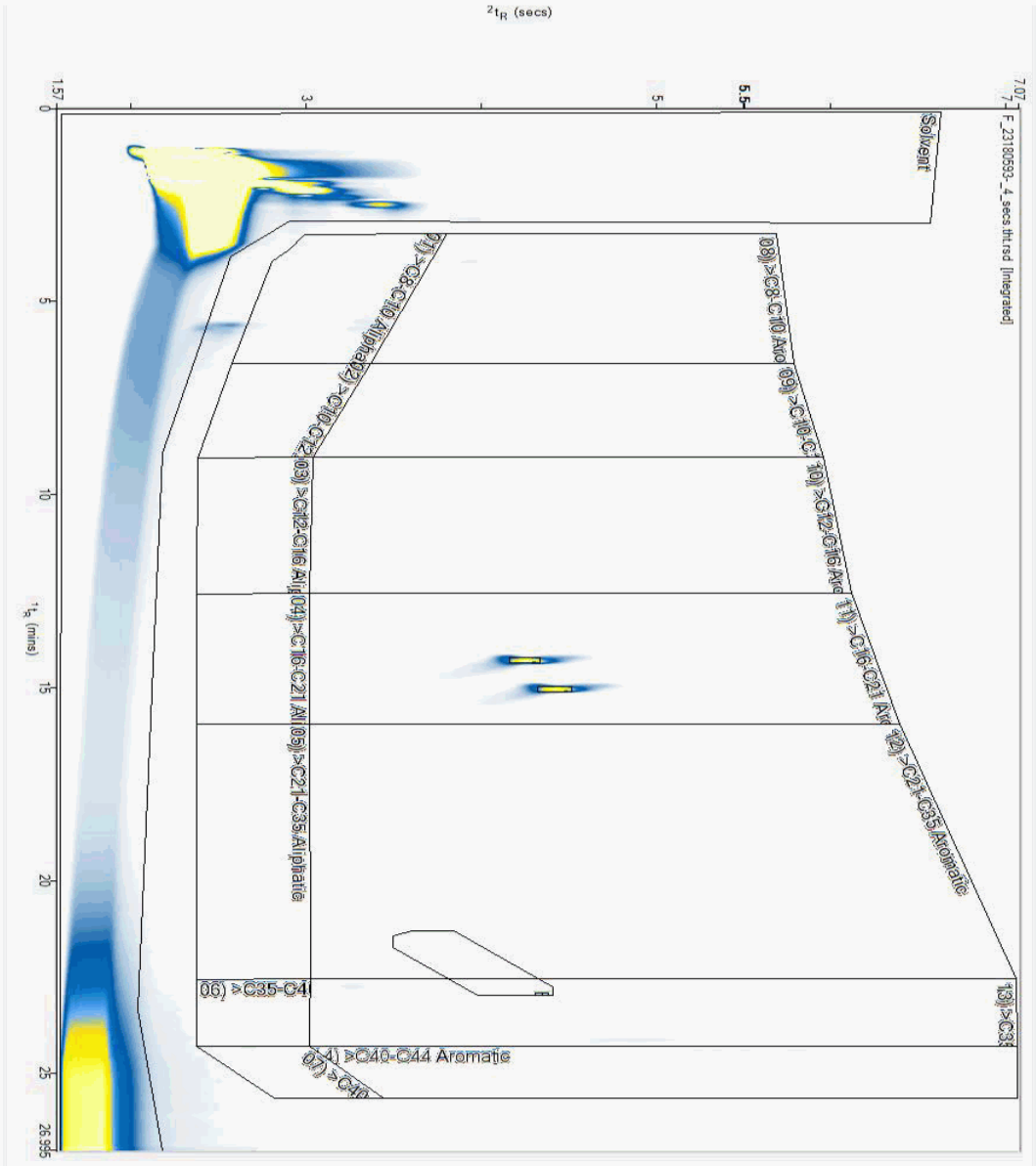
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23180593 **Depth :** 2.90 - 3.00
Sample ID : TP314

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23180593-_4_secs.tht
Date Acquired   :  07/11/20 08:07:44
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

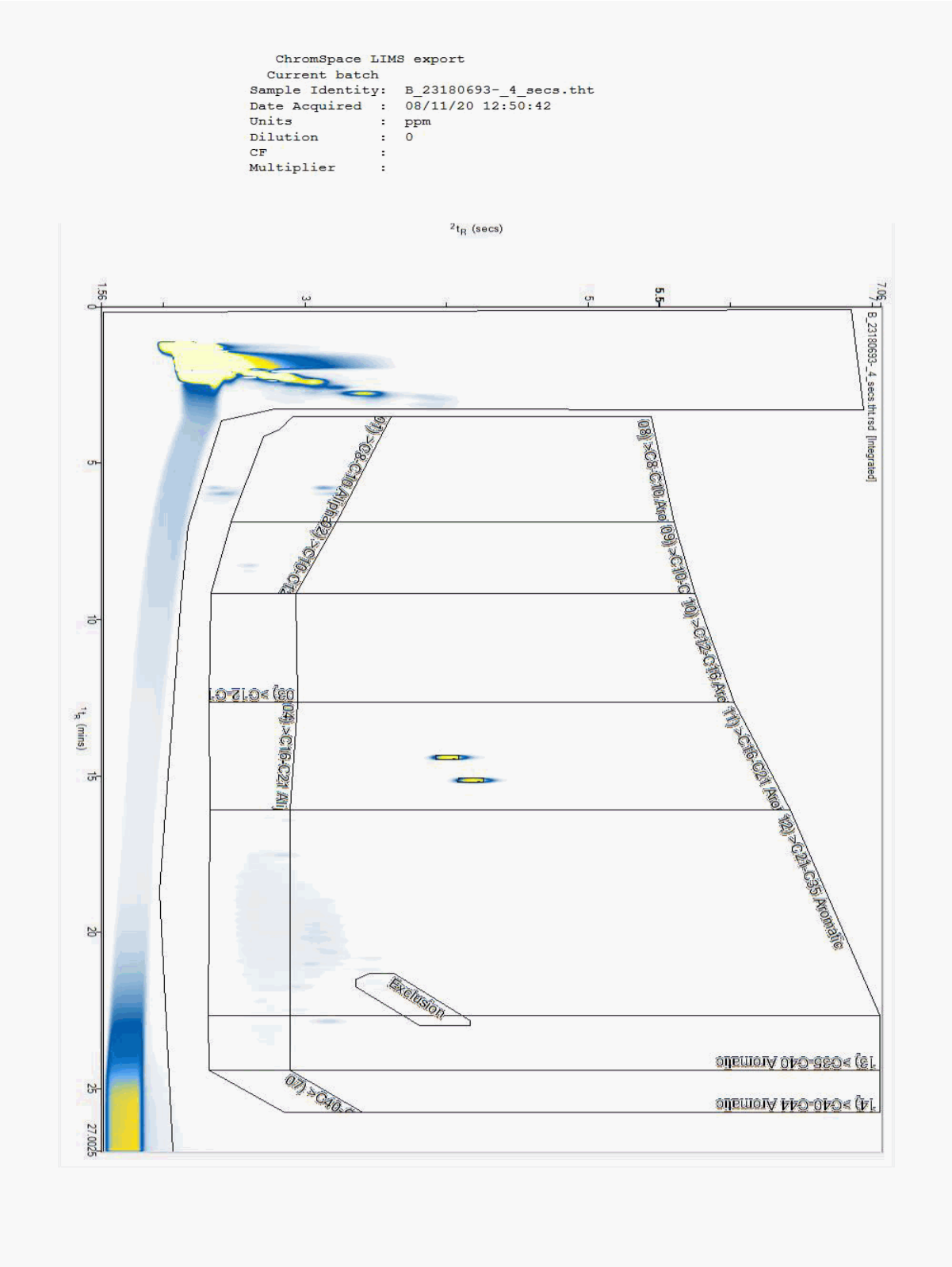


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23180693 **Sample ID :** TP314 **Depth :** 0.50 - 0.60



CERTIFICATE OF ANALYSIS

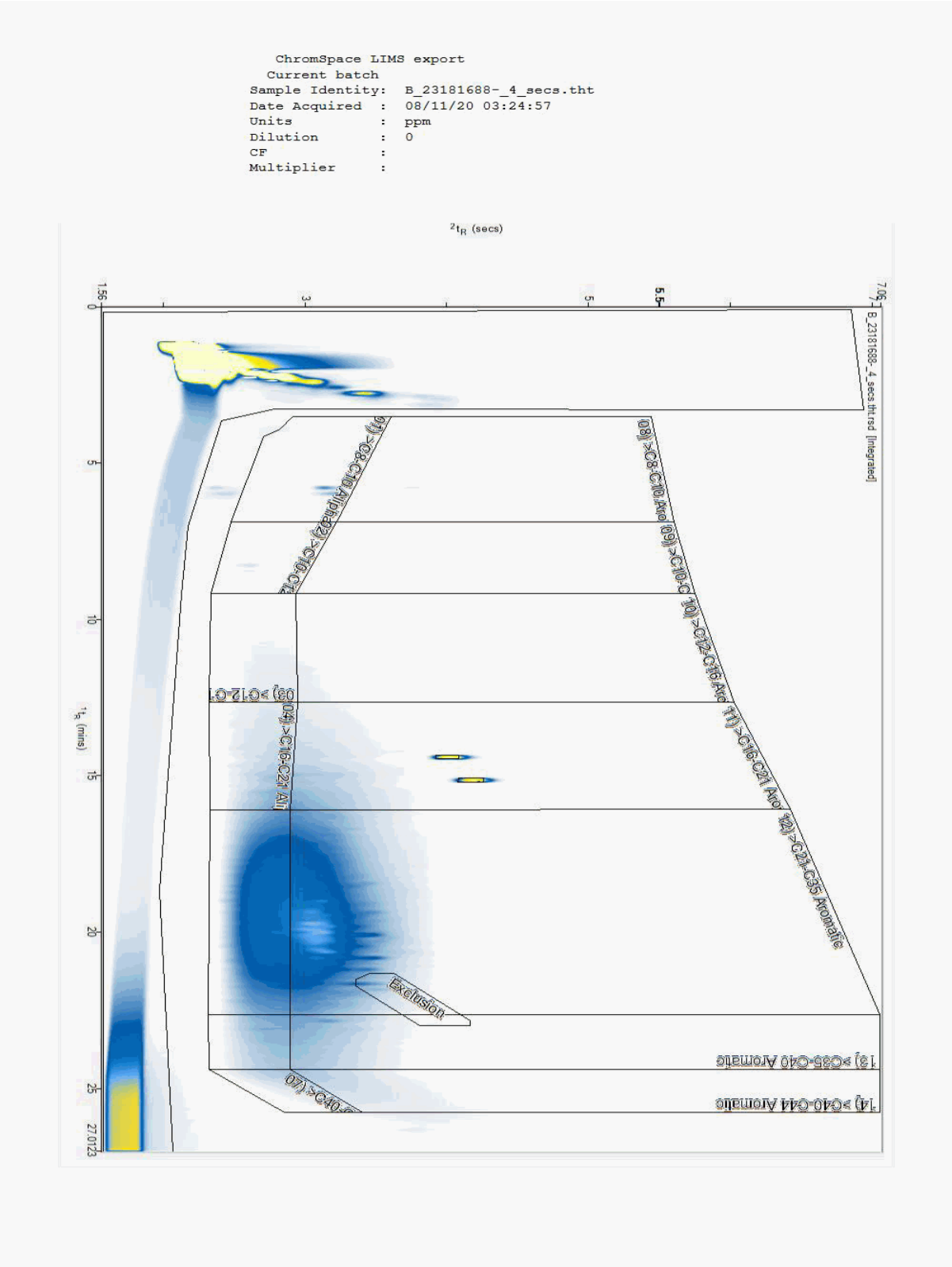
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S)

Sample No : 23181688
Sample ID : TP315

Depth : 0.40 - 0.50

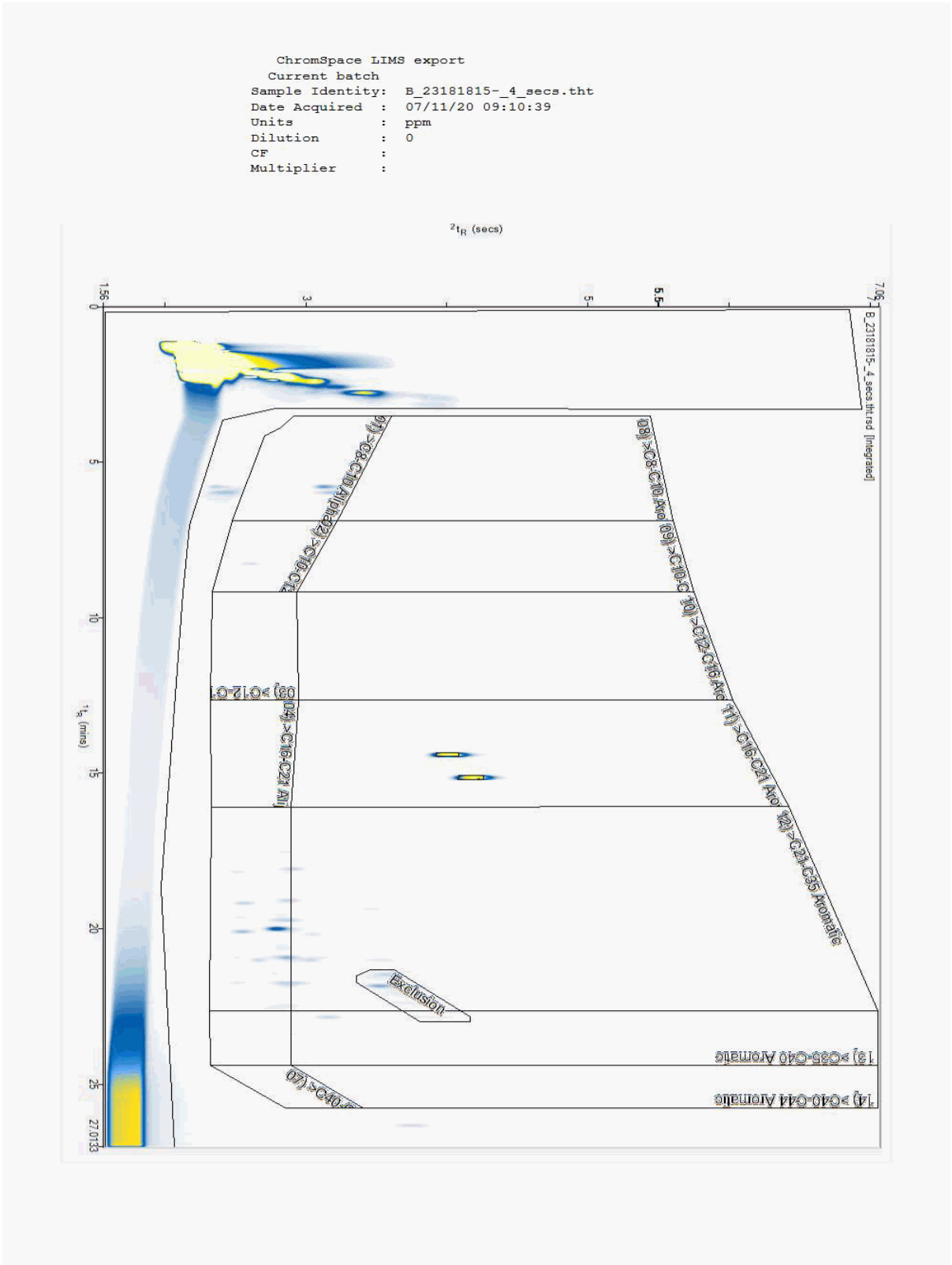


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23181815 **Depth :** 0.40 - 0.50
Sample ID : TP210



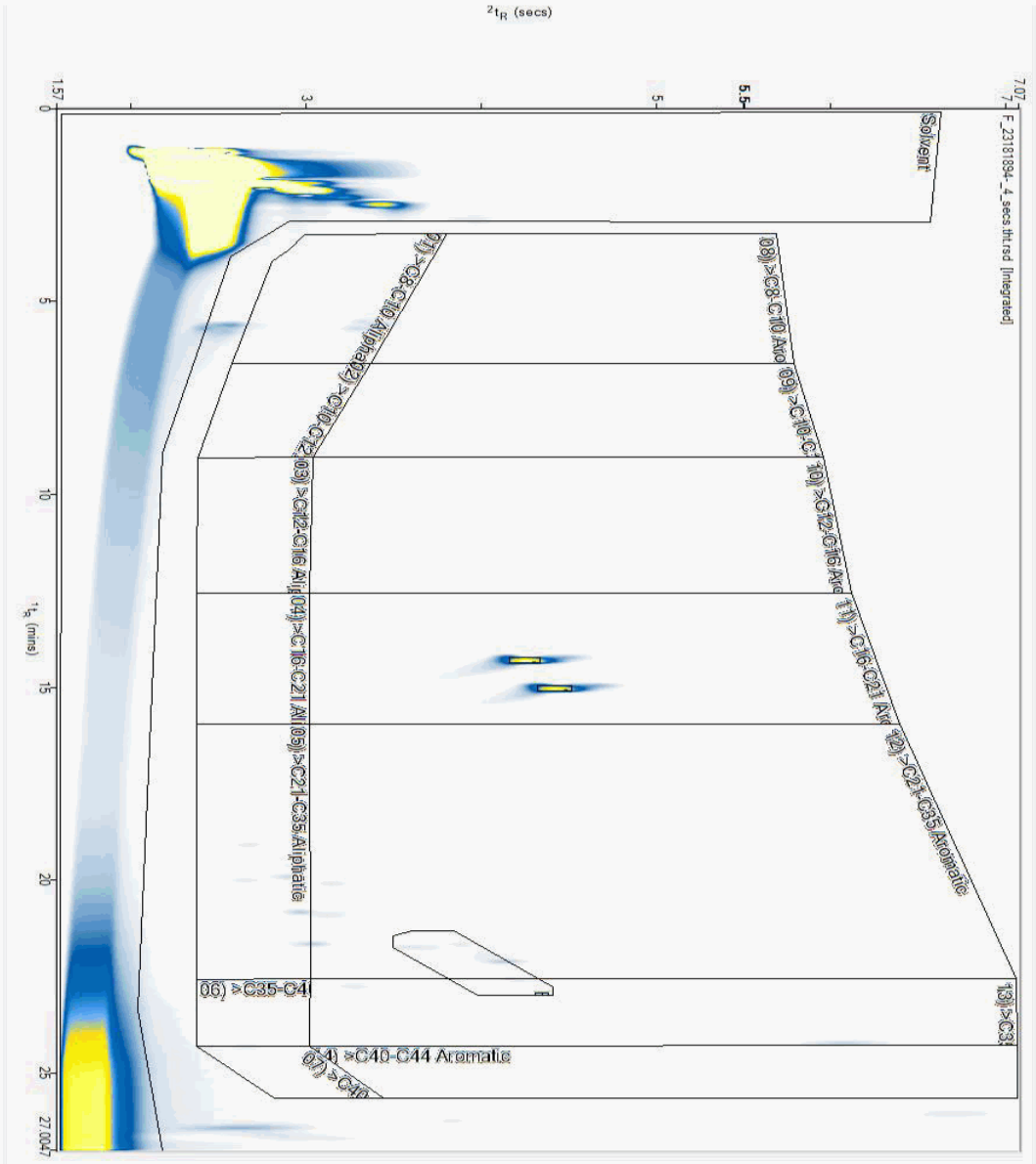
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23181894 **Depth :** 2.50 - 2.60
Sample ID : TP315

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23181894-_4_secs.tht
Date Acquired   :  07/11/20 07:36:15
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```

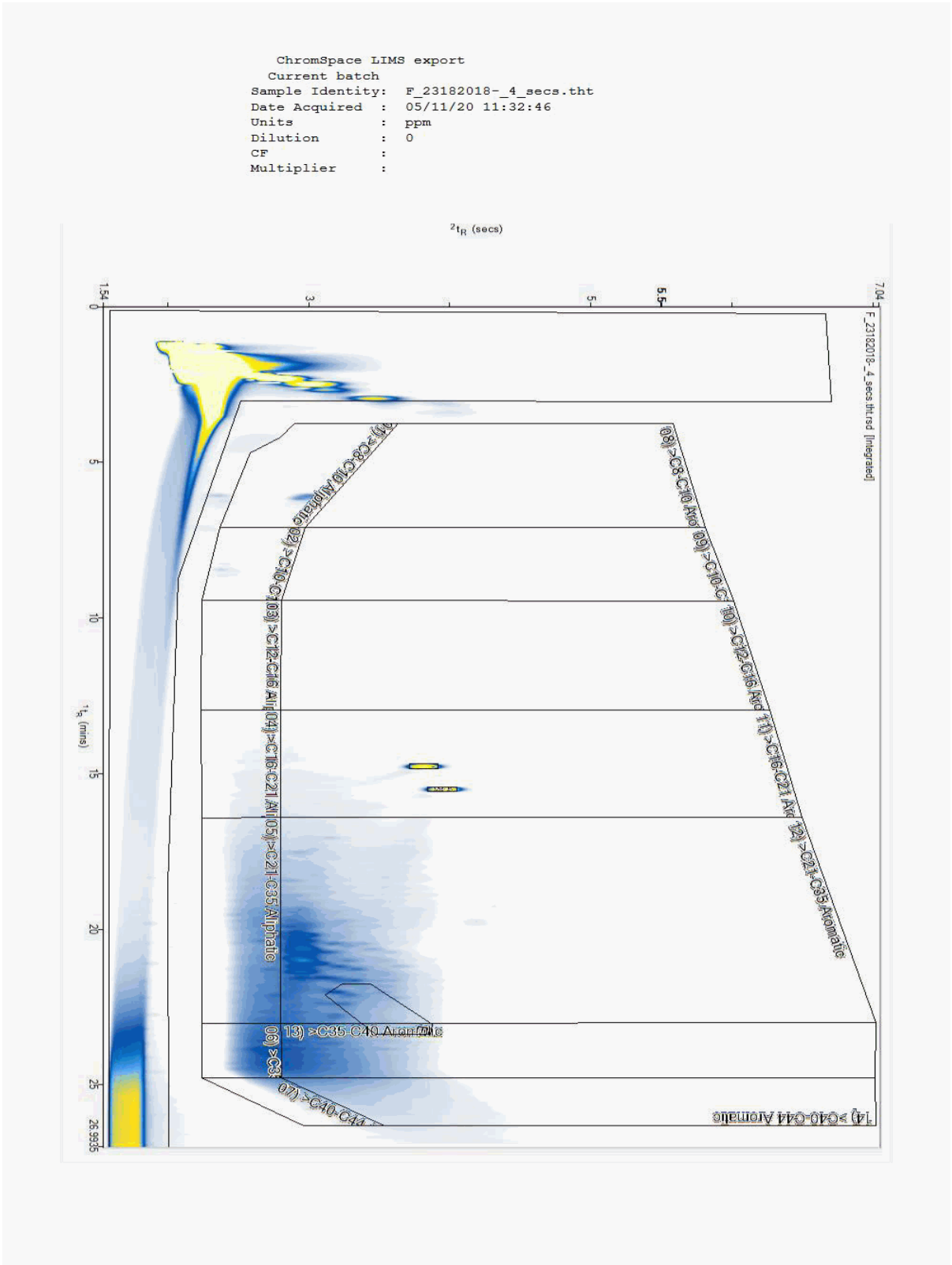


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23182018 **Sample ID :** TP304 **Depth :** 0.40 - 0.50

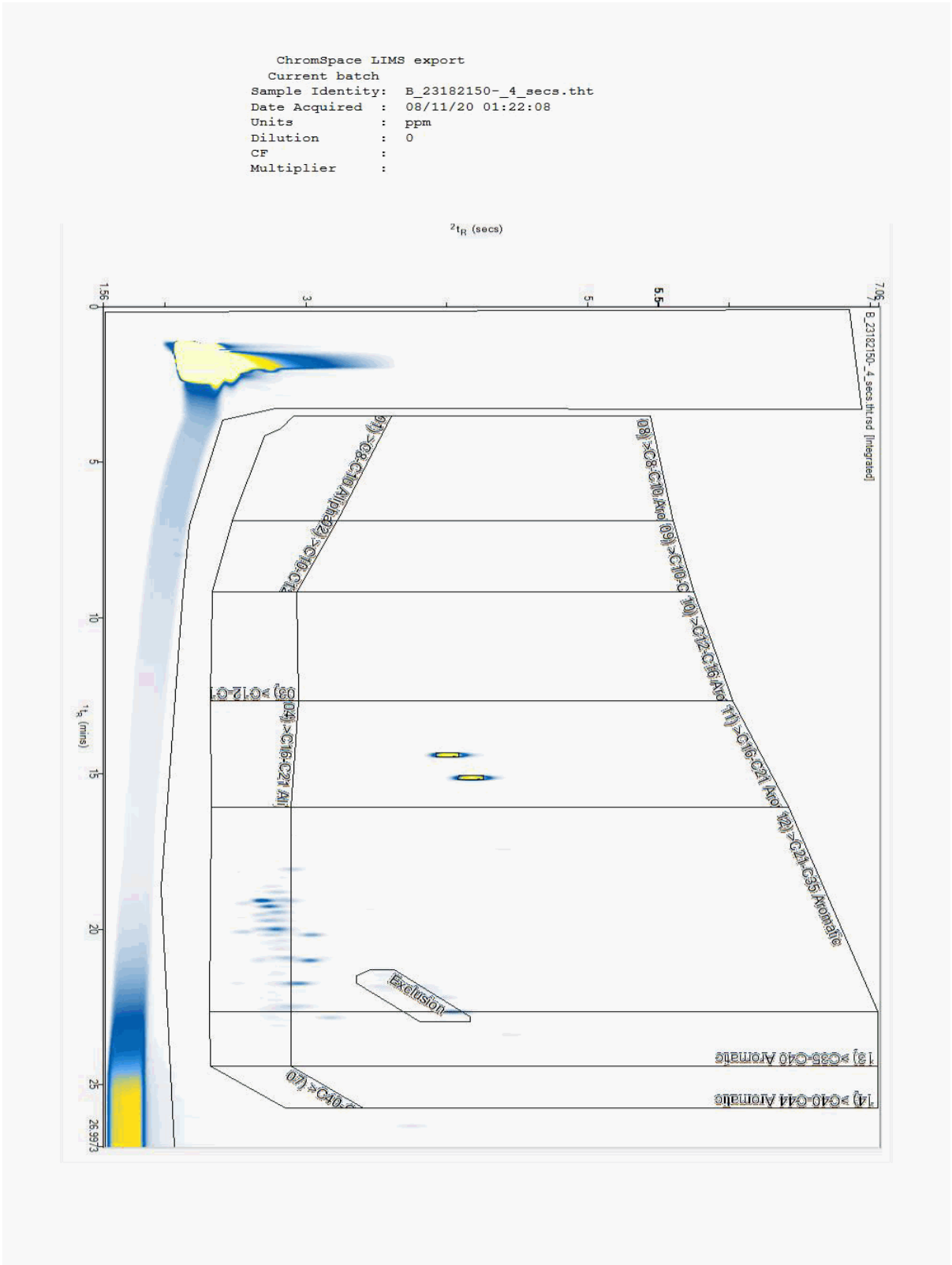


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23182150 **Sample ID :** TP315 **Depth :** 1.50 - 1.60

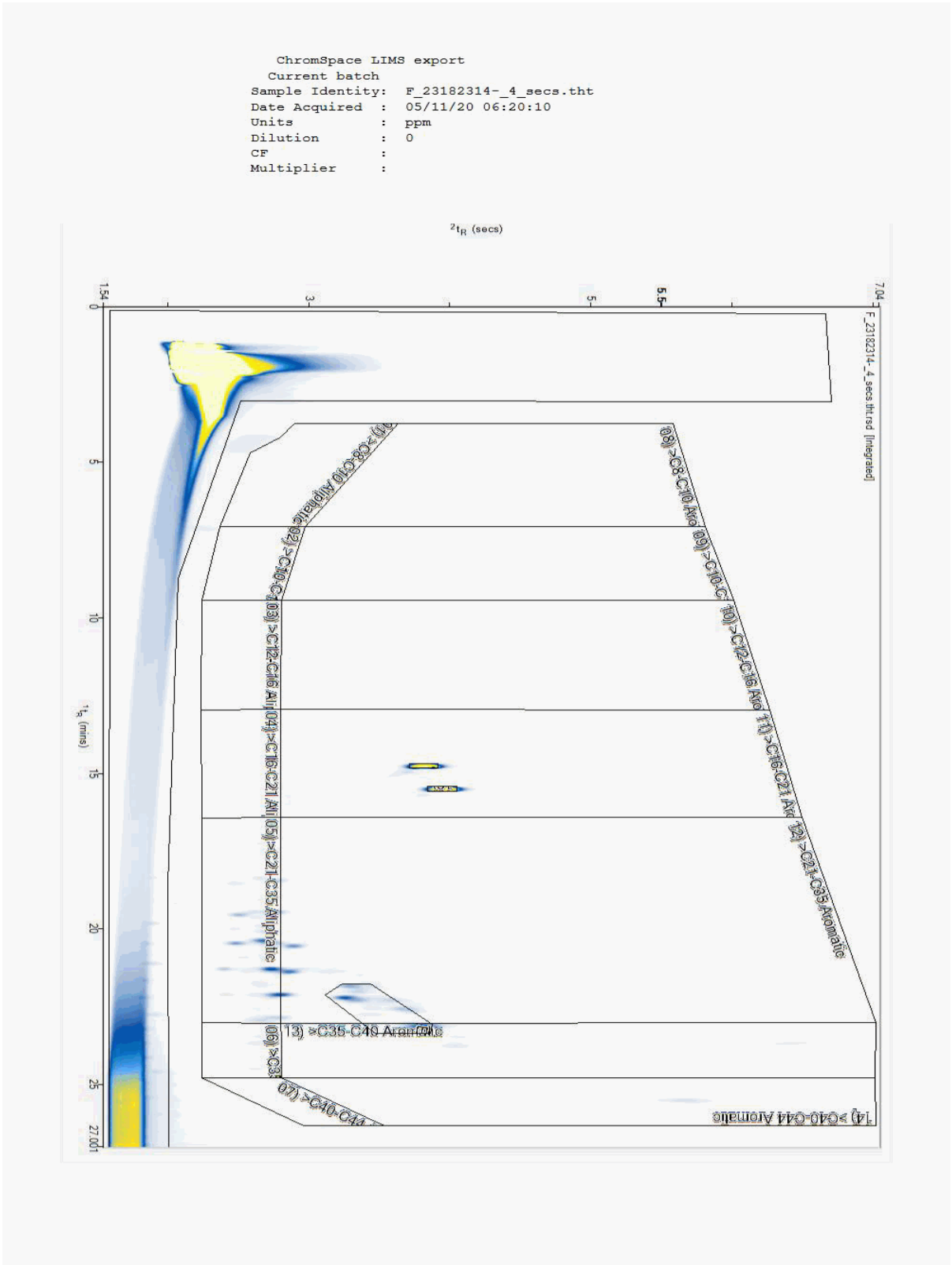


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23182314 **Depth :** 1.60 - 1.70
Sample ID : TP304

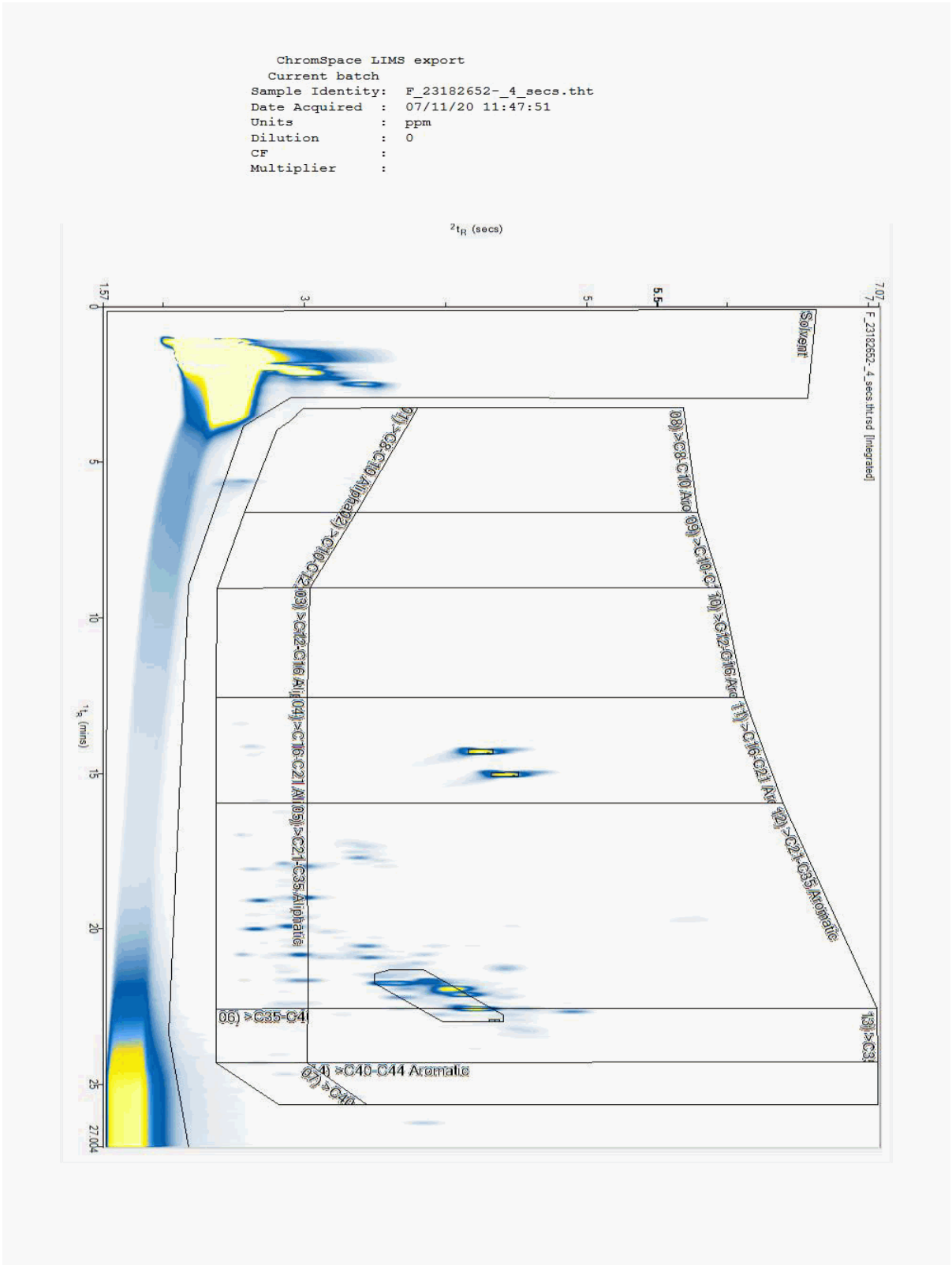


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23182652 **Sample ID :** TP304 **Depth :** 3.20 - 3.30

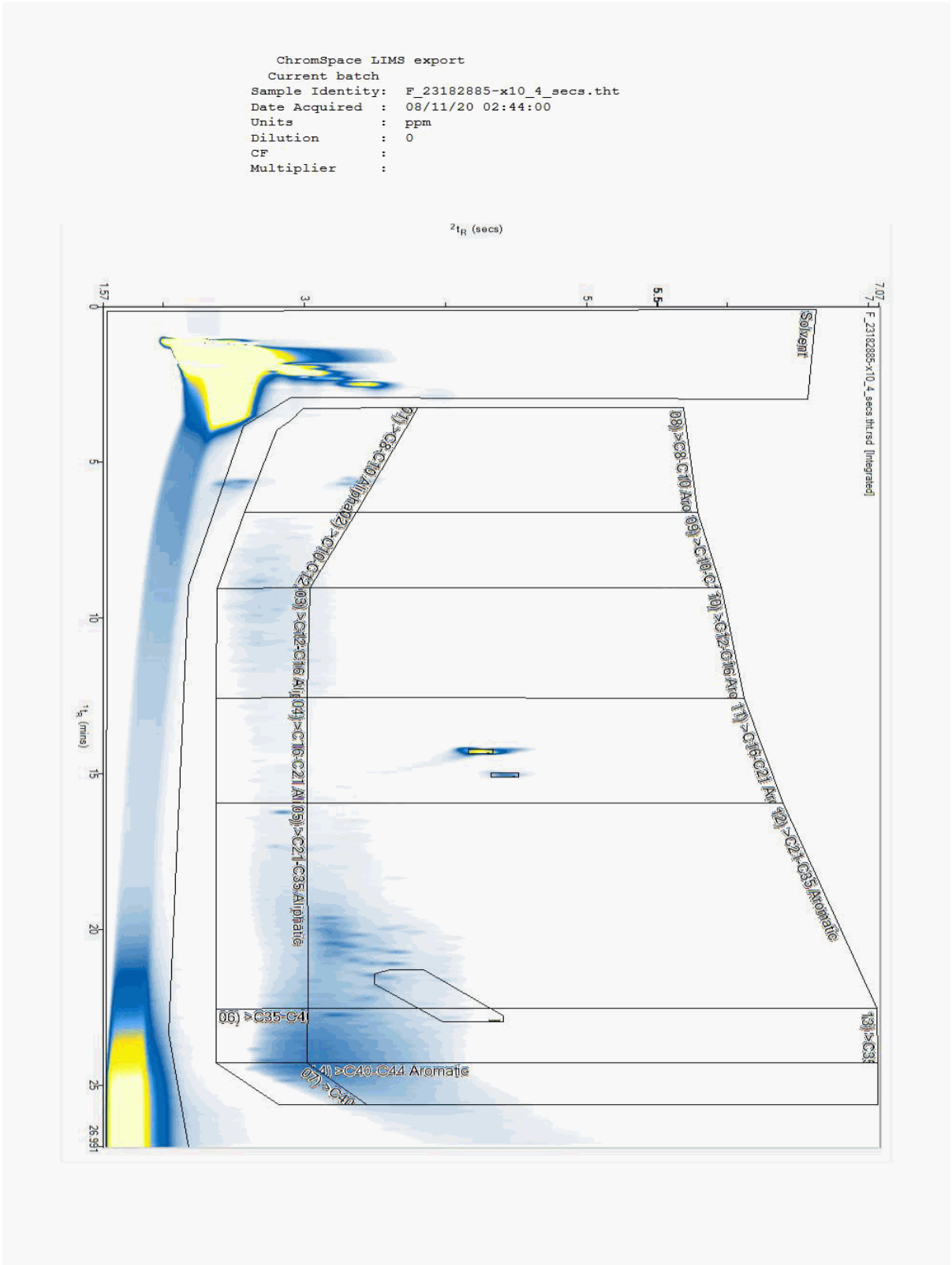


CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23182885 **Depth :** 0.90 - 1.00
Sample ID : TP315



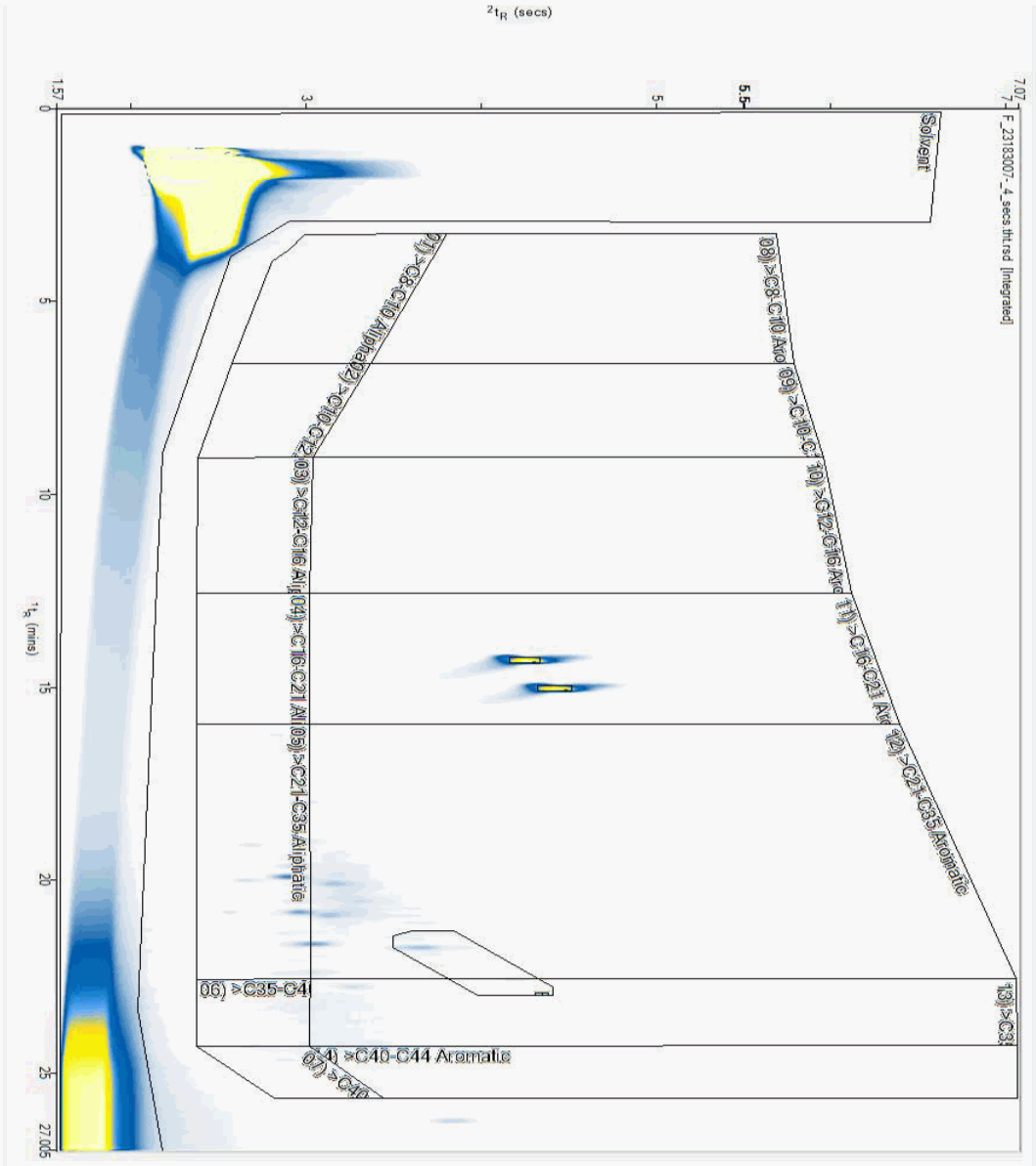
CERTIFICATE OF ANALYSIS

SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG GC (S) **Sample No :** 23183007 **Depth :** 1.00 - 1.10
Sample ID : TP304

```
   ChromSpace LIMS export
  Current batch
Sample Identity:  F_23183007-_4_secs.tht
Date Acquired   :  08/11/20 12:19:17
Units           :  ppm
Dilution        :  0
CF              :
Multiplier      :
```



CERTIFICATE OF ANALYSIS

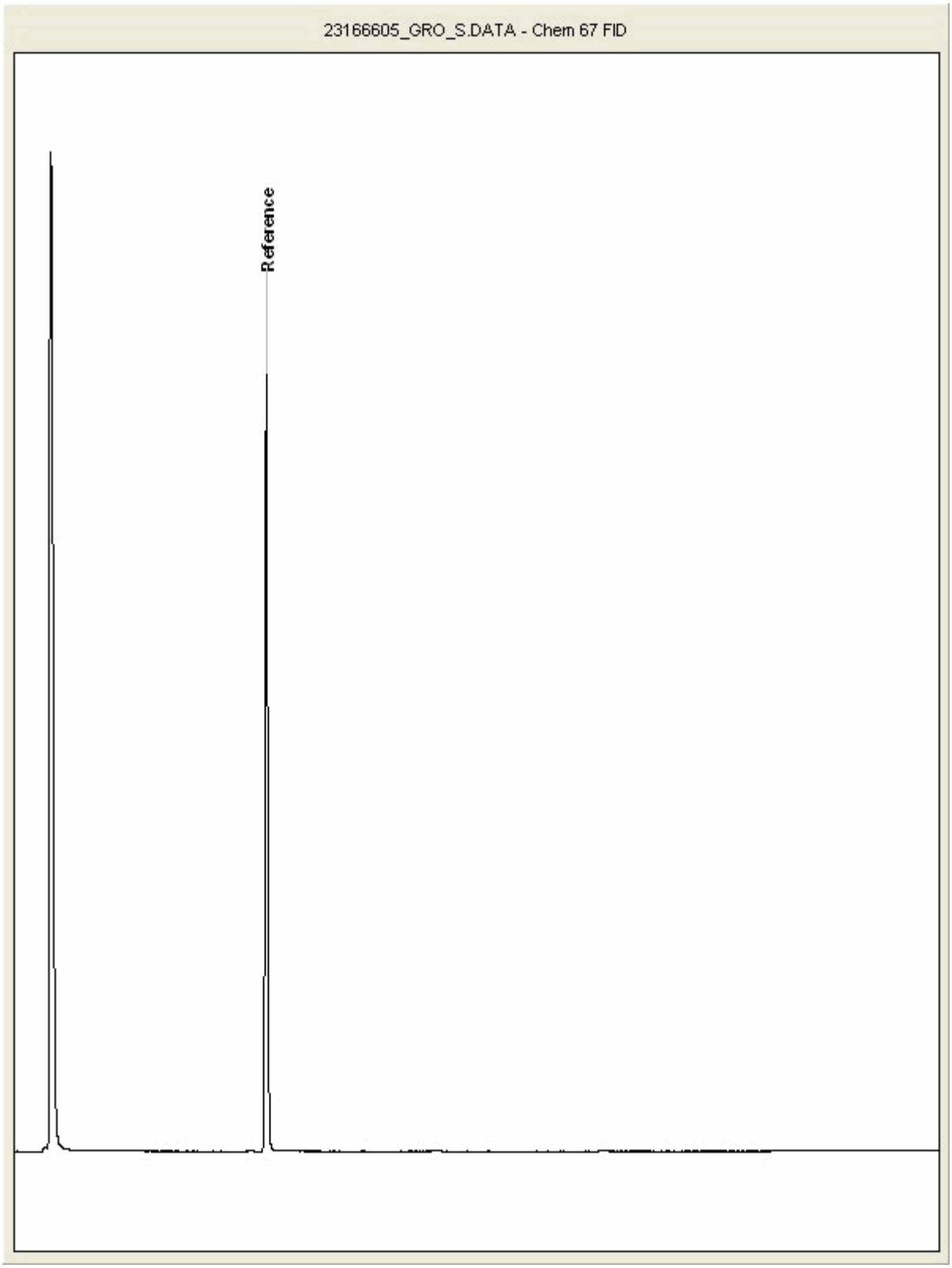
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23166605
Sample ID : TP310

Depth : 2.50 - 2.60



CERTIFICATE OF ANALYSIS

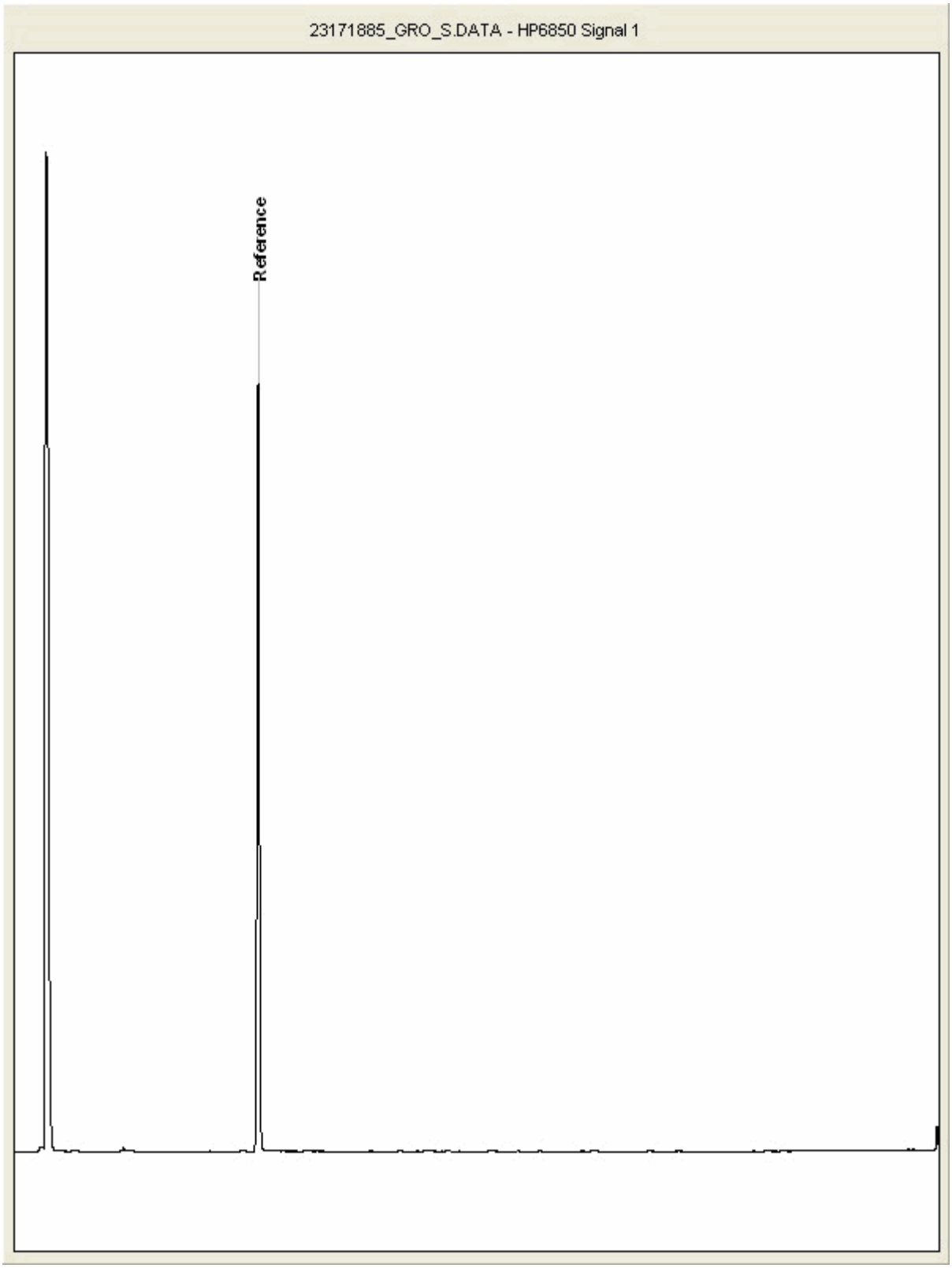
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23171885
Sample ID : TP304

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

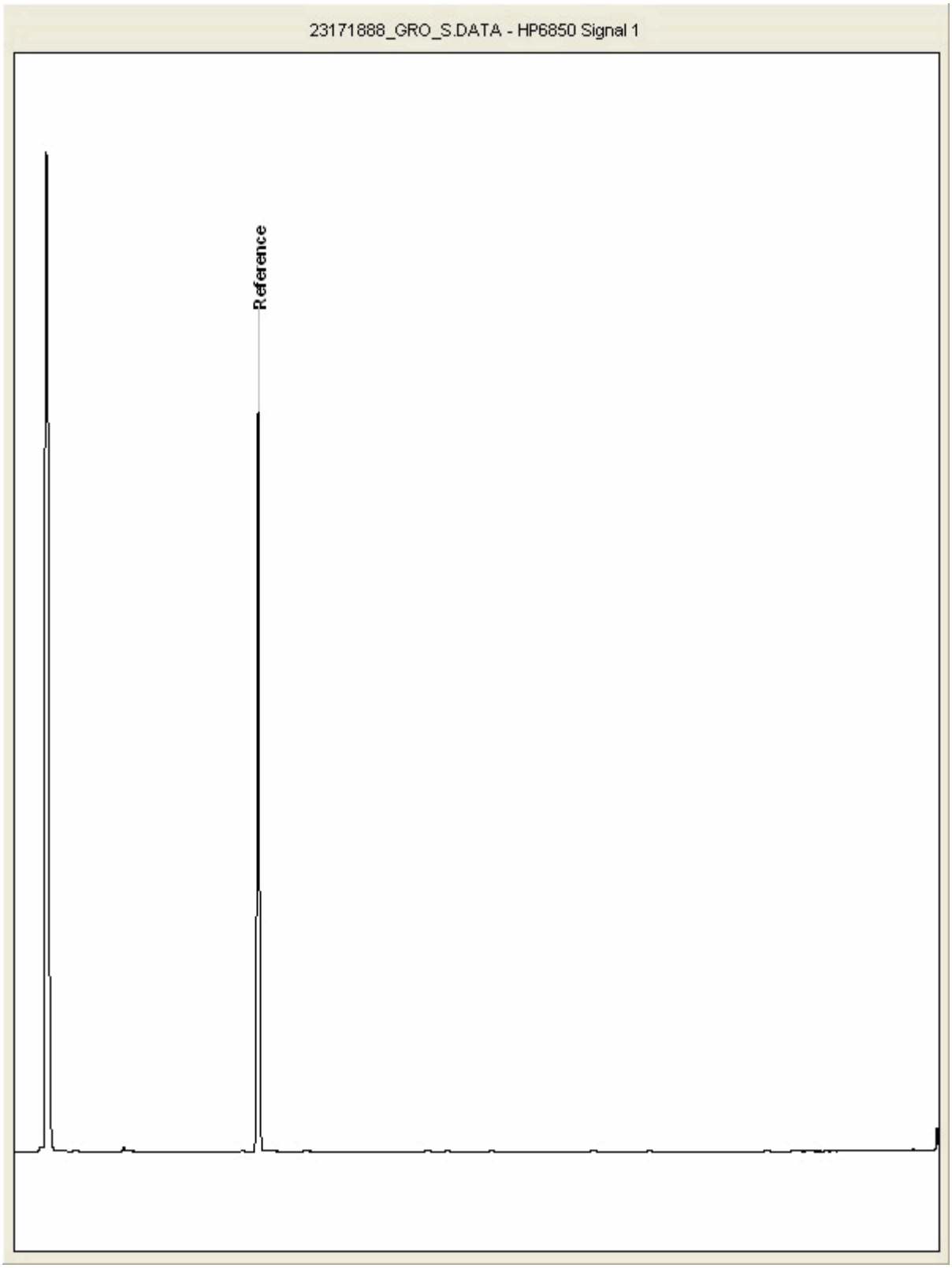
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23171888
Sample ID : TP304

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

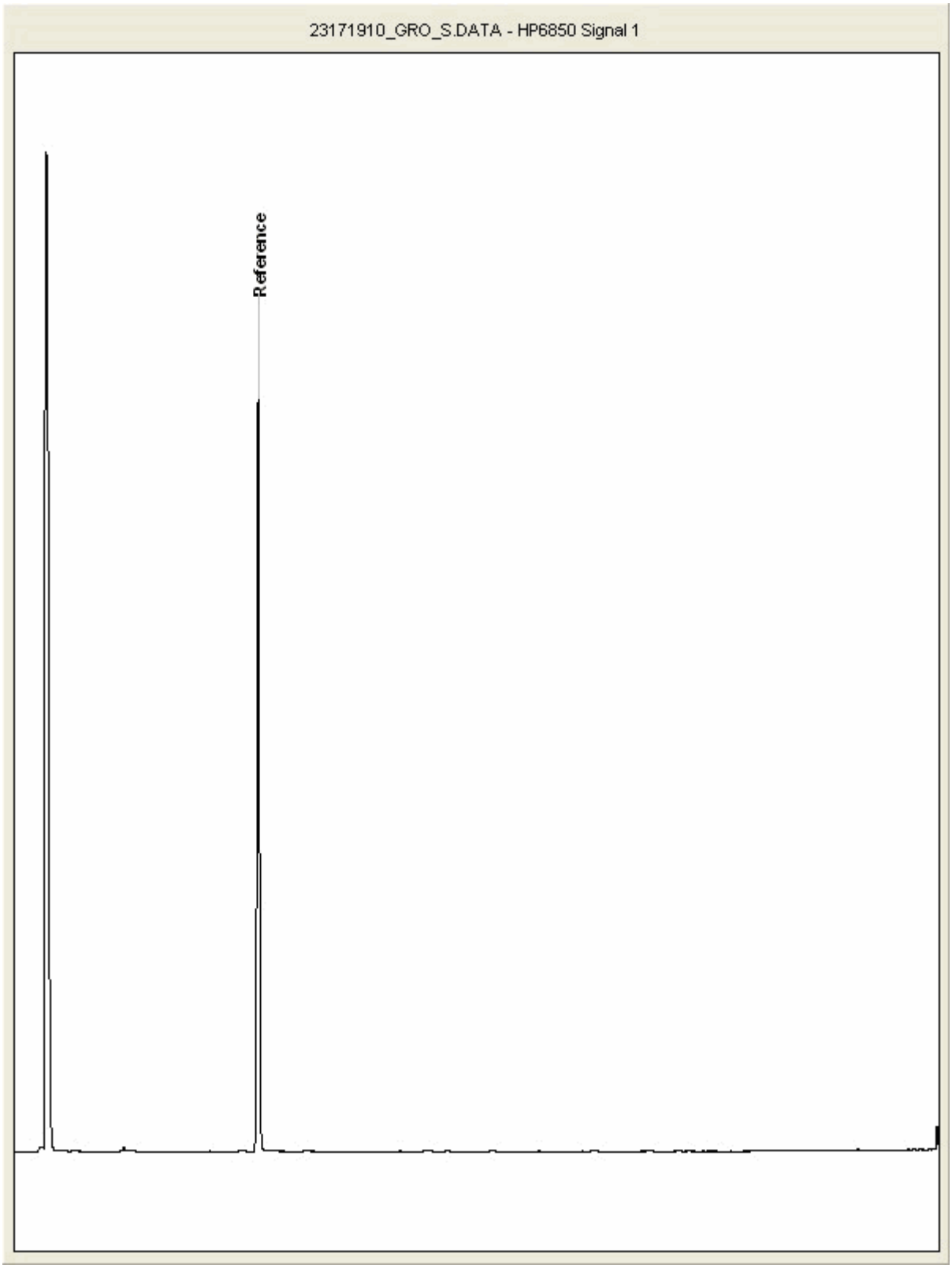
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23171910
Sample ID : TP315

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

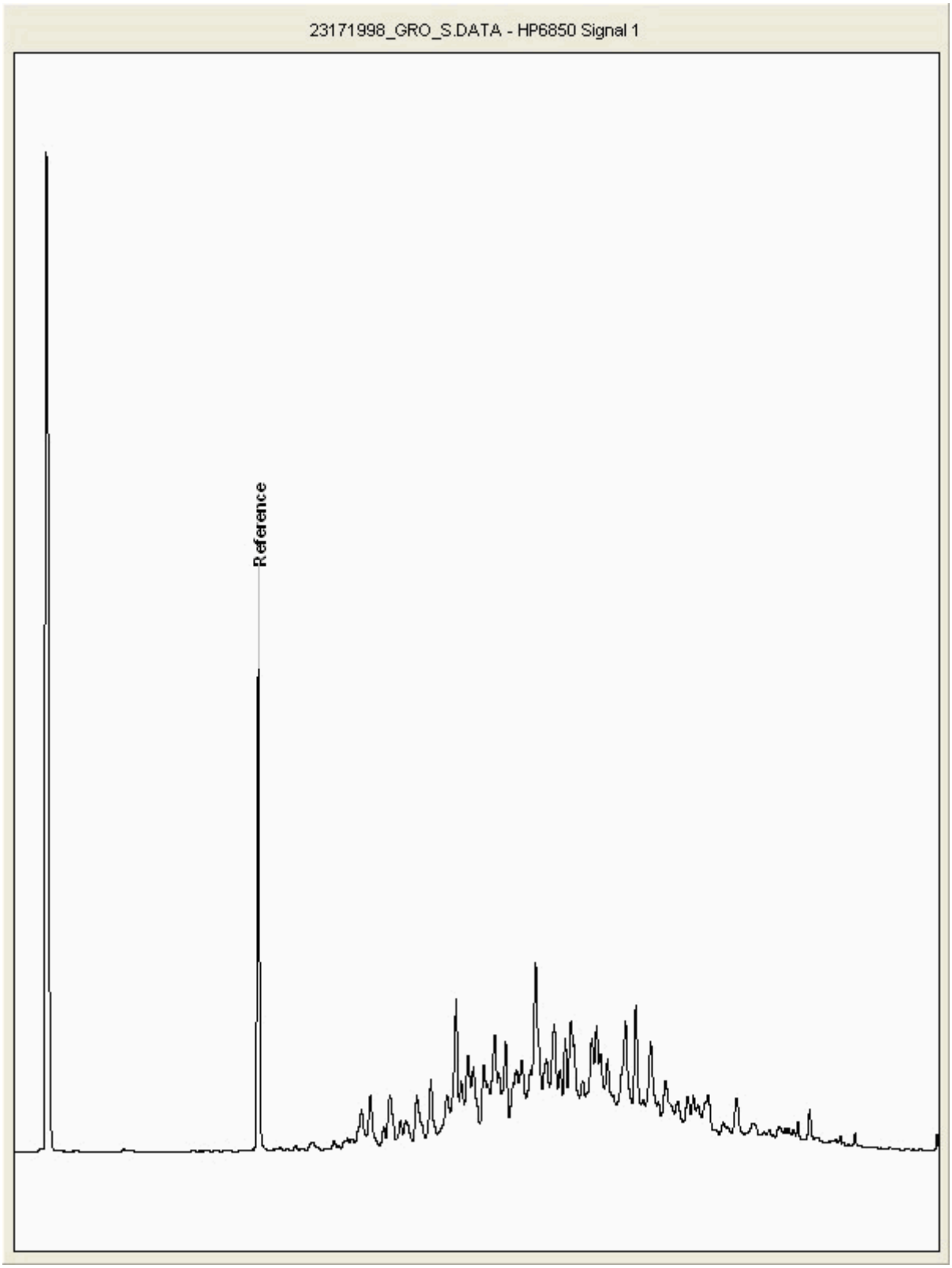
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23171998
Sample ID : TP315

Depth : 0.90 - 1.00



CERTIFICATE OF ANALYSIS

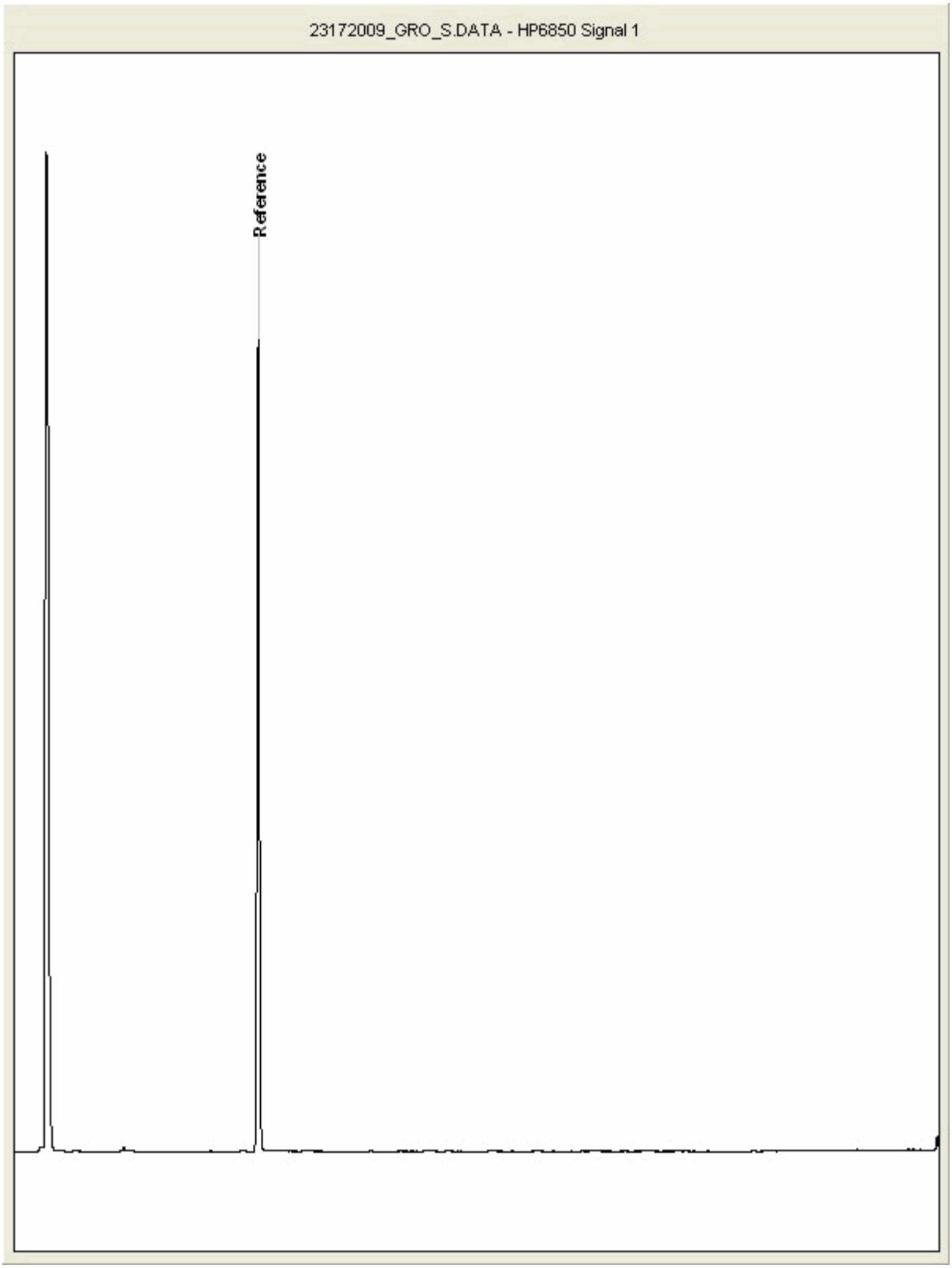
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172009
Sample ID : TP315

Depth : 2.50 - 2.60



CERTIFICATE OF ANALYSIS

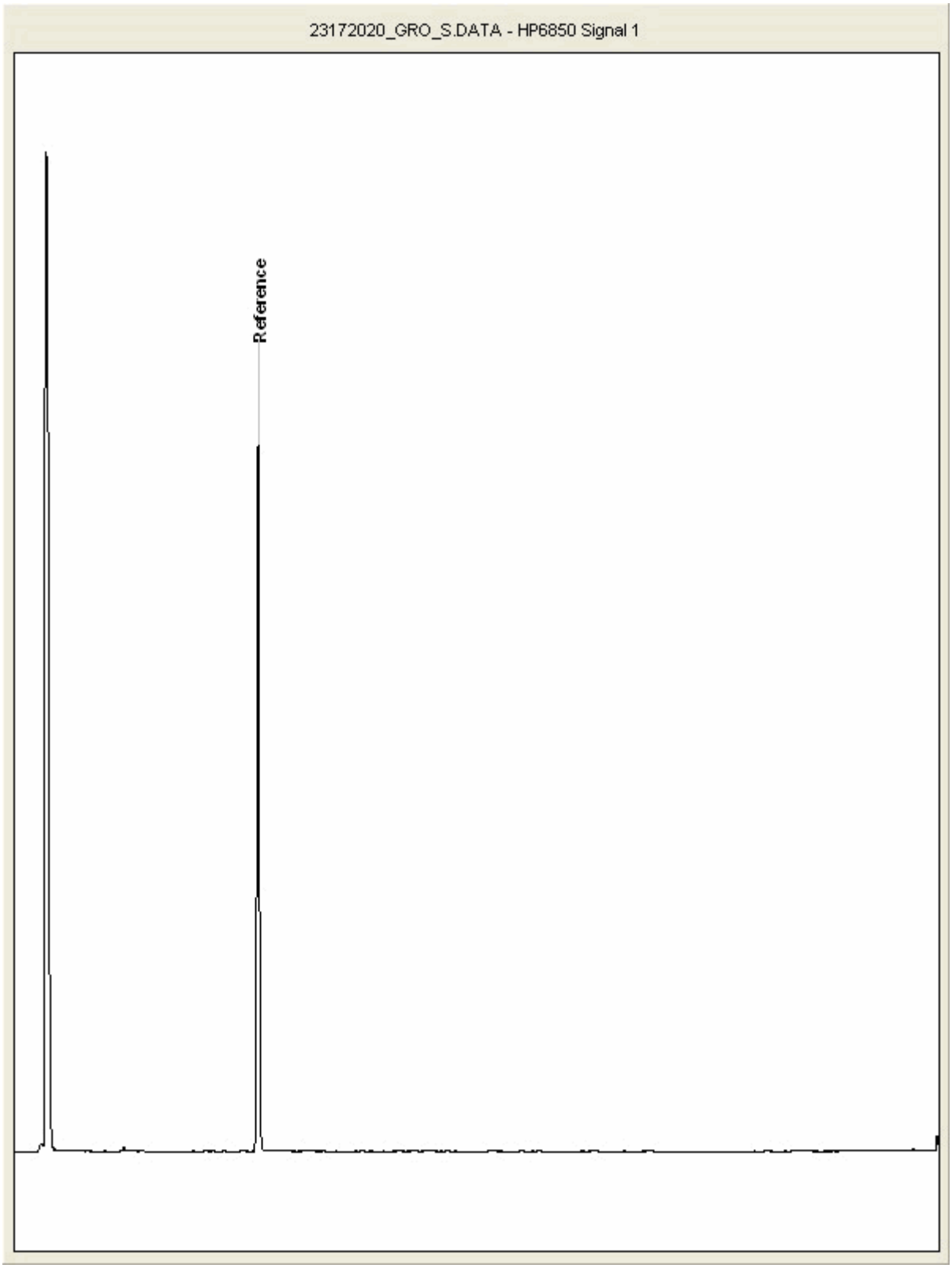
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172020
Sample ID : TP312

Depth : 3.00 - 3.10



CERTIFICATE OF ANALYSIS

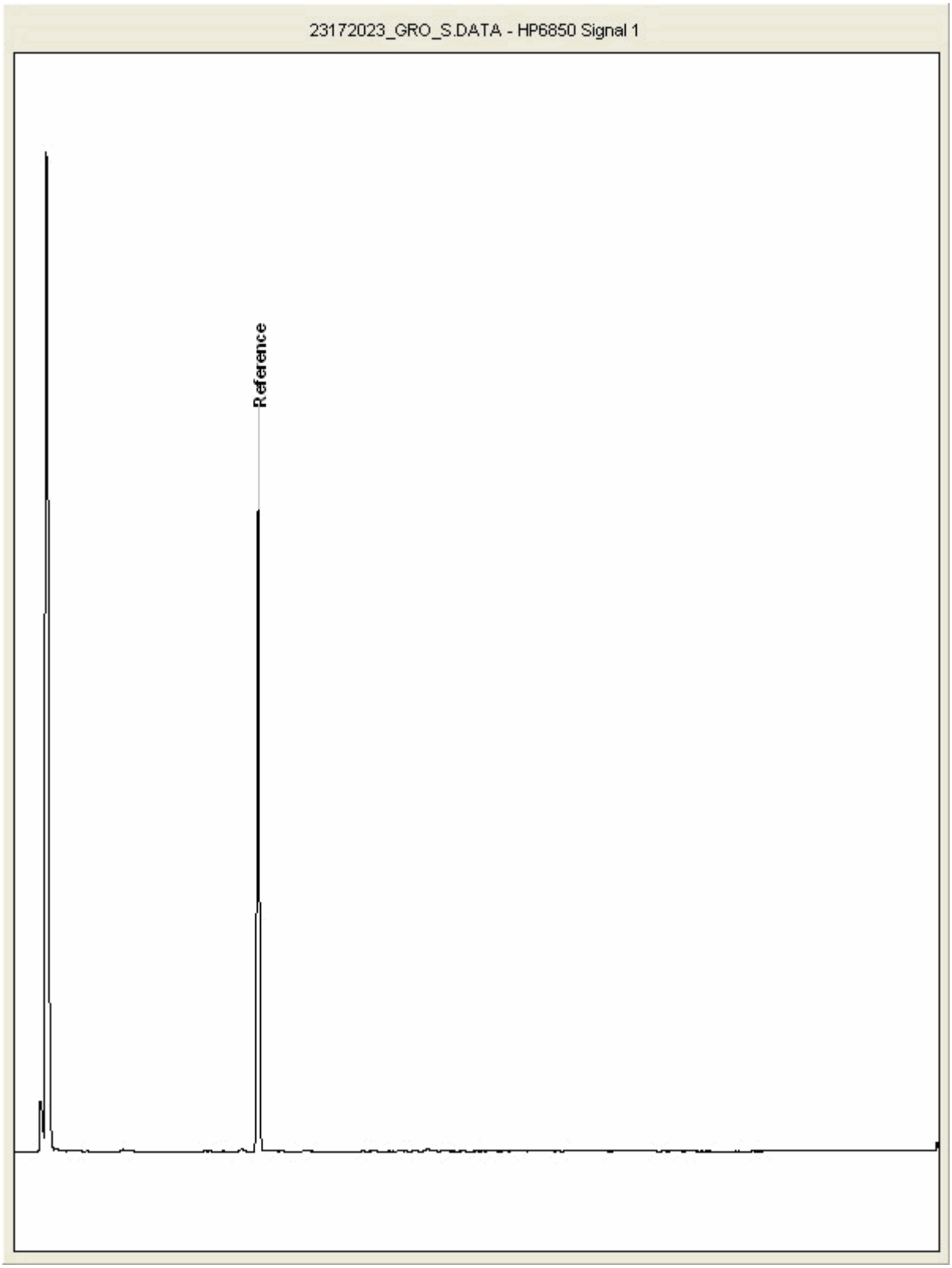
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172023
Sample ID : TP315

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

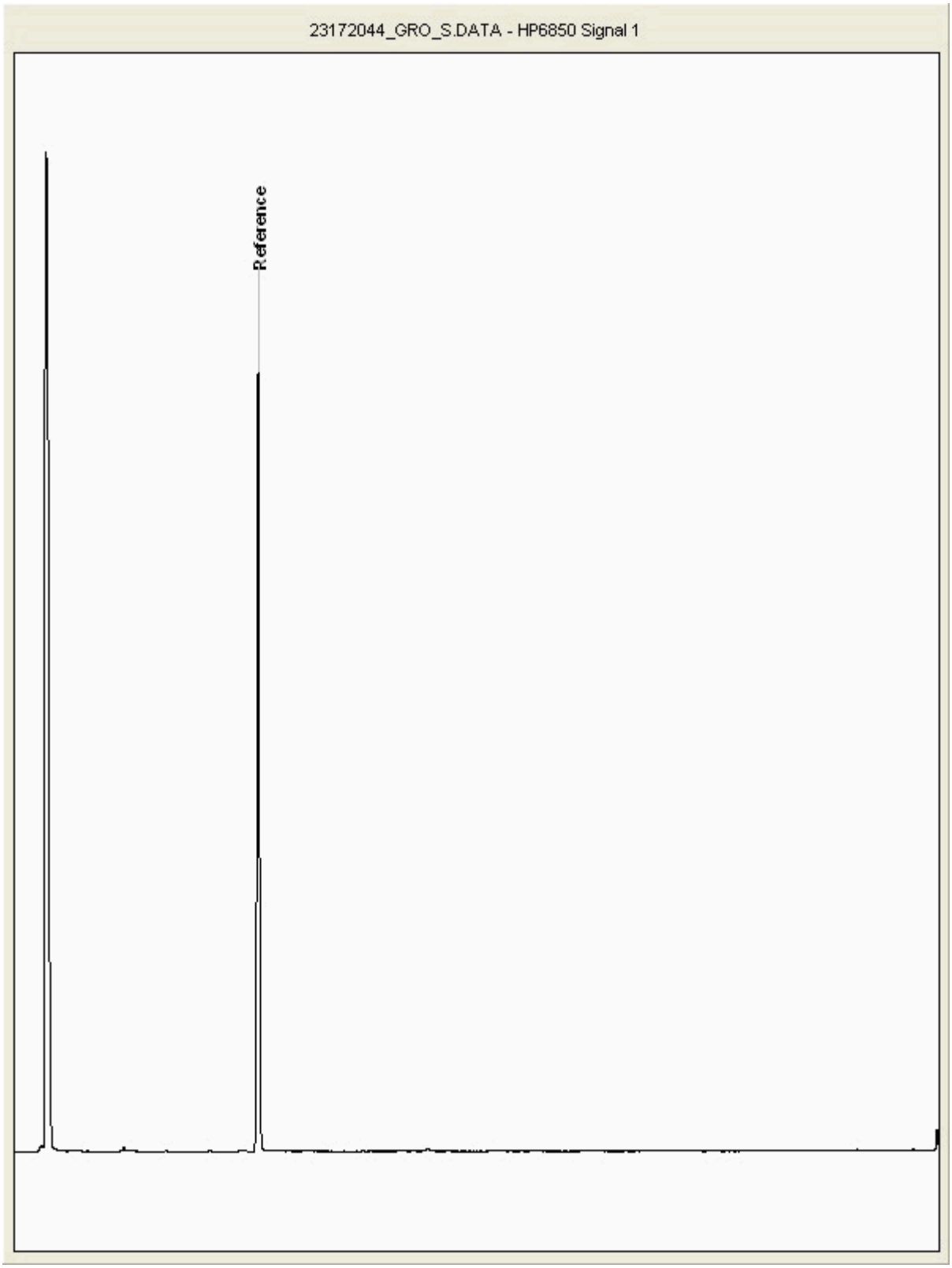
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172044
Sample ID : TP301

Depth : 1.60 - 1.70



CERTIFICATE OF ANALYSIS

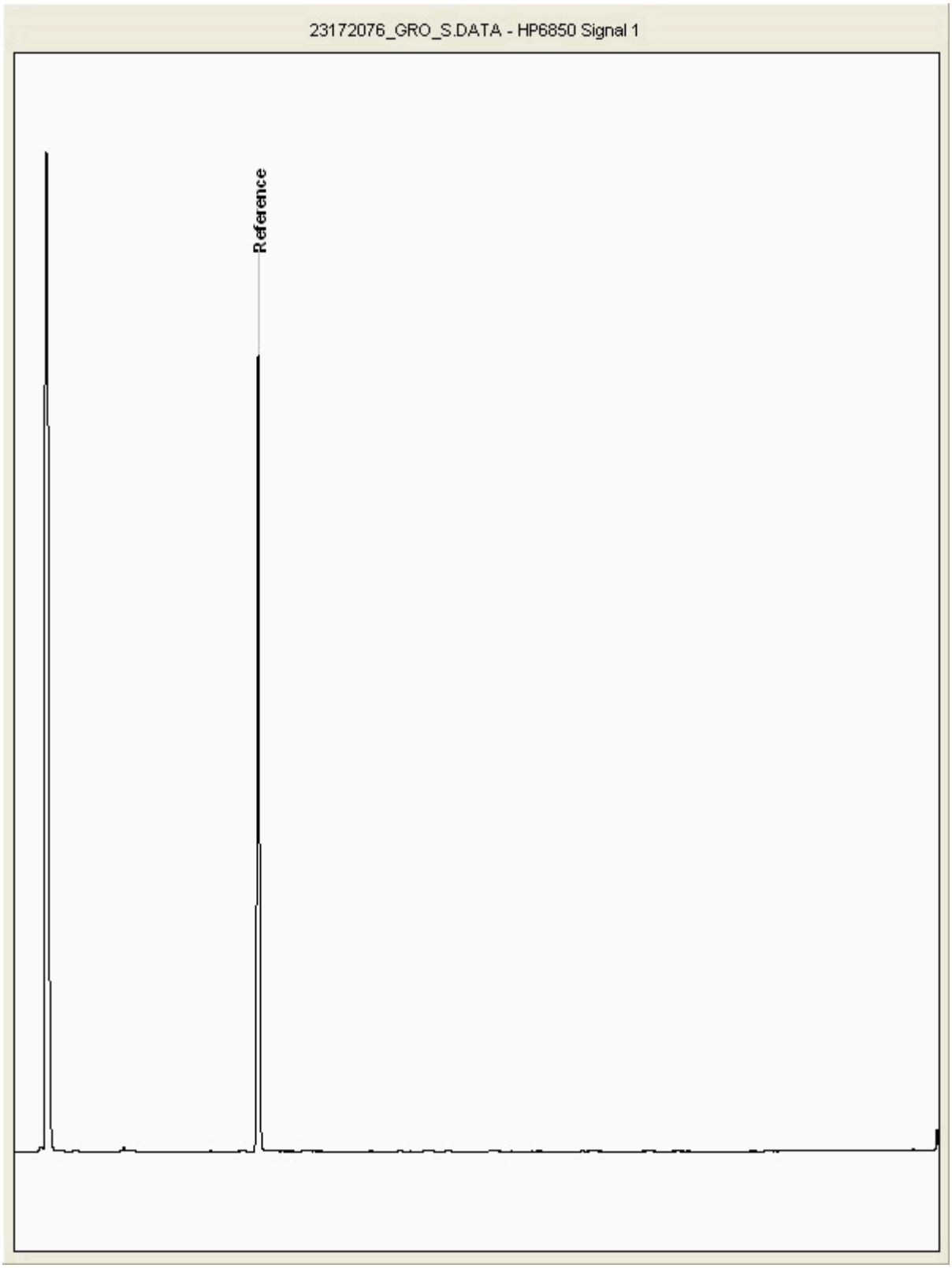
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172076
Sample ID : TP301

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

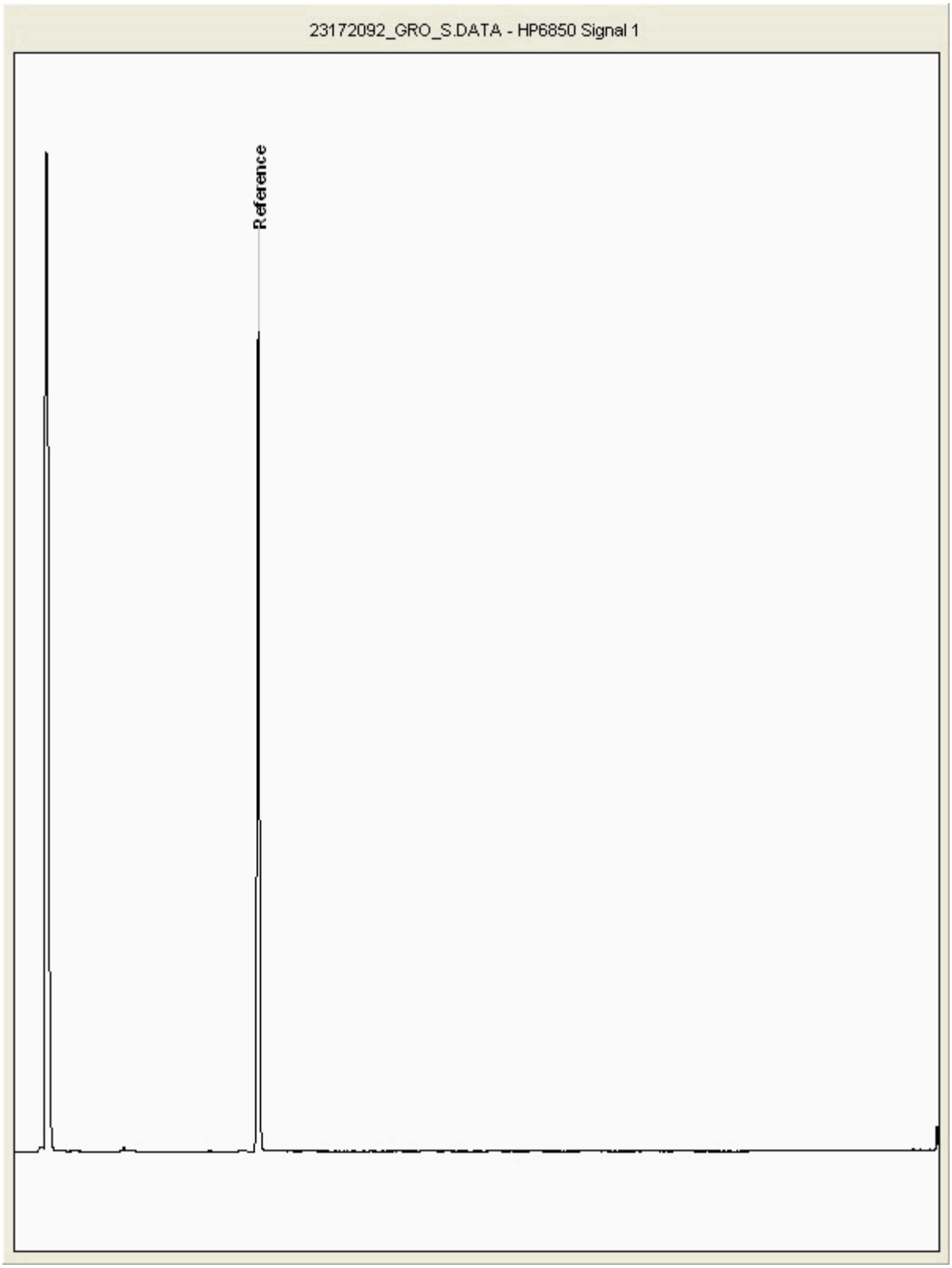
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172092
Sample ID : TP301

Depth : 0.90 - 1.00



CERTIFICATE OF ANALYSIS

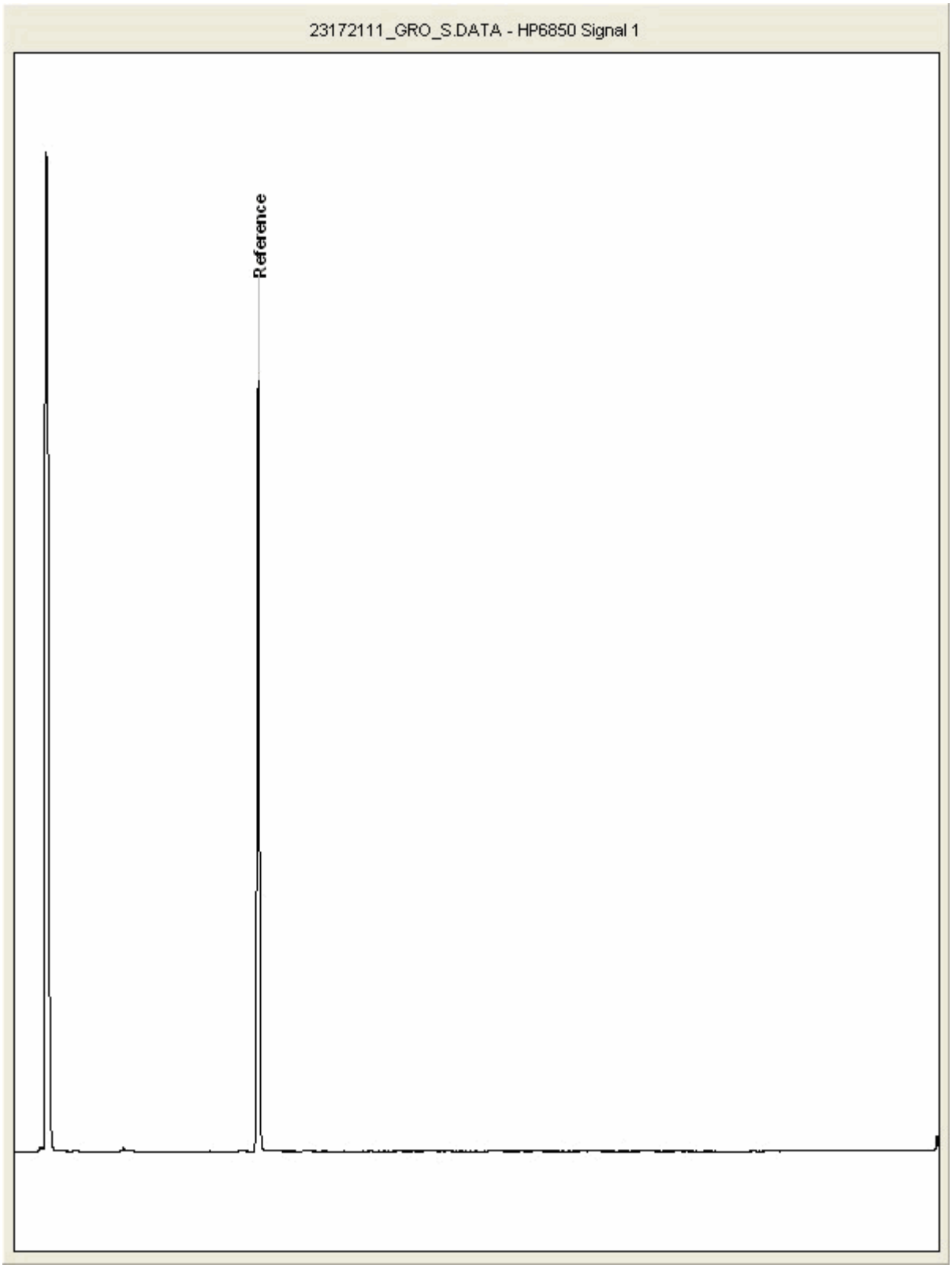
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172111
Sample ID : TP310

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

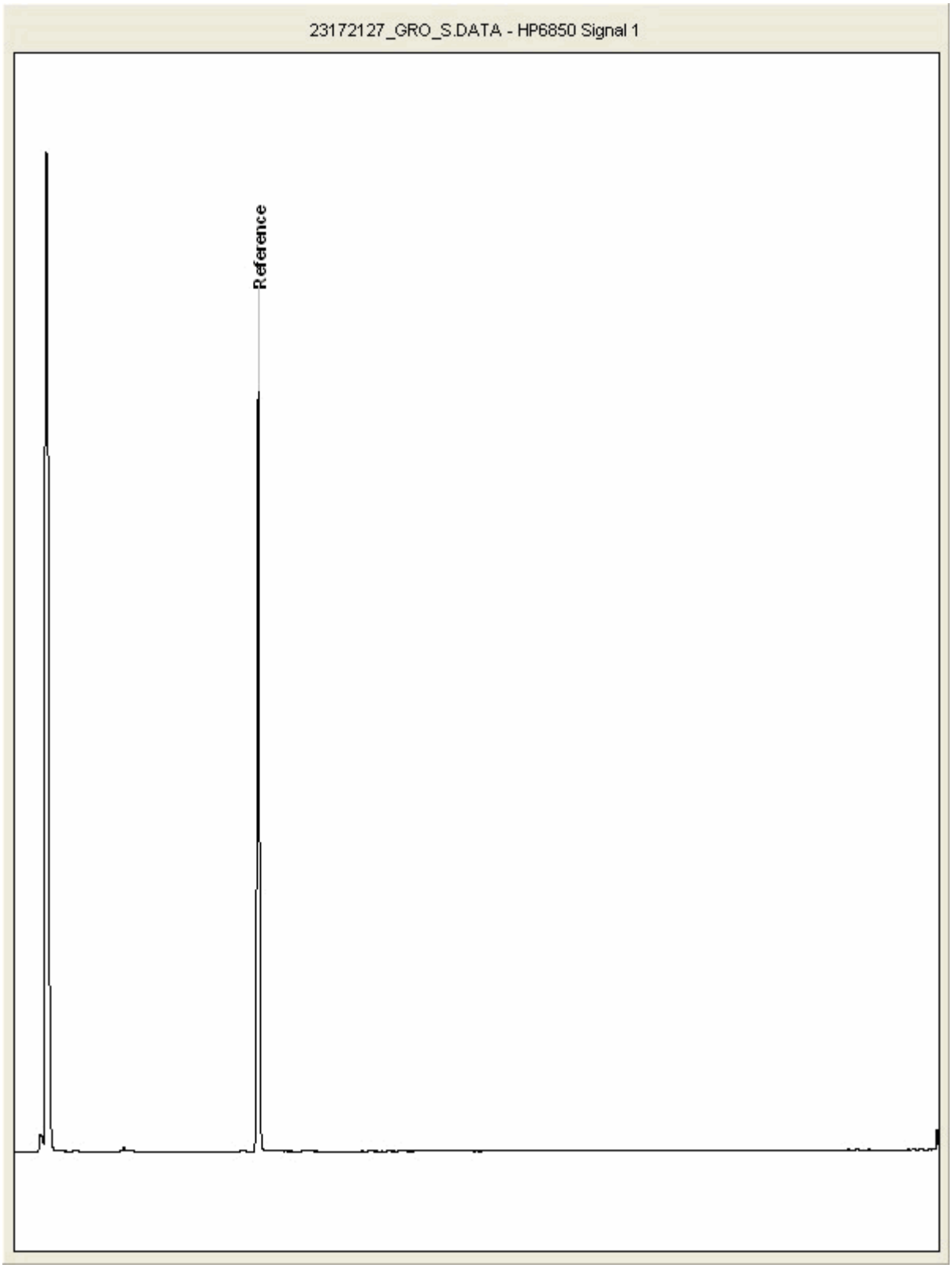
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172127
Sample ID : TP310

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

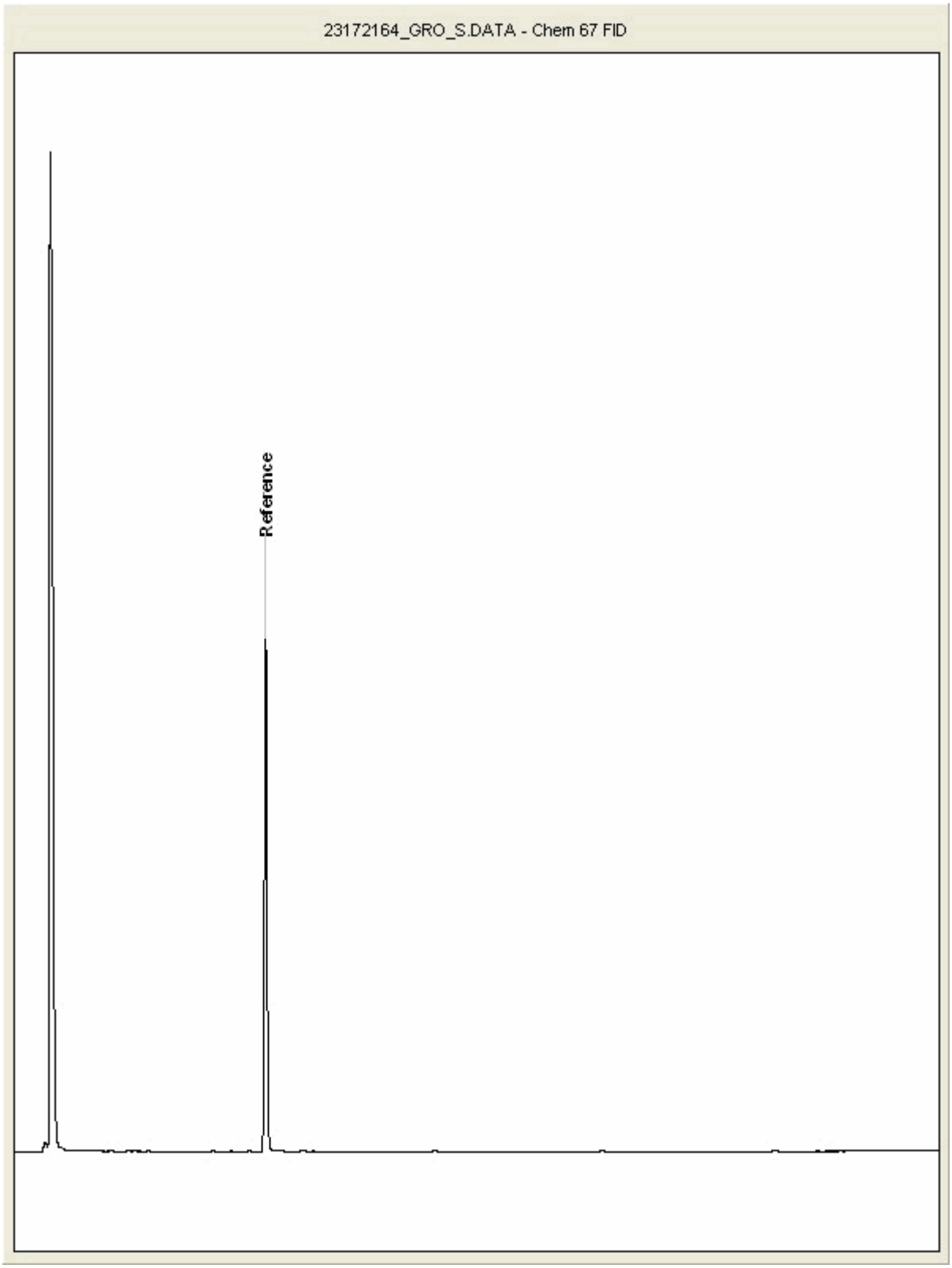
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172164
Sample ID : TP314

Depth : 1.80 - 1.90



CERTIFICATE OF ANALYSIS

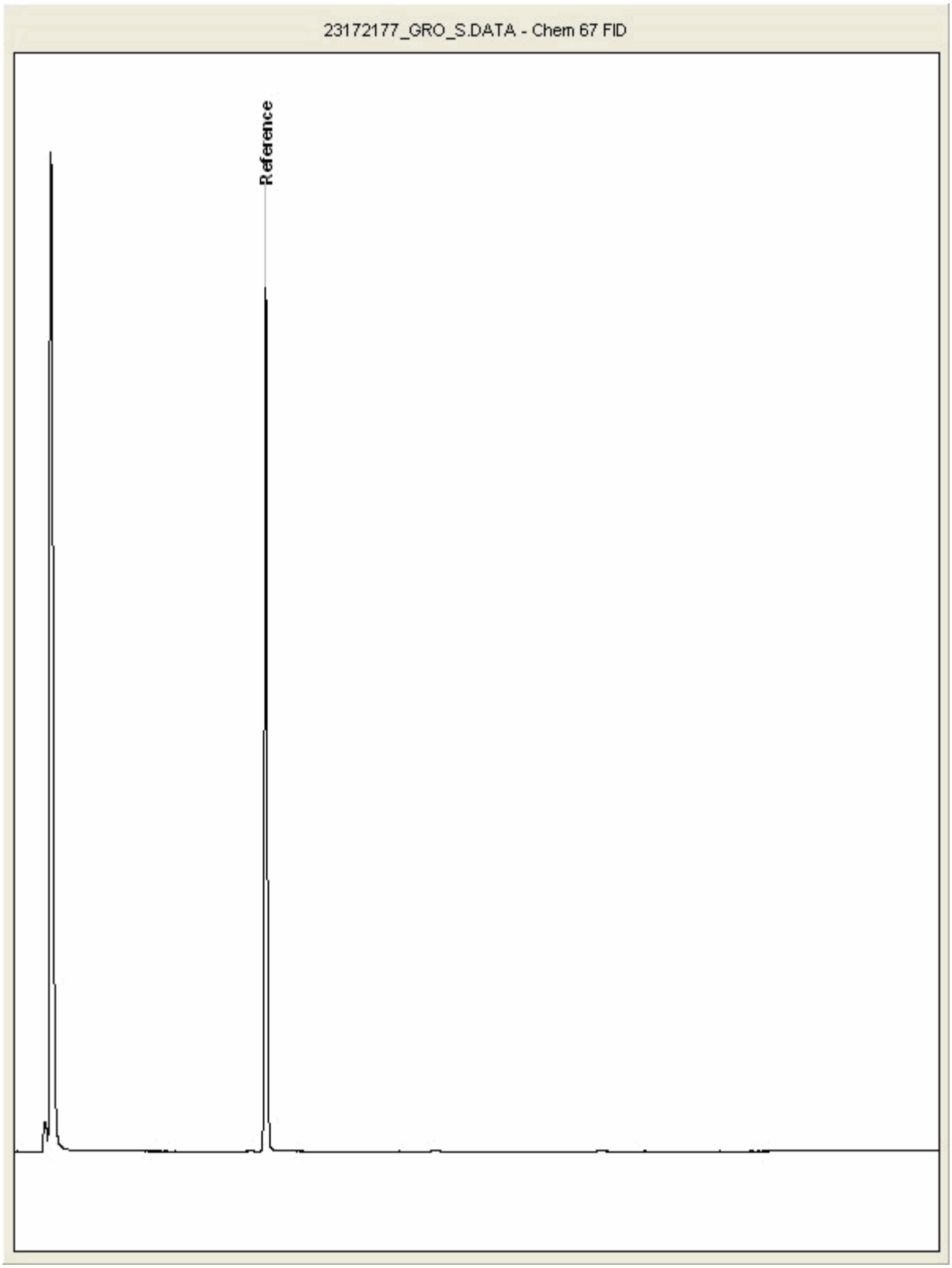
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172177
Sample ID : TP314

Depth : 2.90 - 3.00



CERTIFICATE OF ANALYSIS

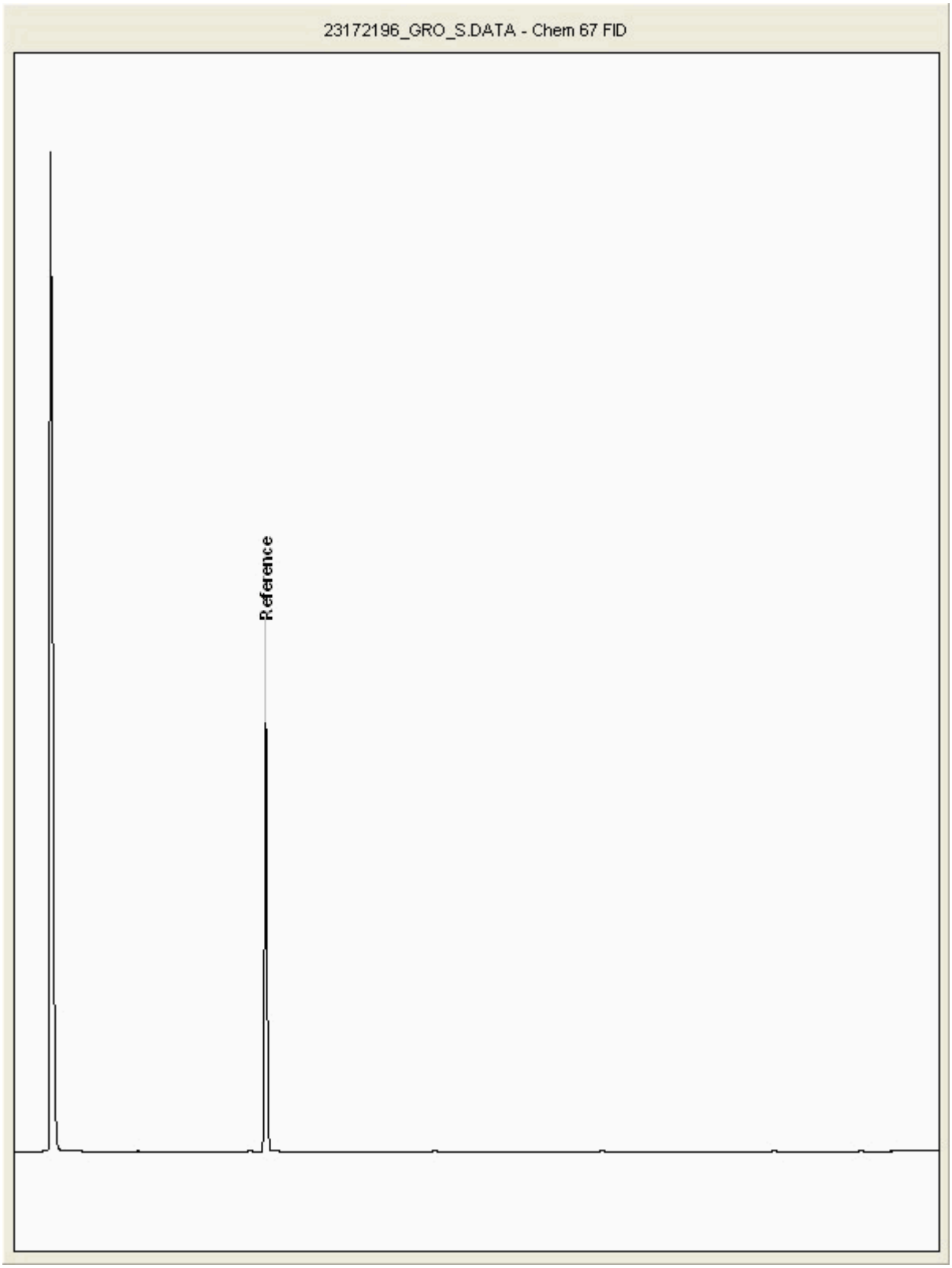
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172196
Sample ID : TP209

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

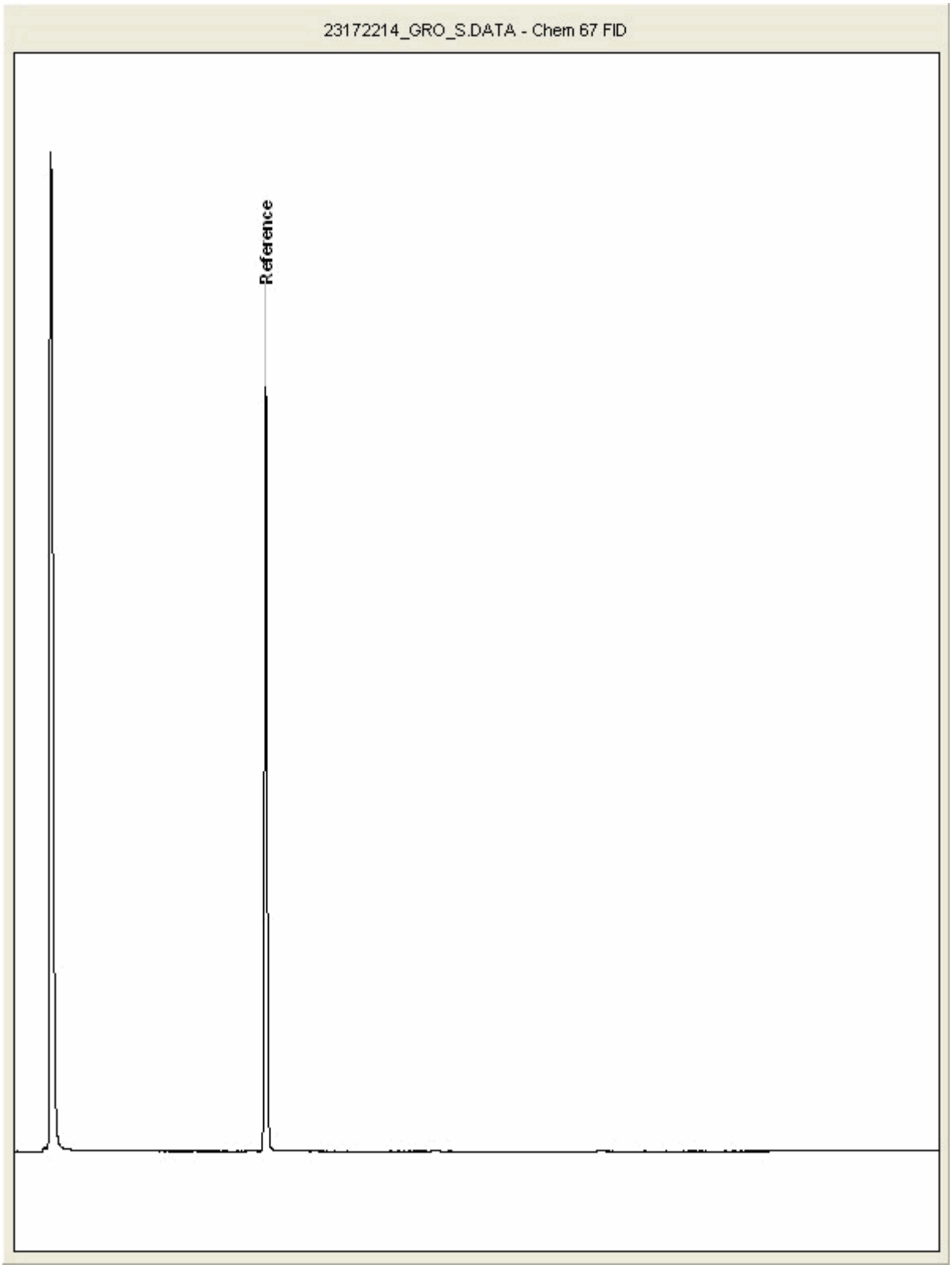
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172214
Sample ID : TP314

Depth : 0.50 - 0.60



CERTIFICATE OF ANALYSIS

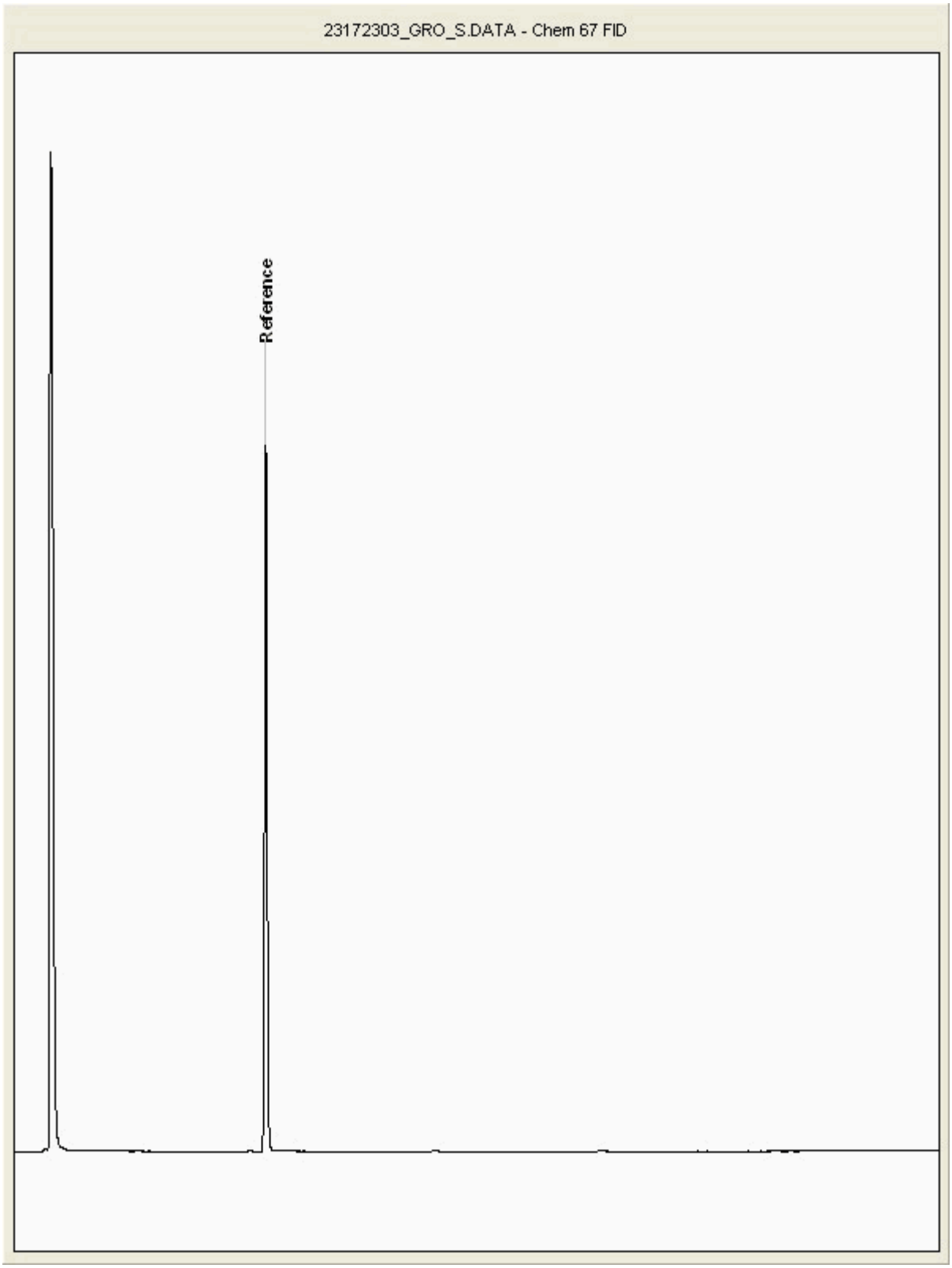
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23172303
Sample ID : TP209

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

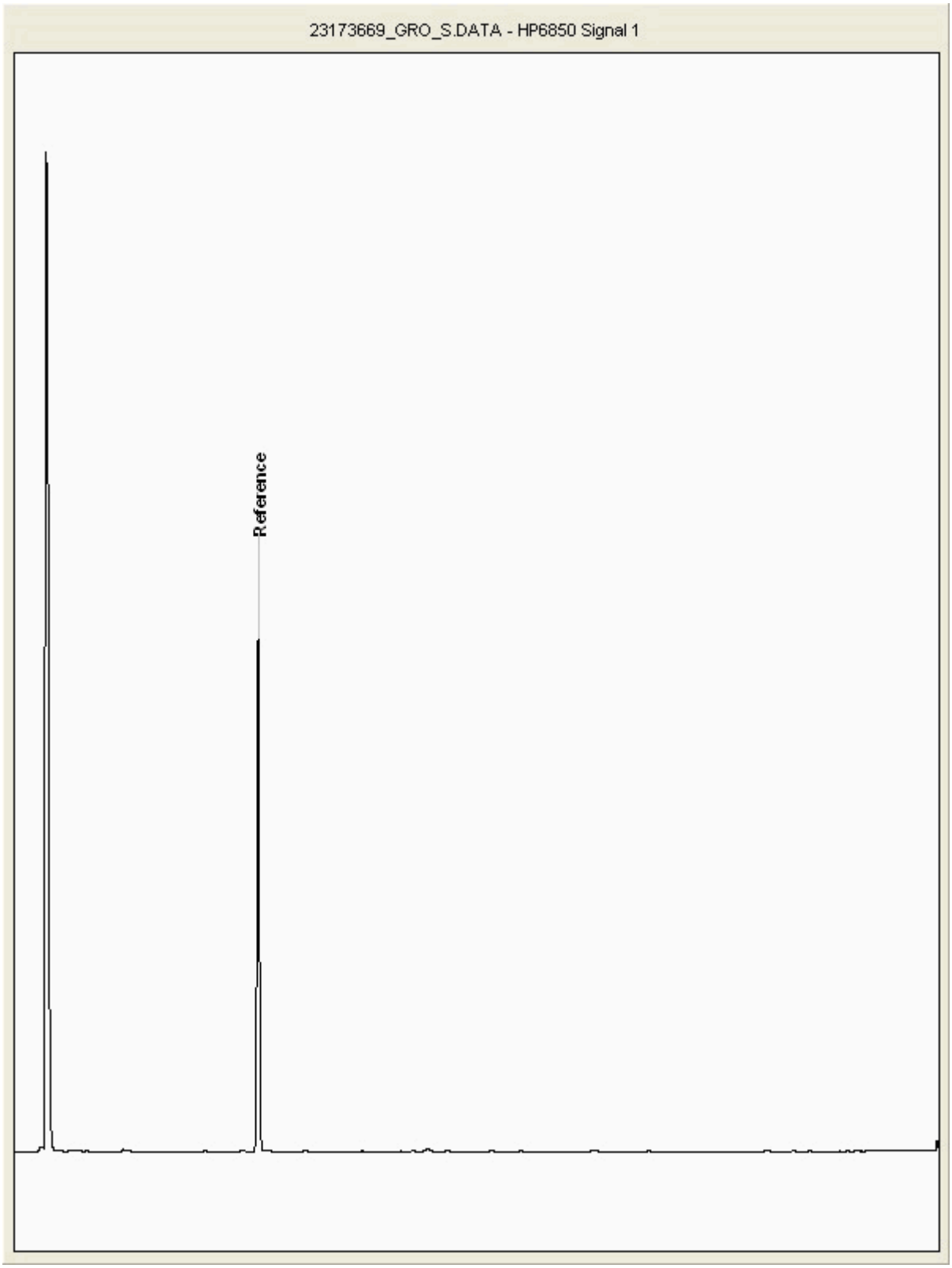
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23173669
Sample ID : TP301

Depth : 2.90 - 3.00



CERTIFICATE OF ANALYSIS

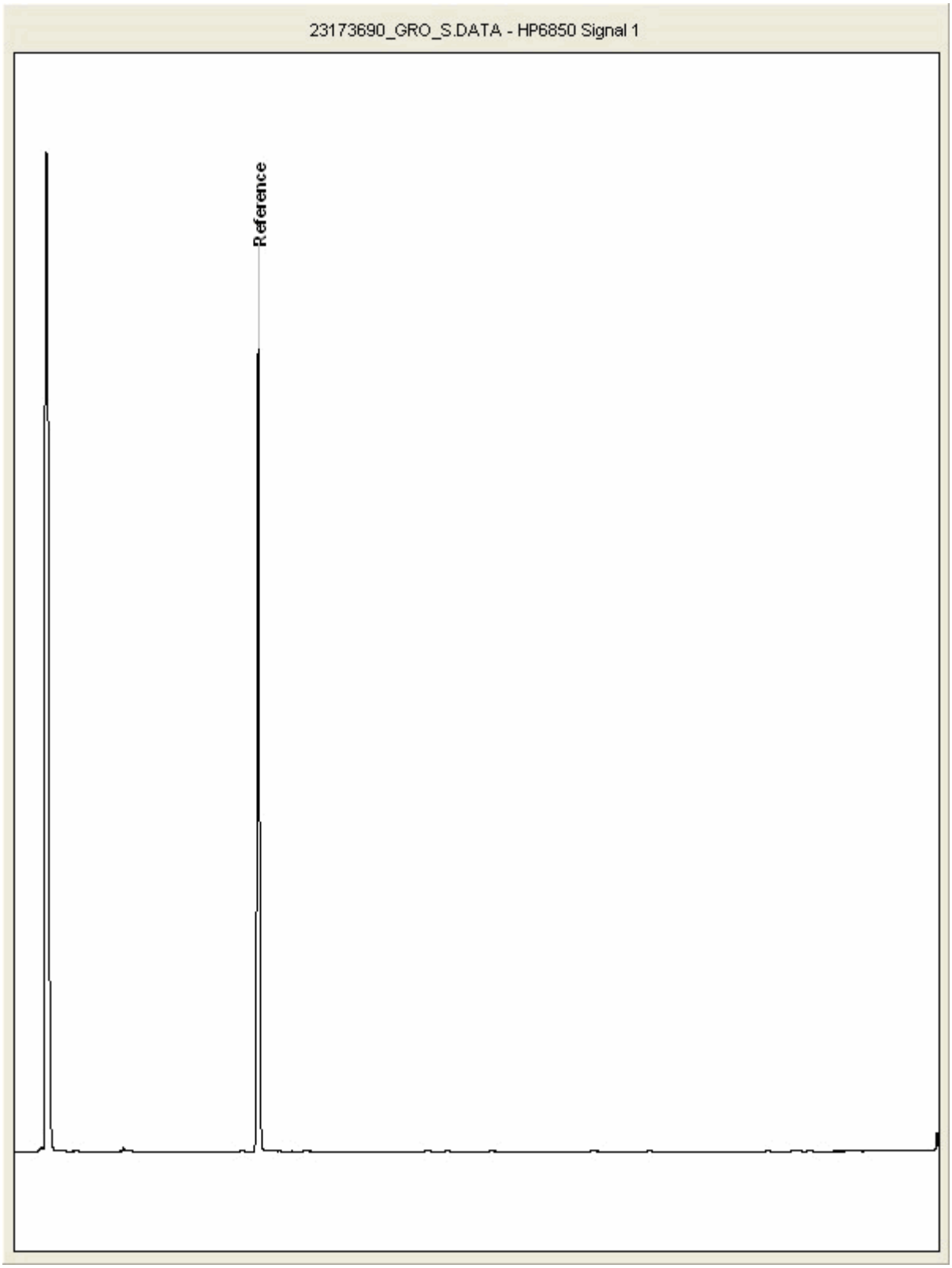
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23173690
Sample ID : TP210

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

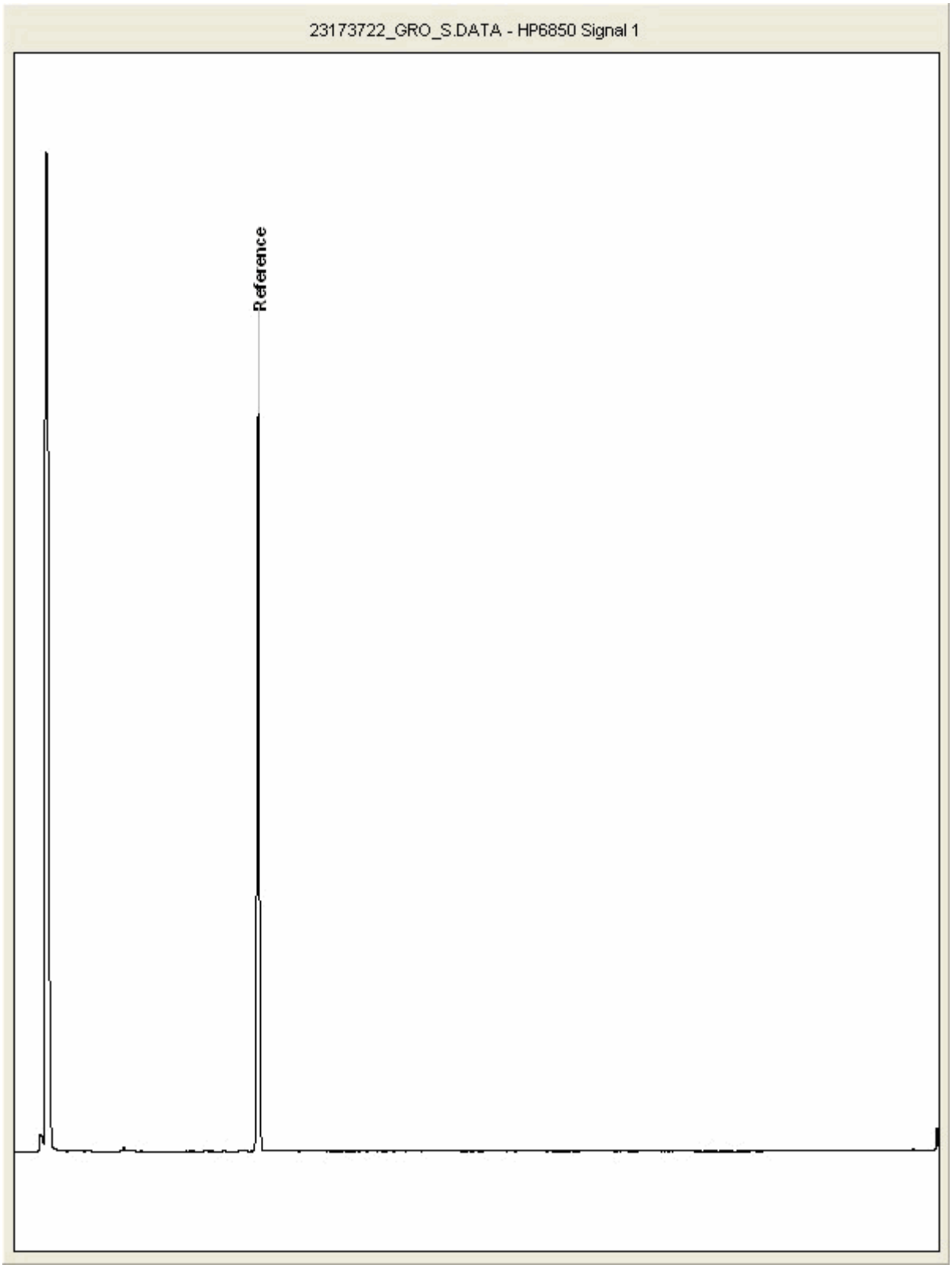
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23173722
Sample ID : TP312

Depth : 1.40 - 1.50



CERTIFICATE OF ANALYSIS

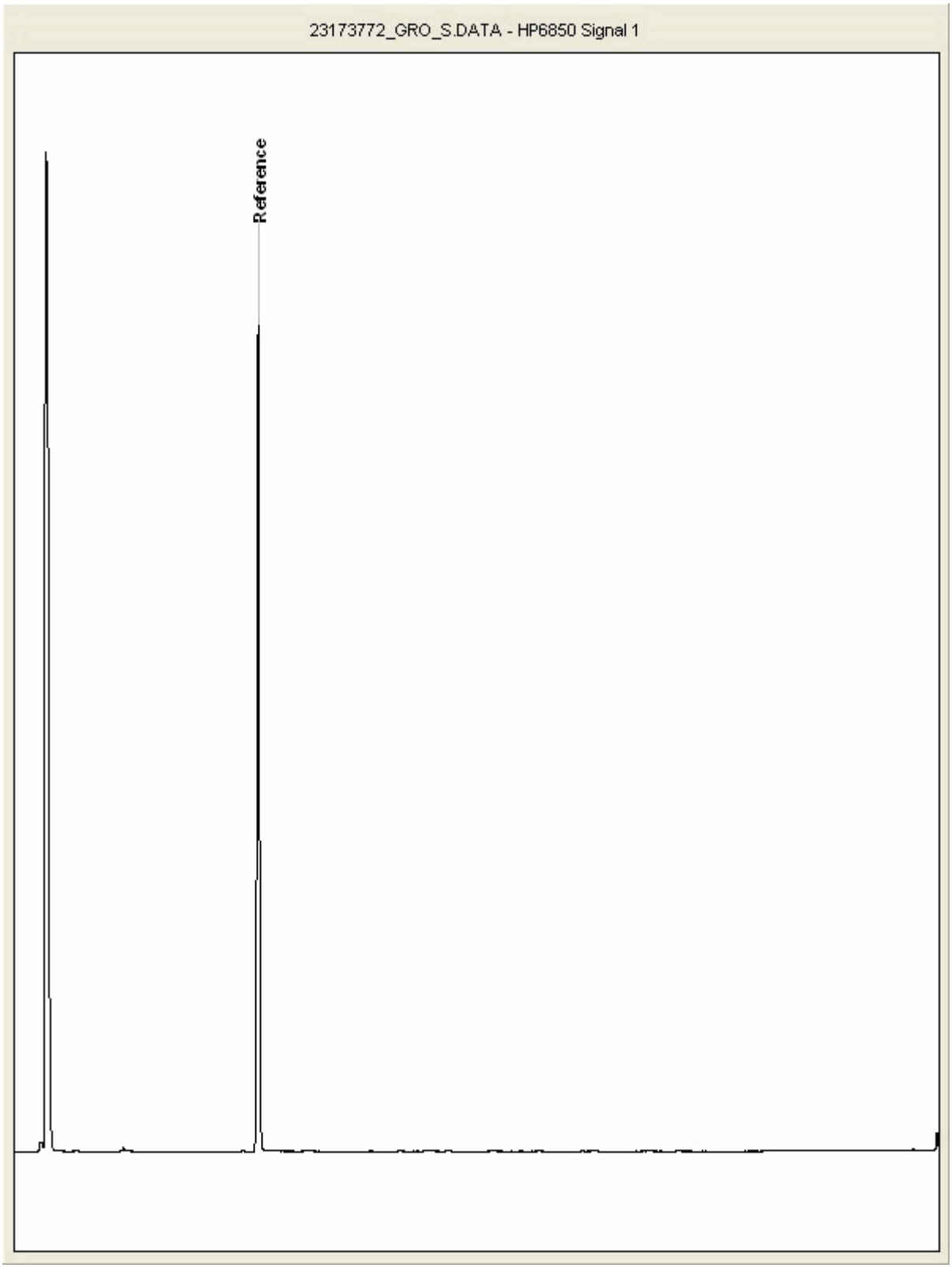
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23173772
Sample ID : TP312

Depth : 2.10 - 2.20



CERTIFICATE OF ANALYSIS

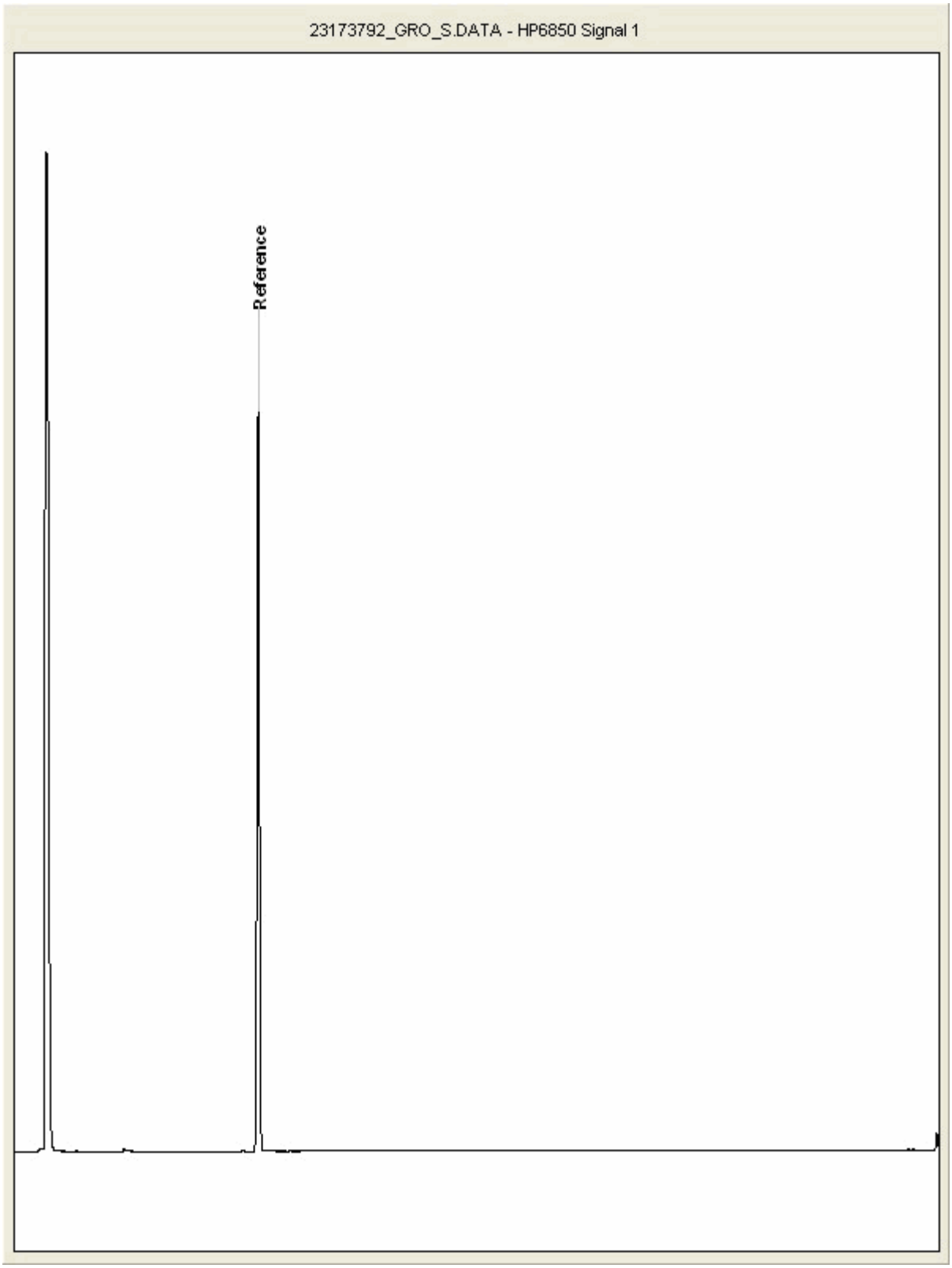
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23173792
Sample ID : TP210

Depth : 1.50 - 1.60



CERTIFICATE OF ANALYSIS

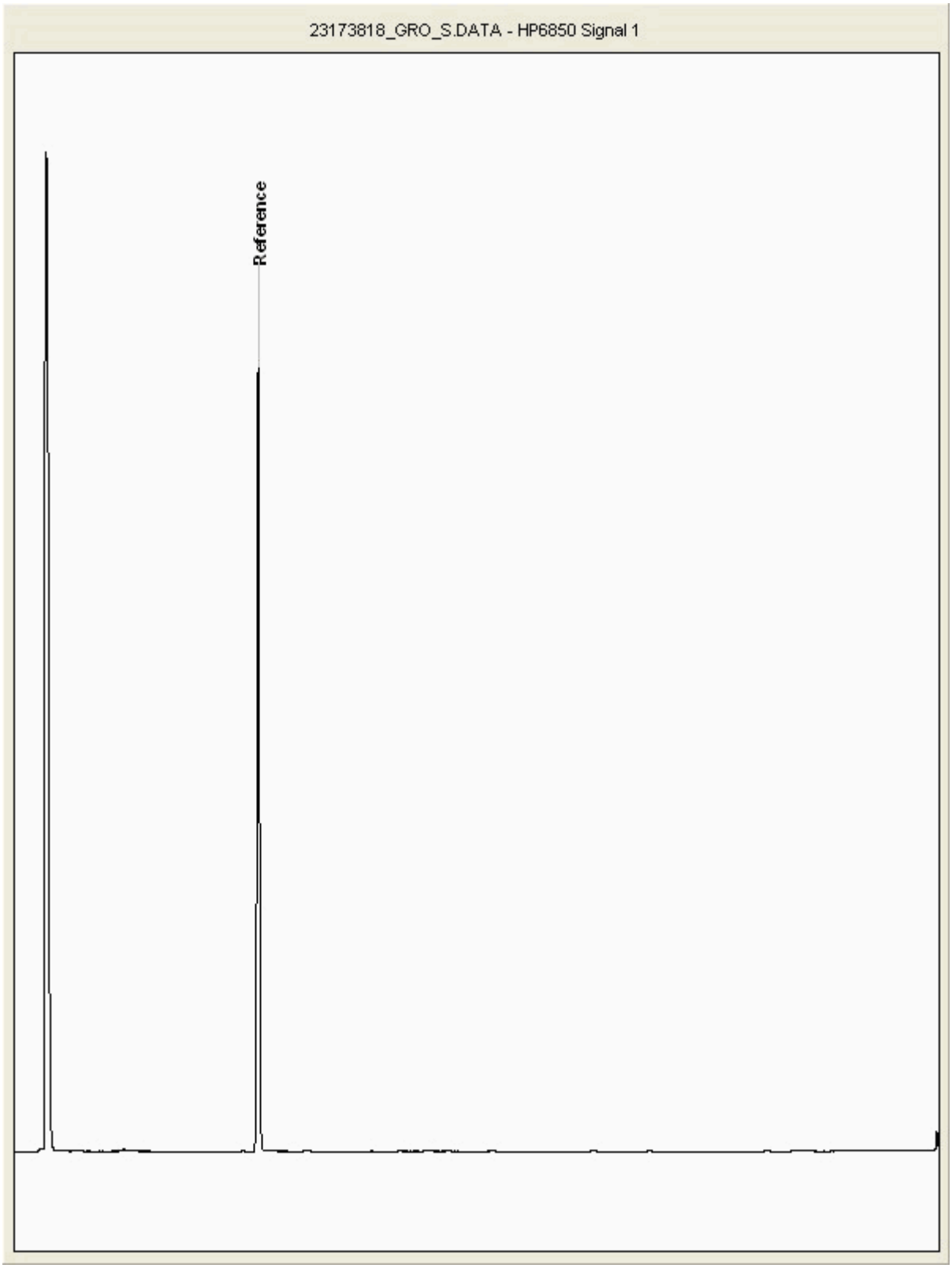
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23173818
Sample ID : TP312

Depth : 0.80 - 0.90



CERTIFICATE OF ANALYSIS

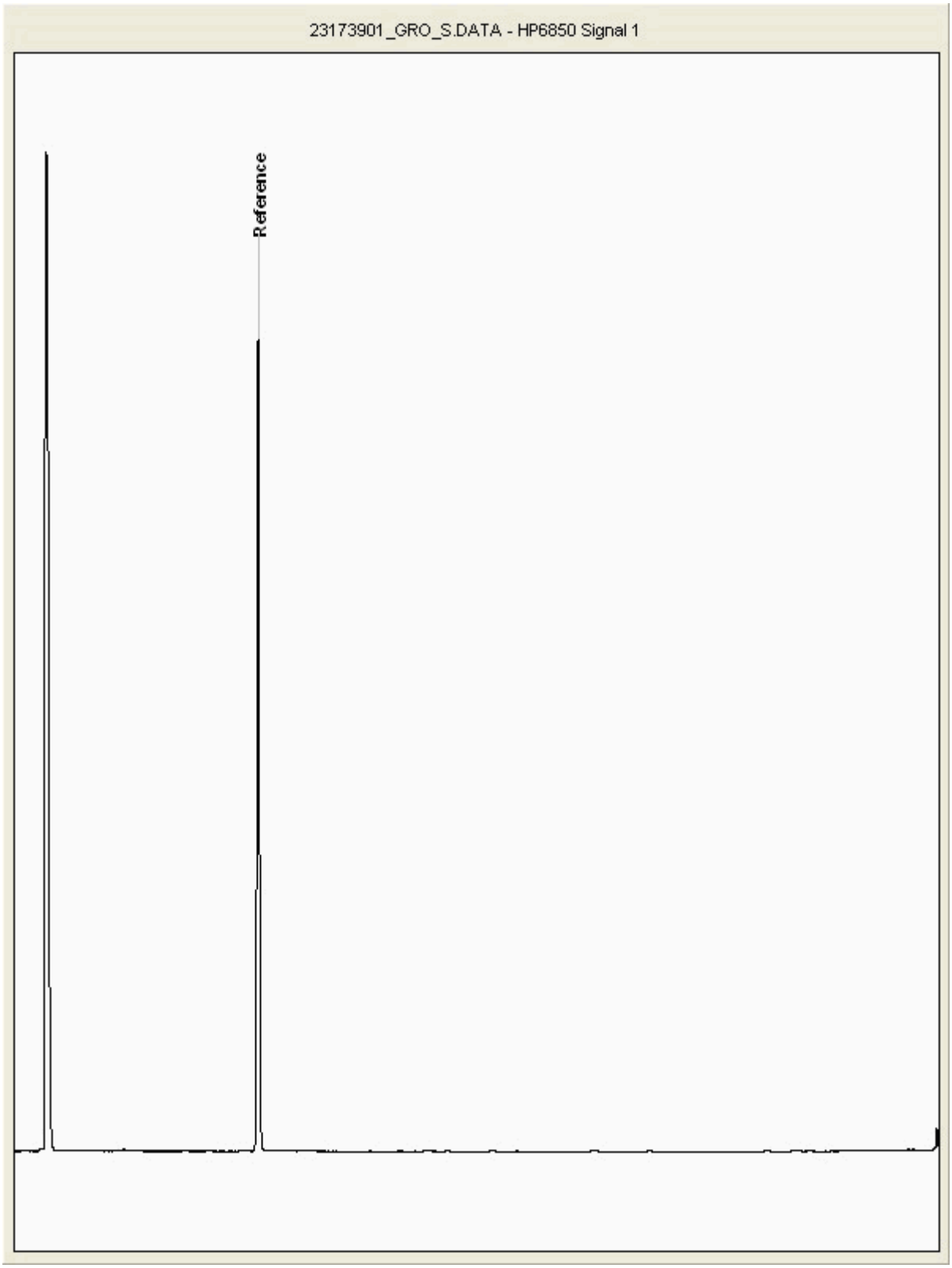
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23173901
Sample ID : TP312

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

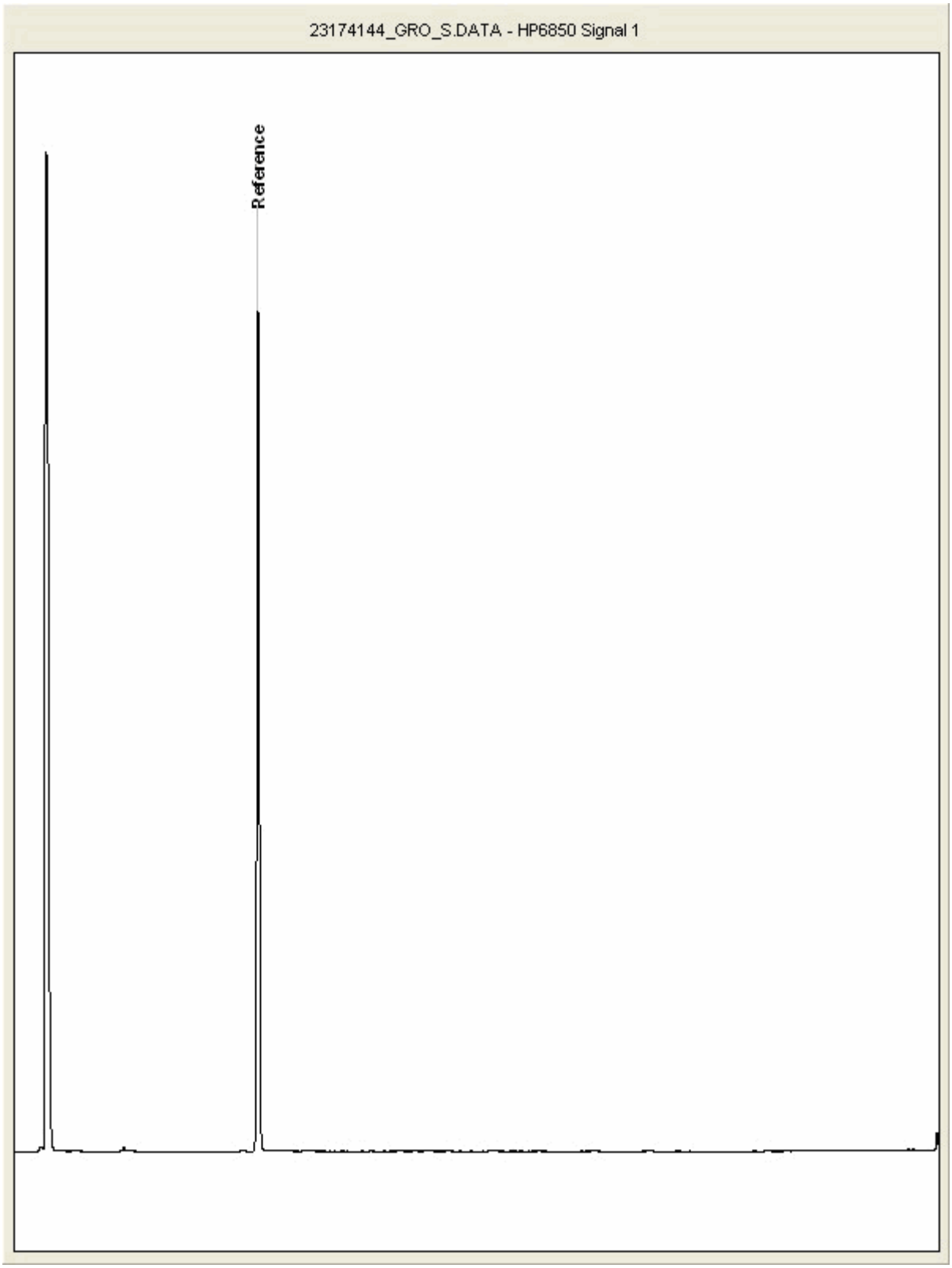
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23174144
Sample ID : TP304

Depth : 3.20 - 3.30



CERTIFICATE OF ANALYSIS

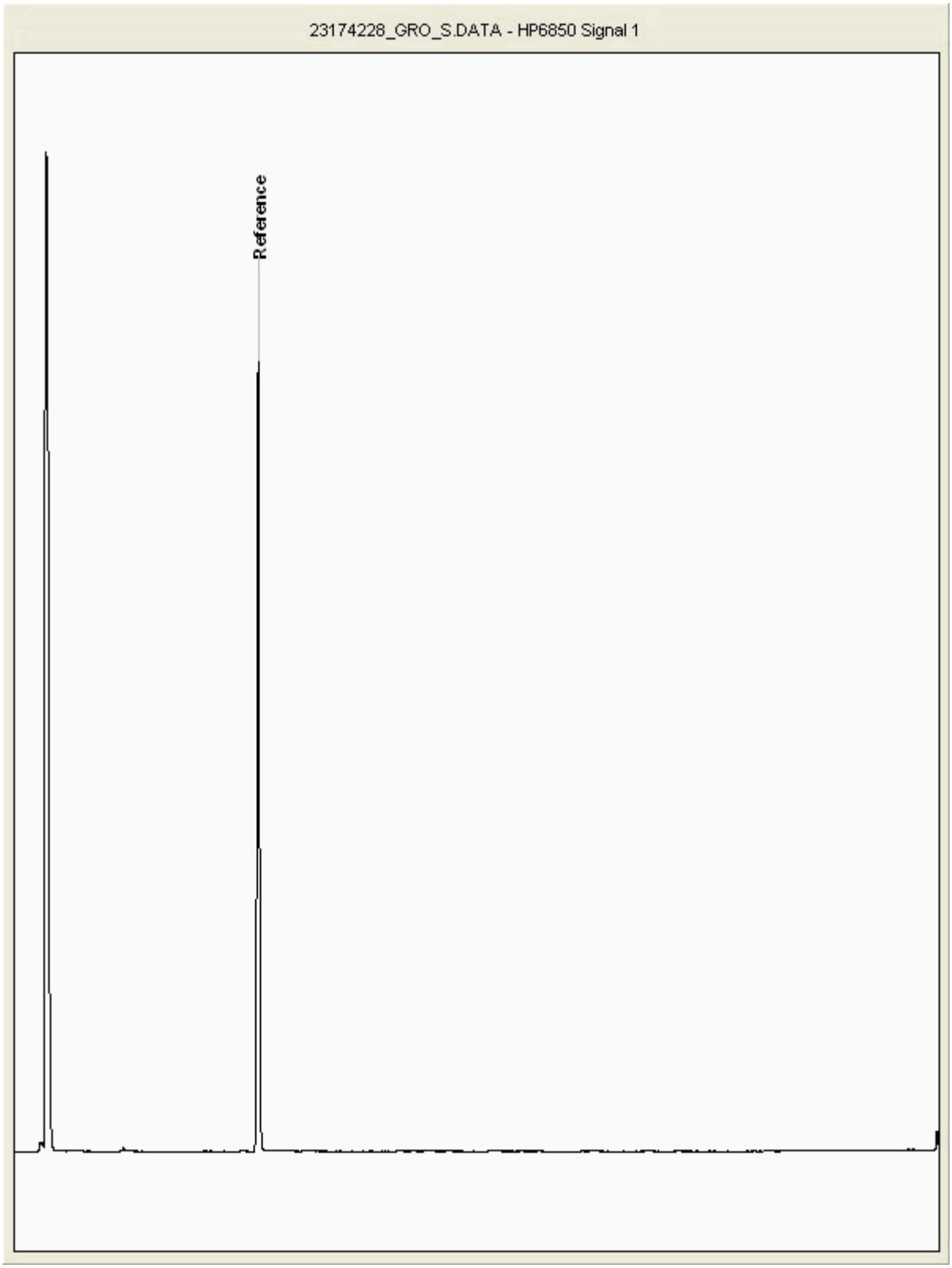
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23174228
Sample ID : TP304

Depth : 1.60 - 1.70



CERTIFICATE OF ANALYSIS

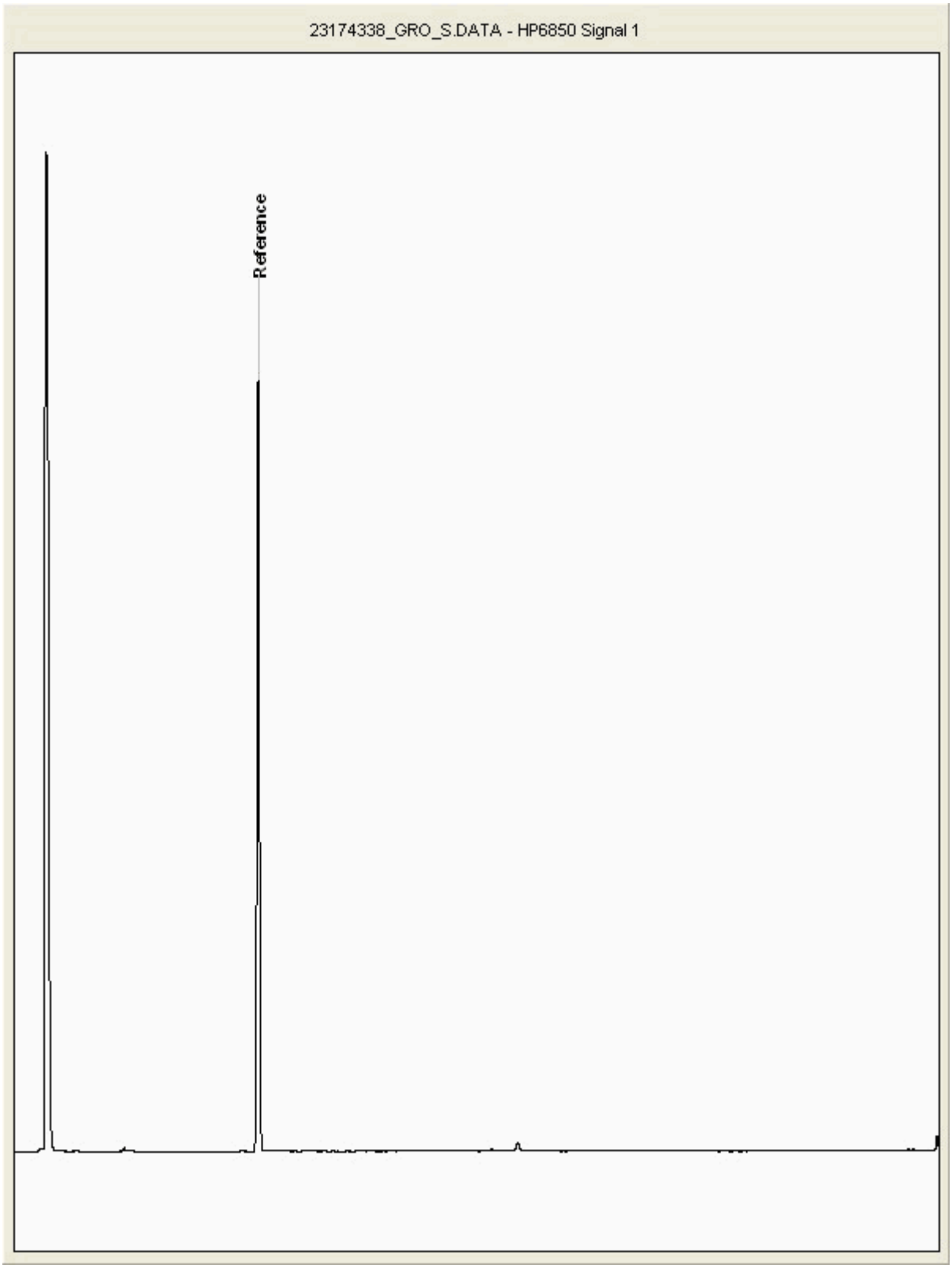
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23174338
Sample ID : TP302

Depth : 0.40 - 0.50



CERTIFICATE OF ANALYSIS

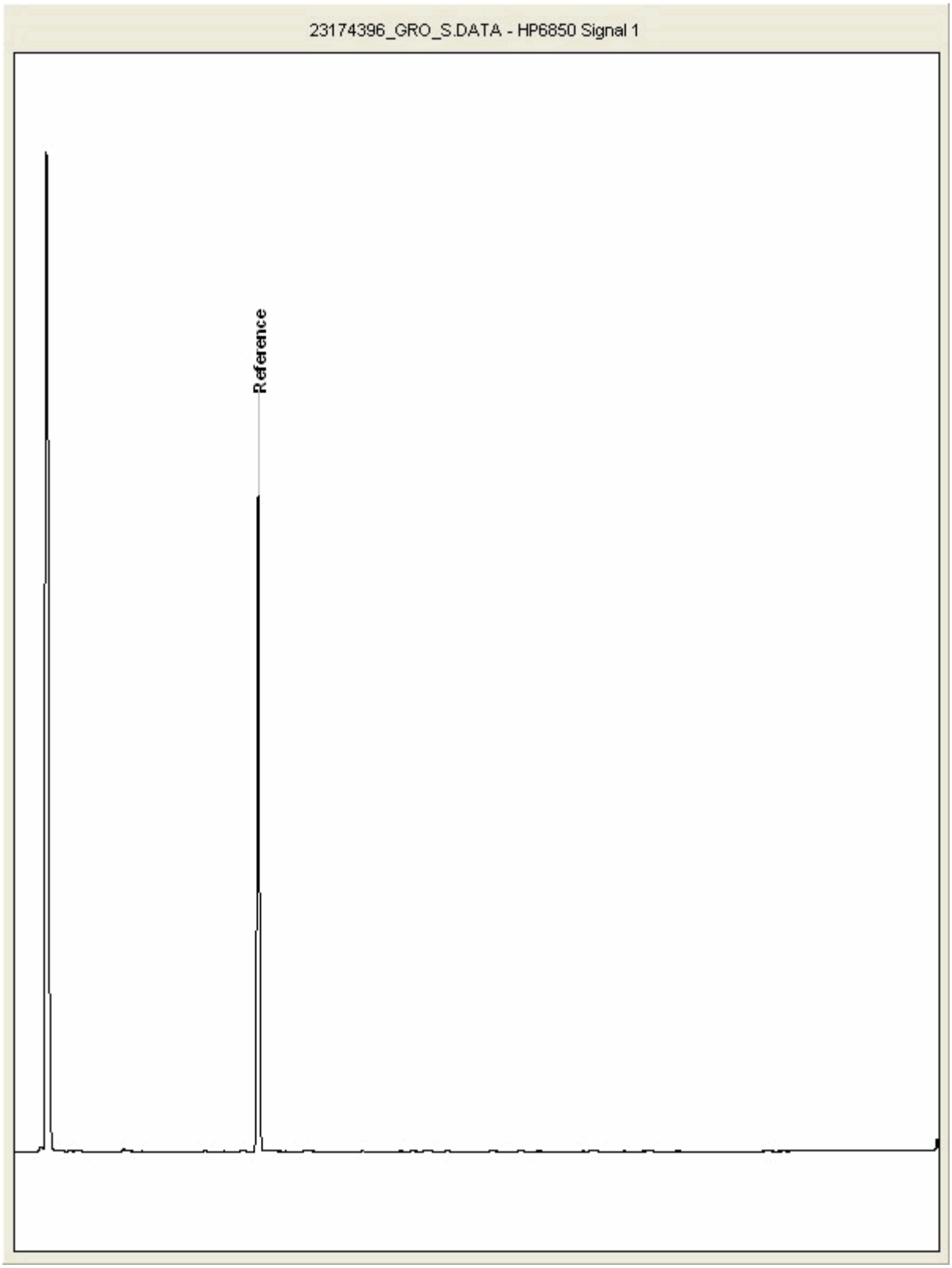
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23174396
Sample ID : TP302

Depth : 3.10 - 3.20



CERTIFICATE OF ANALYSIS

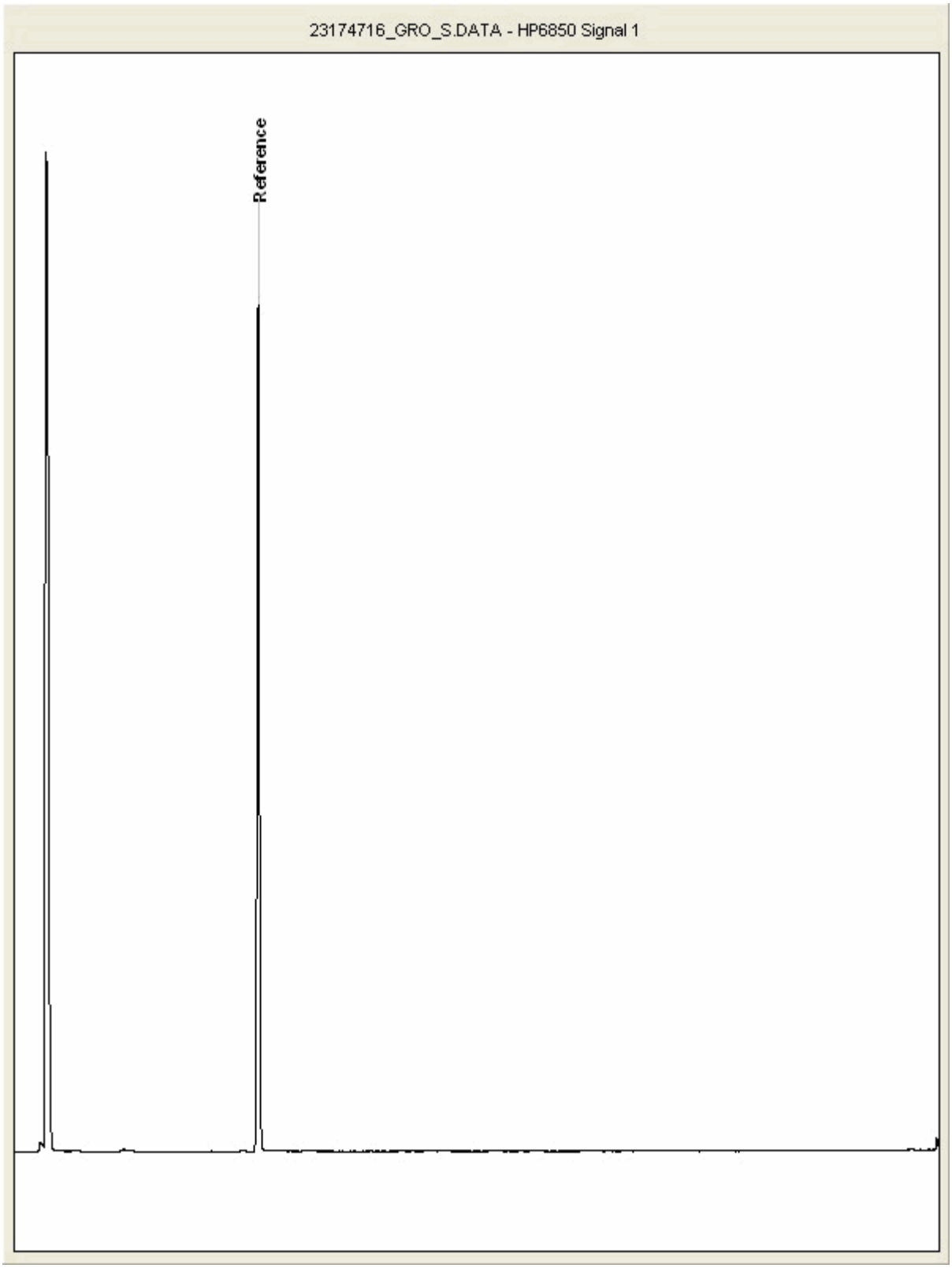
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23174716
Sample ID : TP302

Depth : 1.60 - 1.70



CERTIFICATE OF ANALYSIS

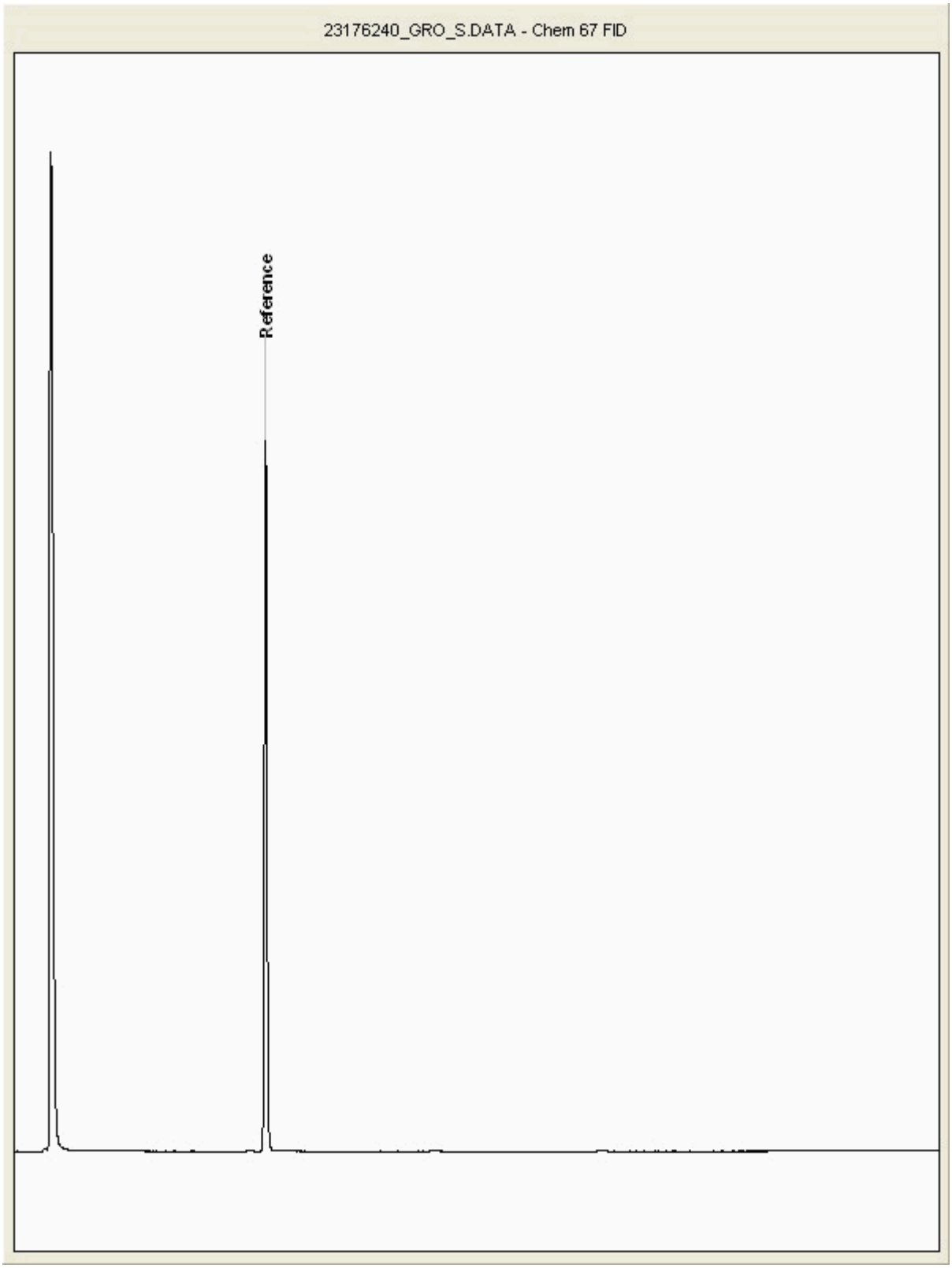
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23176240
Sample ID : TP314

Depth : 1.10 - 1.20



CERTIFICATE OF ANALYSIS

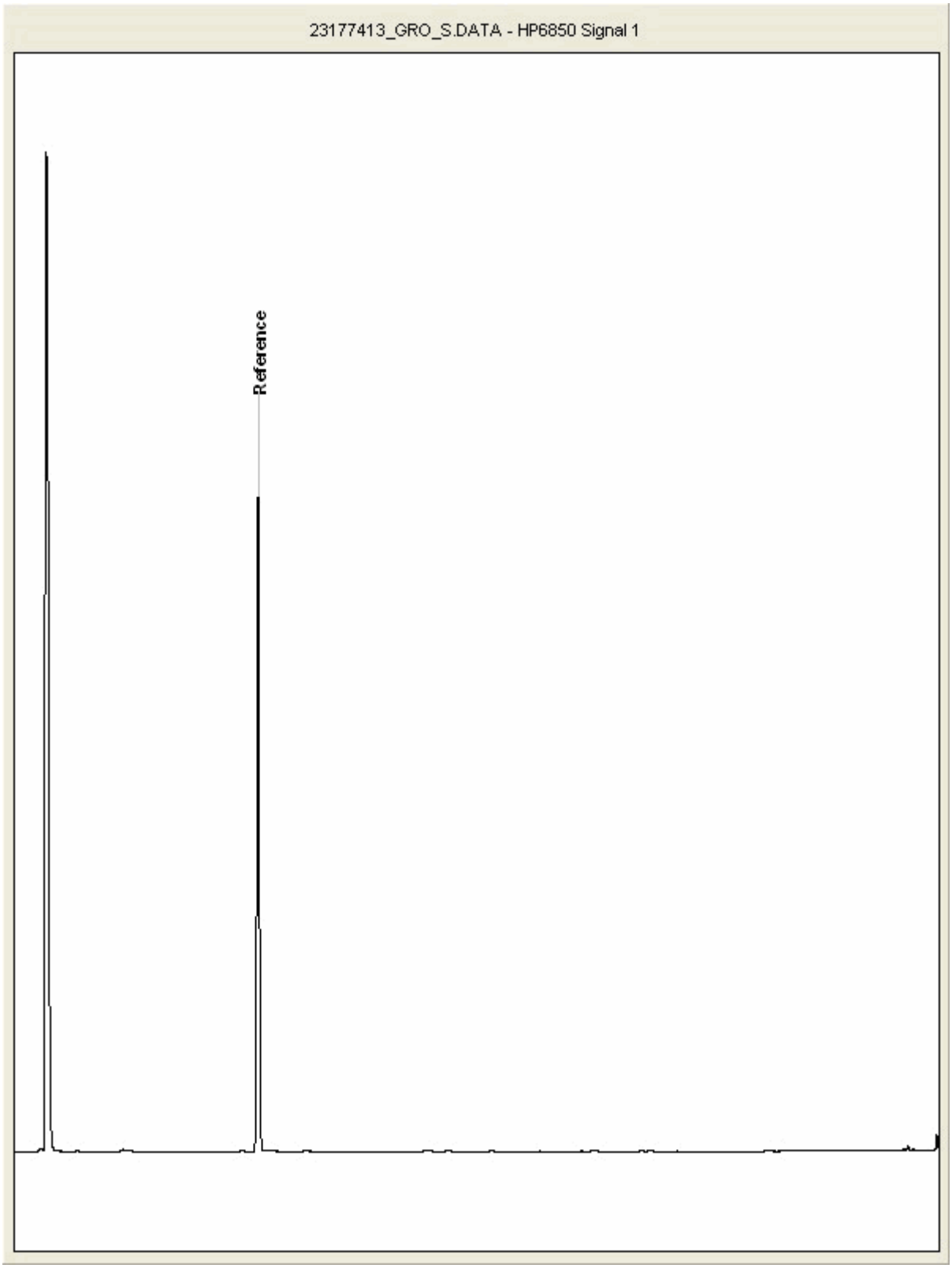
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23177413
Sample ID : TP310

Depth : 1.40 - 1.50



CERTIFICATE OF ANALYSIS

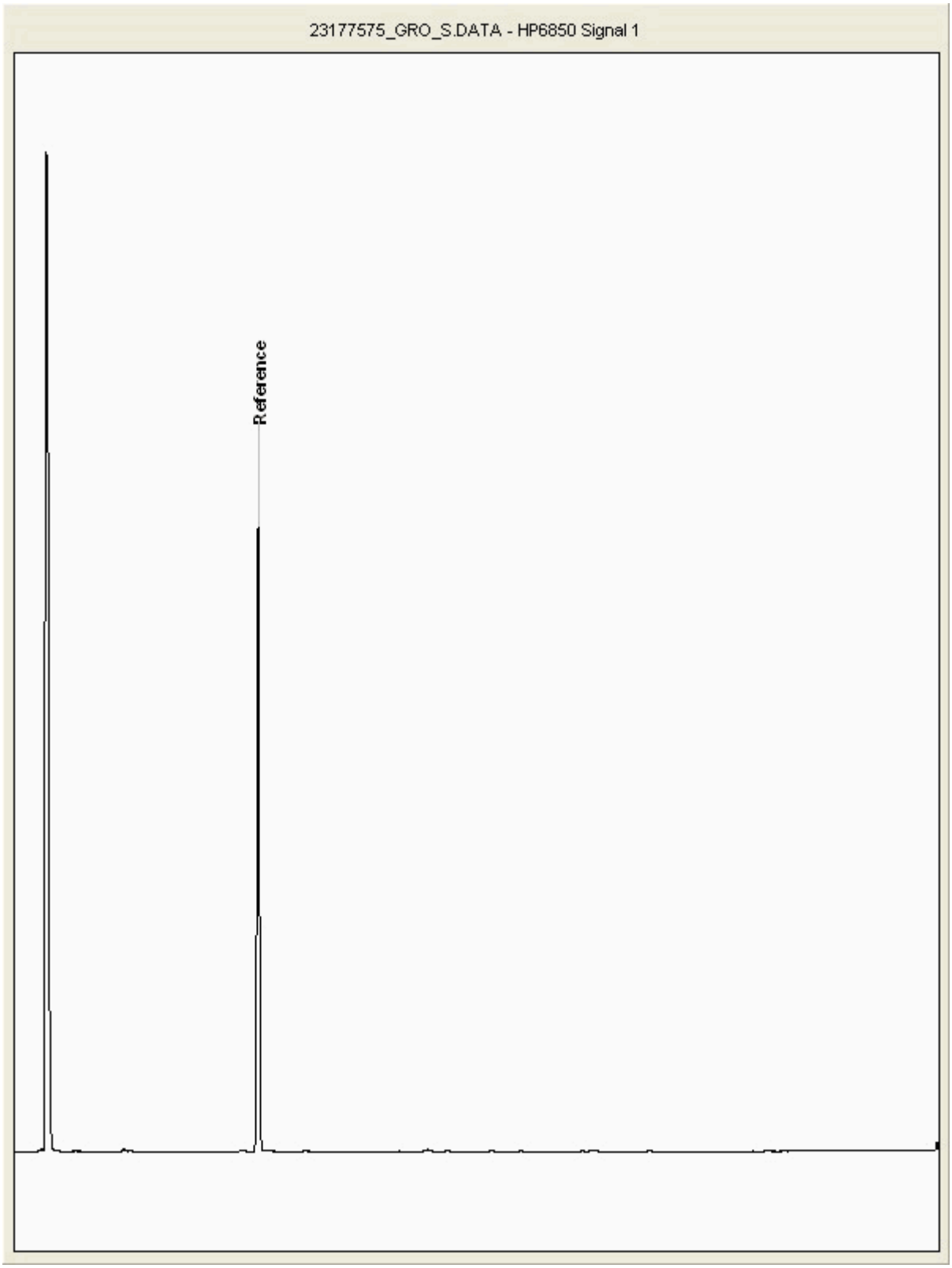
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23177575
Sample ID : TP301

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

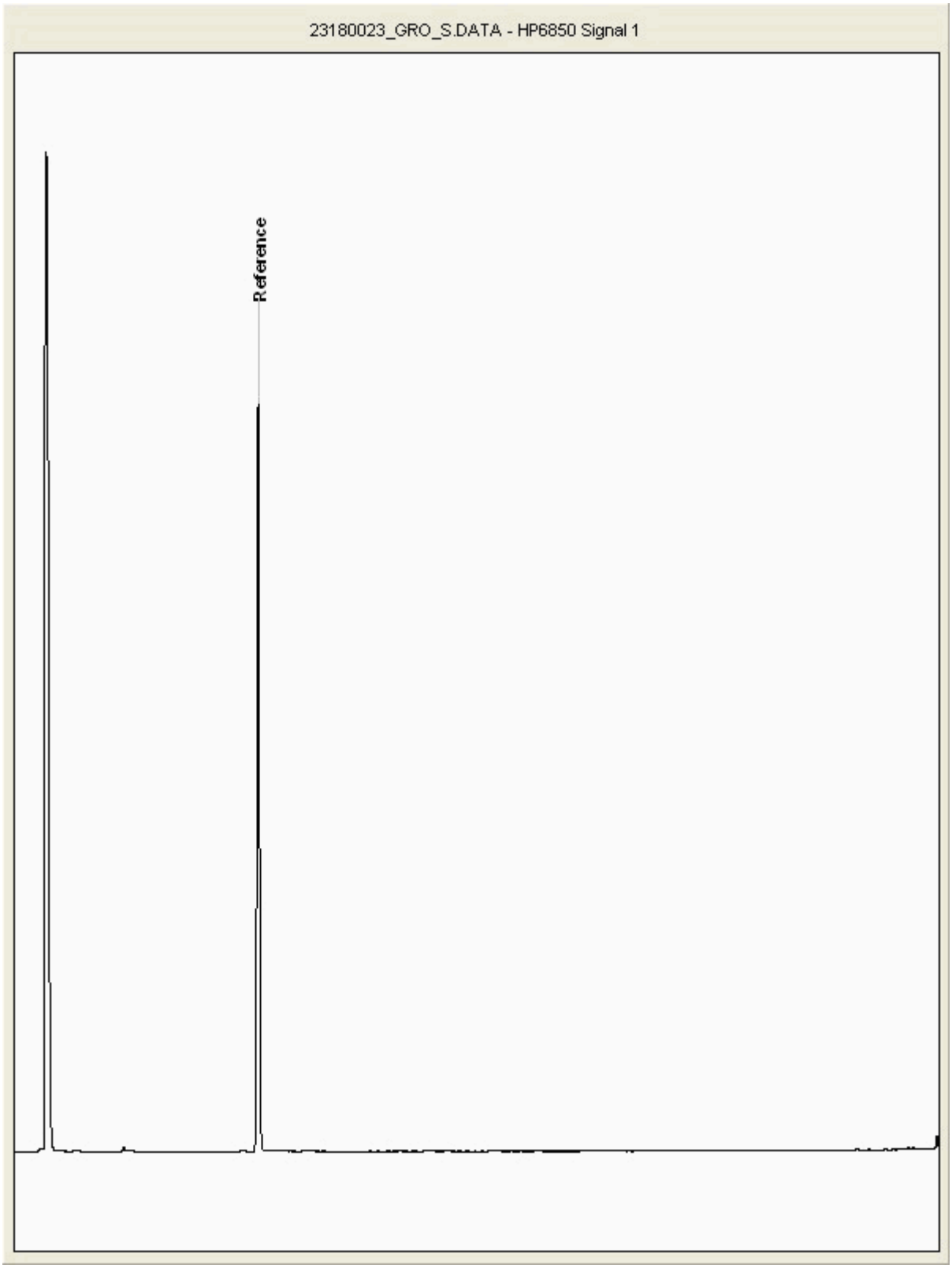
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23180023
Sample ID : TP302

Depth : 1.00 - 1.10



CERTIFICATE OF ANALYSIS

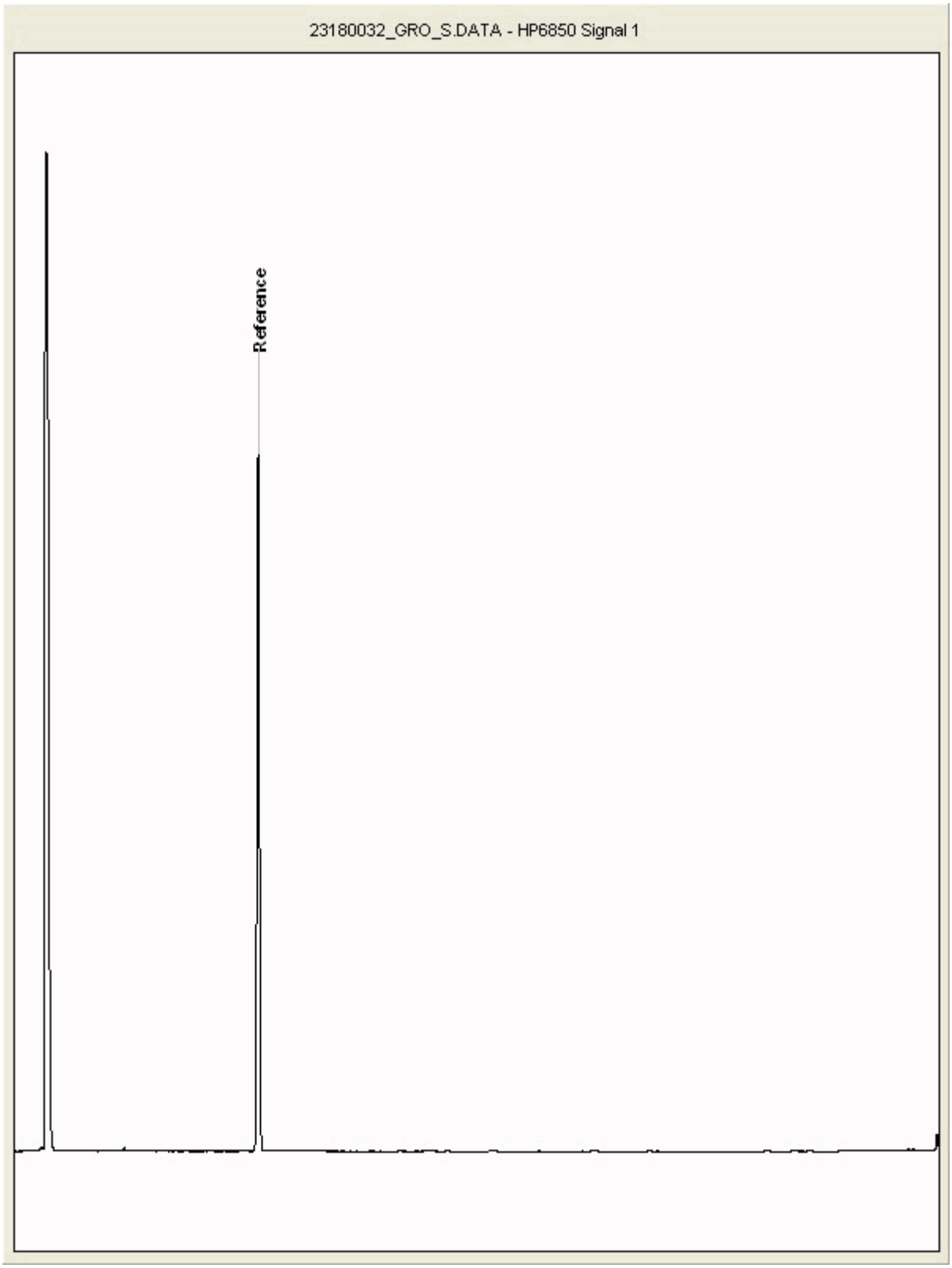
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23180032
Sample ID : TP207

Depth : 1.60 - 1.70



CERTIFICATE OF ANALYSIS

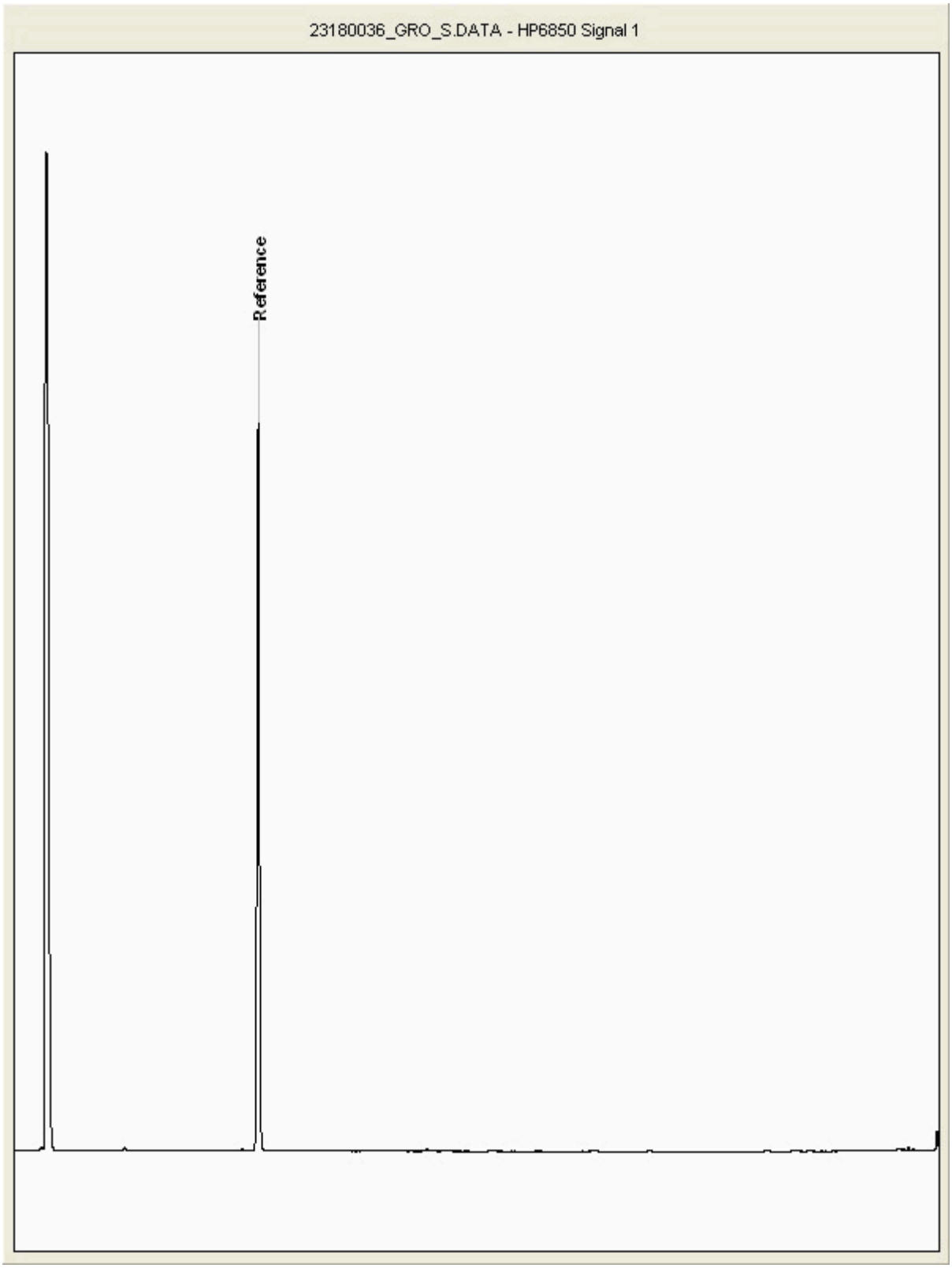
SDG:	201031-64	**Client Reference:**	2020WW102	**Report Number:**	579788
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (S)

Sample No : 23180036
Sample ID : TP207

Depth : 0.40 - 0.50



Appendix

General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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. 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 (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.

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. **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.

18. **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**

19. **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, based on HSG 248 (2005).

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.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

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.

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

Irish Drilling Limited
Old Galway Road
Loughrea
Co. Galway

Attention: Dympna Darcy

CERTIFICATE OF ANALYSIS

Date of report Generation:	22 December 2020
Customer:	Irish Drilling Limited
Sample Delivery Group (SDG):	201211-80
Your Reference:	2020WW102
Location:	Arklow Bank
Report No:	581136

We received 5 samples on Friday December 11, 2020 and 5 of these samples were scheduled for analysis which was completed on Tuesday December 22, 2020. 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).

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

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Received Sample Overview

Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
23412787	BH301	EW1	0.00 - 0.00	09/12/2020
23412803	BH302	EW1	0.00 - 0.00	09/12/2020
23412831	BH303	EW1	0.00 - 0.00	09/12/2020
23412856	BH304	EW1	0.00 - 0.00	09/12/2020
23412878	BH305	EW1	0.00 - 0.00	09/12/2020

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

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)			23412787							23412803								23412831						23412856	
Customer Sample Reference			BH301							BH302								BH303						BH304	
AGS Reference			EW1							EW1								EW1						EW1	
Depth (m)			0.00 - 0.00							0.00 - 0.00								0.00 - 0.00						0.00 - 0.00	
Container			250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)	500ml Plastic (ALE208)	H2SO4 (ALE244)	HNO3 Filtered (ALE204)	Vial (ALE297)	250ml Amber Gl. PTFE/PE	250ml BOD (ALE212)
Sample Type			GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW	GW
Alkalinity as CaCO3	All	NDPs: 0 Tests: 5			X						X						X							
Ammoniacal Nitrogen	All	NDPs: 0 Tests: 5				X						X						X						
Anions by ion Chromatography	All	NDPs: 0 Tests: 5			X						X						X							
Anions by Kone (w)	All	NDPs: 0 Tests: 5			X						X						X							
BOD True Total	All	NDPs: 0 Tests: 5		X						X						X								X
Chromium III	All	NDPs: 0 Tests: 5					X						X						X					
COD Unfiltered	All	NDPs: 0 Tests: 5		X						X						X								X
Dissolved Metals by ICP-MS	All	NDPs: 0 Tests: 5					X						X						X					
EPH CWG (Aliphatic) Aqueous GC (W)	All	NDPs: 0 Tests: 5	X						X						X							X		
EPH CWG (Aromatic) Aqueous GC (W)	All	NDPs: 0 Tests: 5	X						X						X							X		
GRO by GC-FID (W)	All	NDPs: 0 Tests: 5						X						X							X			
Low Level Hexavalent Chromium (w)	All	NDPs: 0 Tests: 5			X						X						X							
Mercury Dissolved	All	NDPs: 0 Tests: 5					X						X						X					
Mineral Oil C10-40 Aqueous (W)	All	NDPs: 0 Tests: 5	X						X						X							X		
PCB Congeners - Aqueous (W)	All	NDPs: 0 Tests: 5	X						X						X							X		

23412878	BH305	EW1	0.00 - 0.00	Vial (ALE297)	GW																					X								
				HNO3 Filtered (ALE204)	GW											X				X										X				
				H2SO4 (ALE244)	GW				X																										
				500ml Plastic (ALE208)	GW		X				X		X																X						
				250ml BOD (ALE212)	GW										X				X																
				250ml Amber Gl. PTFE/PE	GW																		X		X								X		X
23412856	BH304	EW1	0.00 - 0.00	Vial (ALE297)	GW																					X								
				HNO3 Filtered (ALE204)	GW											X				X										X				
				H2SO4 (ALE244)	GW				X																										
				500ml Plastic (ALE208)	GW		X				X		X																X						

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

X Test

N No Determination Possible

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

Lab Sample No(s)								23412787							23412803							23412831					23412856
Customer Sample Reference								BH301							BH302							BH303					BH304
AGS Reference								EW1							EW1							EW1					EW1
Depth (m)								0.00 - 0.00							0.00 - 0.00							0.00 - 0.00					0.00 - 0.00
Container								250ml Amber Gl. PTFE/PE							250ml Amber Gl. PTFE/PE							250ml Amber Gl. PTFE/PE					250ml Amber Gl. PTFE/PE
Sample Type								GW							GW							GW					GW
Phosphate by Kone (w)	All	NDPs: 0 Tests: 5																									
										X					X							X					X
Suspended Solids	All	NDPs: 0 Tests: 5																									
										X					X							X					X
SVOC MS (W) - Aqueous	All	NDPs: 0 Tests: 5																									
			X							X												X					X
Total Dissolved Solids	All	NDPs: 0 Tests: 5																									
										X					X							X					X
TPH CWG (W)	All	NDPs: 0 Tests: 5																									
			X							X												X					X
VOC MS (W)	All	NDPs: 0 Tests: 5																									
								X							X							X					

23412878	BH305	EW1	0.00 - 0.00	Vial (ALE297)	GW												X
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW												
				500ml Plastic (ALE208)	GW		X		X				X				
				250ml BOD (ALE212)	GW												
				250ml Amber Gl. PTFE/PE	GW						X				X		
23412856	BH304	EW1	0.00 - 0.00	Vial (ALE297)	GW												X
				HNO3 Filtered (ALE204)	GW												
				H2SO4 (ALE244)	GW												
				500ml Plastic (ALE208)	GW		X		X				X				

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sampled Time	.	.	.	.	.
			Date Received	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
			SDG Ref	201211-80	201211-80	201211-80	201211-80	201211-80
			Lab Sample No.(s)	23412787	23412803	23412831	23412856	23412878
			AGS Reference	EW1	EW1	EW1	EW1	EW1
Suspended solids, Total	<2 mg/l	TM022		196 #	23.6 #	244 #	22 #	185 #
Alkalinity, Total as CaCO3	<2 mg/l	TM043		140 #	168 #	180 #	109 #	104 #
BOD, unfiltered	<1 mg/l	TM045		2.08 #	<3 #	1.87 #	3.67 #	3.95 #
Ammoniacal Nitrogen as N	<0.2 mg/l	TM099		19.1 #	0.896 #	9.12 #	0.704 #	<0.2 #
COD, unfiltered	<7 mg/l	TM107		96.4 #	21.8 #	43.5 #	44.1 #	42.5 #
Dissolved solids, Total (meter)	<5 mg/l	TM123		1000 #	328 #	467 #	545 #	342 #
Chromium, Trivalent (Low)	<0.003 mg/l	TM152		<0.003	<0.003	<0.003	<0.003	0.00498
Antimony (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #
Arsenic (diss.filt)	<0.5 µg/l	TM152		1.39 #	<0.5 #	10.2 #	1.37 #	1.04 #
Barium (diss.filt)	<0.2 µg/l	TM152		103 #	33.5 #	258 #	18.2 #	7.56 #
Cadmium (diss.filt)	<0.08 µg/l	TM152		<0.08 #	<0.08 #	<0.08 #	<0.08 #	<0.08 #
Chromium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	4.98 #
Copper (diss.filt)	<0.3 µg/l	TM152		1.86 #	0.903 #	0.416 #	5.44 #	2.29 #
Lead (diss.filt)	<0.2 µg/l	TM152		<0.2 #	<0.2 #	<0.2 #	1.77 #	<0.2 #
Manganese (diss.filt)	<3 µg/l	TM152		30500 #	2540 #	14100 #	706 #	18.4 #
Molybdenum (diss.filt)	<3 µg/l	TM152		<3 #	<3 #	<3 #	<3 #	12.7 #
Nickel (diss.filt)	<0.4 µg/l	TM152		10.7 #	2.14 #	8.62 #	2.42 #	0.802 #
Selenium (diss.filt)	<1 µg/l	TM152		<1 #	<1 #	<1 #	<1 #	<1 #
Zinc (diss.filt)	<1 µg/l	TM152		53.4 #	22.4 #	67.7 #	70.4 #	<1 #
Sodium (Dis.Filt)	<0.076 mg/l	TM152		23.6 #	16.2 #	17.2 #	78.9 #	48.8 #
Magnesium (Dis.Filt)	<0.036 mg/l	TM152		20.9 #	15.3 #	15.5 #	12.6 #	9.47 #
Potassium (Dis.Filt)	<0.2 mg/l	TM152		31.8 #	1.48 #	4.66 #	6.94 #	5.17 #
Calcium (Dis.Filt)	<0.2 mg/l	TM152		184 #	46.2 #	65.5 #	32.9 #	23.5 #
Iron (Dis.Filt)	<0.019 mg/l	TM152		5.03 #	0.0509 #	13.7 #	1.84 #	<0.019 #
Mineral oil >C10 C40 (aq)	<100 µg/l	TM172		517	291	604	3460	255
Mercury (diss.filt)	<0.01 µg/l	TM183		<0.01 #	<0.01 #	<0.01 #	<0.01 #	<0.01 #
Sulphate	<2 mg/l	TM184		605 #	33.2 #	149 #	53.9 #	29.6 #
Phosphate (Ortho as P)	<0.02 mg/l	TM184		<0.02 #	<0.02 #	<0.02 #	<0.02 #	0.033 #
Nitrate as NO3	<0.3 mg/l	TM184		<0.6	12	<0.3	6.45	6.37
PCB congener 28	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 52	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 101	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sampled Time	.	.	.	.	.
			Date Received	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
			SDG Ref	201211-80	201211-80	201211-80	201211-80	201211-80
			Lab Sample No.(s)	23412787	23412803	23412831	23412856	23412878
			AGS Reference	EW1	EW1	EW1	EW1	EW1
PCB congener 118	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 138	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 153	<0.015 µg/l	TM197		<0.015	<0.015	<0.015	<0.015	<0.015
PCB congener 180	<0.015 µg/l	TM197		<0.015	<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	<0.105
Chloride	<0.08 mg/l	TM226		10.7 #	23.9 #	22.6 #	134 #	78.2 #
Low Level Hexavalent Chromium	<0.003 mg/l	TM331		<0.003	<0.003	<0.003	<0.003	<0.006

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	BH301	BH302	BH303	BH304	BH305
Customer Sample Ref.			BH301	BH302	BH303	BH304	BH305
Depth (m)			0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Sample Type			Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
Date Sampled			09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
Sampled Time			.	.	.	.	.
Date Received			11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
SDG Ref			201211-80	201211-80	201211-80	201211-80	201211-80
Lab Sample No.(s)			23412787	23412803	23412831	23412856	23412878
AGS Reference			EW1	EW1	EW1	EW1	EW1
1,2,4-Trichlorobenzene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
1,2-Dichlorobenzene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
1,3-Dichlorobenzene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
1,4-Dichlorobenzene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2,4,5-Trichlorophenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2,4,6-Trichlorophenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2,4-Dichlorophenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2,4-Dimethylphenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2,4-Dinitrotoluene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2,6-Dinitrotoluene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2-Chloronaphthalene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2-Chlorophenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2-Methylnaphthalene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2-Methylphenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2-Nitroaniline (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
2-Nitrophenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
3-Nitroaniline (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
4-Bromophenylphenylether (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
4-Chloro-3-methylphenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
4-Chloroaniline (aq)	<1 µg/l	TM176	<8	<1	<8	<1	<4
4-Chlorophenylphenylether (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
4-Methylphenol (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
4-Nitroaniline (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
4-Nitrophenol (aq)	<1 µg/l	TM176	<8	<1	<8	<1	<4
Azobenzene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Acenaphthylene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Acenaphthene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Anthracene (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
bis(2-Chloroethyl)ether (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
bis(2-Chloroethoxy)methane (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #
bis(2-Ethylhexyl) phthalate (aq)	<2 µg/l	TM176	<16 #	<2 #	<16 #	<2 #	<8 ♦ #
Butylbenzyl phthalate (aq)	<1 µg/l	TM176	<8 #	<1 #	<8 #	<1 #	<4 ♦ #

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

SVOC MS (W) - Aqueous

Results Legend	
#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sampled Time	.	.	.	.	.
			Date Received	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
			SDG Ref	201211-80	201211-80	201211-80	201211-80	201211-80
			Lab Sample No.(s)	23412787	23412803	23412831	23412856	23412878
			AGS Reference	EW1	EW1	EW1	EW1	EW1
Benzo(a)anthracene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Benzo(b)fluoranthene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Benzo(k)fluoranthene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Benzo(a)pyrene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Benzo(g,h,i)perylene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Carbazole (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Chrysene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Dibenzofuran (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
n-Dibutyl phthalate (aq)	<1 µg/l	TM176		<8 #	3.49 #	<8 #	<1 #	<4 ♦ #
Diethyl phthalate (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Dibenzo(a,h)anthracene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Dimethyl phthalate (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
n-Dioctyl phthalate (aq)	<5 µg/l	TM176		<40 #	<5 #	<40 #	<5 #	<20 ♦ #
Fluoranthene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Fluorene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Hexachlorobenzene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Hexachlorobutadiene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Pentachlorophenol (aq)	<1 µg/l	TM176		<8	<1	<8	<1	<4
Phenol (aq)	<1 µg/l	TM176		<8	<1	<8	<1	<4
n-Nitroso-n-dipropylamine (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Hexachloroethane (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Nitrobenzene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Naphthalene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Isophorone (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Hexachlorocyclopentadiene (aq)	<1 µg/l	TM176		<8	<1	<8	<1	<4
Phenanthrene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Indeno(1,2,3-cd)pyrene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #
Pyrene (aq)	<1 µg/l	TM176		<8 #	<1 #	<8 #	<1 #	<4 ♦ #

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

TPH CWG (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sampled Time	.	.	.	.	.
			Date Received	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
			SDG Ref	201211-80	201211-80	201211-80	201211-80	201211-80
			Lab Sample No.(s)	23412787	23412803	23412831	23412856	23412878
			AGS Reference	EW1	EW1	EW1	EW1	EW1
GRO Surrogate % recovery**	%	TM245		104	106	98	93	98
GRO >C5-C12	<50 µg/l	TM245		<50 #	<50 #	<50 #	71 #	<50 #
Methyl tertiary butyl ether (MTBE)	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #
Benzene	<7 µg/l	TM245		<7 #	<7 #	<7 #	<7 #	<7 #
Toluene	<4 µg/l	TM245		<4 #	<4 #	<4 #	<4 #	<4 #
Ethylbenzene	<5 µg/l	TM245		<5 #	<5 #	<5 #	<5 #	<5 #
m,p-Xylene	<8 µg/l	TM245		<8 #	<8 #	<8 #	<8 #	<8 #
o-Xylene	<3 µg/l	TM245		<3 #	<3 #	<3 #	<3 #	<3 #
Sum of detected Xylenes	<11 µg/l	TM245		<11	<11	<11	<11	<11
Sum of detected BTEX	<28 µg/l	TM245		<28	<28	<28	<28	<28
Aliphatics >C5-C6	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C6-C8	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aliphatics >C8-C10	<10 µg/l	TM245		<10	<10	<10	17	<10
Aliphatics >C10-C12	<10 µg/l	TM245		15	<10	<10	22	<10
Aliphatics >C12-C16 (aq)	<10 µg/l	TM174		<10	<10	<10	2300	<10
Aliphatics >C16-C21 (aq)	<10 µg/l	TM174		17	<10	10	104	<10
Aliphatics >C21-C35 (aq)	<10 µg/l	TM174		308	146	402	396	124
Total Aliphatics >C12-C35 (aq)	<10 µg/l	TM174		325	146	412	2800	124
Aromatics >EC5-EC7	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC7-EC8	<10 µg/l	TM245		<10	<10	<10	<10	<10
Aromatics >EC8-EC10	<10 µg/l	TM245		<10	<10	<10	11	<10
Aromatics >EC10-EC12	<10 µg/l	TM245		10	<10	<10	15	<10
Aromatics >EC12-EC16 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10
Aromatics >EC16-EC21 (aq)	<10 µg/l	TM174		<10	<10	<10	<10	<10
Aromatics >EC21-EC35 (aq)	<10 µg/l	TM174		<10	<10	41	100	<10
Total Aromatics >EC12-EC35 (aq)	<10 µg/l	TM174		<10	<10	41	100	<10
Total Aliphatics & Aromatics >C5-35 (aq)	<10 µg/l	TM174		368	146	458	2970	124
Aliphatics >C16-C35 Aqueous	<10 µg/l	TM174		325	146	412	500	124

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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+5@	Sample deviation (see appendix)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sampled Time	.	.	.	.	.
			Date Received	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
			SDG Ref	201211-80	201211-80	201211-80	201211-80	201211-80
			Lab Sample No.(s)	23412787	23412803	23412831	23412856	23412878
			AGS Reference	EW1	EW1	EW1	EW1	EW1
Dibromofluoromethane**	%	TM208		106	109	109	107	109
Toluene-d8**	%	TM208		98.5	98.1	98	102	103
4-Bromofluorobenzene**	%	TM208		99.2	100	99.1	101	101
Dichlorodifluoromethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chloromethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Vinyl chloride	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromomethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chloroethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Trichlorofluoromethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Carbon disulphide	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Dichloromethane	µg/l	TM208		<3 #	<3 #	<3 #	<3 #	<3 #
Methyl tertiary butyl ether (MTBE)	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,2-Dichloroethene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloroethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,2-Dichloroethene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
2,2-Dichloropropane	µg/l	TM208		<1	<1	<1	<1	<1
Bromochloromethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chloroform	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1-Trichloroethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1-Dichloropropene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Carbontetrachloride	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloroethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Benzene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Trichloroethene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichloropropane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Dibromomethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromodichloromethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
cis-1,3-Dichloropropene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Toluene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
trans-1,3-Dichloropropene	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2-Trichloroethane	µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sampled Time	.	.	.	.	.
			Date Received	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
			SDG Ref	201211-80	201211-80	201211-80	201211-80	201211-80
			Lab Sample No.(s)	23412787	23412803	23412831	23412856	23412878
			AGS Reference	EW1	EW1	EW1	EW1	EW1
1,3-Dichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Tetrachloroethene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Dibromochloromethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromoethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Chlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,1,2-Tetrachloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Ethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
m,p-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
o-Xylene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Styrene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromoform	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Isopropylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,1,2,2-Tetrachloroethane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2,3-Trichloropropane	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Bromobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Propylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
2-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
4-Chlorotoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
tert-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2,4-Trimethylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
sec-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
4-iso-Propyltoluene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,3-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,4-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
n-Butylbenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,2-Dibromo-3-chloropropane	<1 µg/l	TM208		<1	<1	<1	<1	<1
1,2,4-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Hexachlorobutadiene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
tert-Amyl methyl ether (TAME)	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
Naphthalene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

VOC MS (W)

Results Legend

#	ISO17025 accredited.
M	*m*CERTS 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)

Component	LOD/Units	Method	Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
			Depth (m)	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
			Sample Type	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)	Ground Water (GW)
			Date Sampled	09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
			Sampled Time	.	.	.	.	.
			Date Received	11/12/2020	11/12/2020	11/12/2020	11/12/2020	11/12/2020
			SDG Ref	201211-80	201211-80	201211-80	201211-80	201211-80
			Lab Sample No.(s)	23412787	23412803	23412831	23412856	23412878
			AGS Reference	EW1	EW1	EW1	EW1	EW1
1,2,3-Trichlorobenzene	<1 µg/l	TM208		<1 #	<1 #	<1 #	<1 #	<1 #
1,3,5-Trichlorobenzene	<1 µg/l	TM208		<1	<1	<1	<1	<1

CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Table of Results - Appendix

Method No	Reference	Description
TM022	Method 2540D, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part120 1981;BS EN 872	Determination of total suspended solids in waters
TM043	Method 2320B, AWWA/APHA, 20th Ed., 1999 / BS 2690: Part109 1984	Determination of alkalinity in aqueous samples
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999; SCA Blue Book 130	Determination of BOD5 (ATU) Filtered by Oxygen Meter on liquids
TM099	BS 2690: Part 7:1968 / BS 6068: Part2.11:1984	Determination of Ammonium in Water Samples using the Kone Analyser
TM107	ISO 6060-1989	Determination of Chemical Oxygen Demand using COD Dr Lange Kit
TM123	BS 2690: Part 121:1981	The Determination of Total Dissolved Solids in Water
TM152	Method 3125B, AWWA/APHA, 20th Ed., 1999	Analysis of Aqueous Samples by ICP-MS
TM172	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	EPH in Waters
TM174	Analysis of Petroleum Hydrocarbons in Environmental Media – Total Petroleum Hydrocarbon Criteria	Determination of Speciated Extractable Petroleum Hydrocarbons in Waters by GC-FID
TM176	EPA 8270D Semi-Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS)	Determination of SVOCs in Water by GCMS
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
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
TM226	In-House Method	Determination of Anions in Waters using Ion Chromatography
TM245	By GC-FID	Determination of GRO by Headspace in waters
TM331		Low Level Hexavalent Chromium

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

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Test Completion Dates

Lab Sample No(s)	23412787	23412803	23412831	23412856	23412878
Customer Sample Ref.	BH301	BH302	BH303	BH304	BH305
AGS Ref.	EW1	EW1	EW1	EW1	EW1
Depth	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00	0.00 - 0.00
Type	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Alkalinity as CaCO3	18-Dec-2020	18-Dec-2020	17-Dec-2020	18-Dec-2020	18-Dec-2020
Ammoniacal Nitrogen	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020
Anions by ion Chromatography	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Anions by Kone (w)	18-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	18-Dec-2020
BOD True Total	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Chromium III	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
COD Unfiltered	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020
Dissolved Metals by ICP-MS	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
EPH CWG (Aliphatic) Aqueous GC (W)	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020
EPH CWG (Aromatic) Aqueous GC (W)	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020
GRO by GC-FID (W)	15-Dec-2020	15-Dec-2020	15-Dec-2020	17-Dec-2020	17-Dec-2020
Low Level Hexavalent Chromium (w)	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
Mercury Dissolved	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020	14-Dec-2020
Mineral Oil C10-40 Aqueous (W)	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020	17-Dec-2020
Nitrite by Kone (w)	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
PCB Congeners - Aqueous (W)	19-Dec-2020	19-Dec-2020	19-Dec-2020	19-Dec-2020	19-Dec-2020
Phosphate by Kone (w)	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020
Suspended Solids	14-Dec-2020	15-Dec-2020	15-Dec-2020	15-Dec-2020	14-Dec-2020
SVOC MS (W) - Aqueous	18-Dec-2020	17-Dec-2020	18-Dec-2020	18-Dec-2020	22-Dec-2020
Total Dissolved Solids	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020	11-Dec-2020
TPH CWG (W)	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020	18-Dec-2020
VOC MS (W)	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020	16-Dec-2020

CERTIFICATE OF ANALYSIS

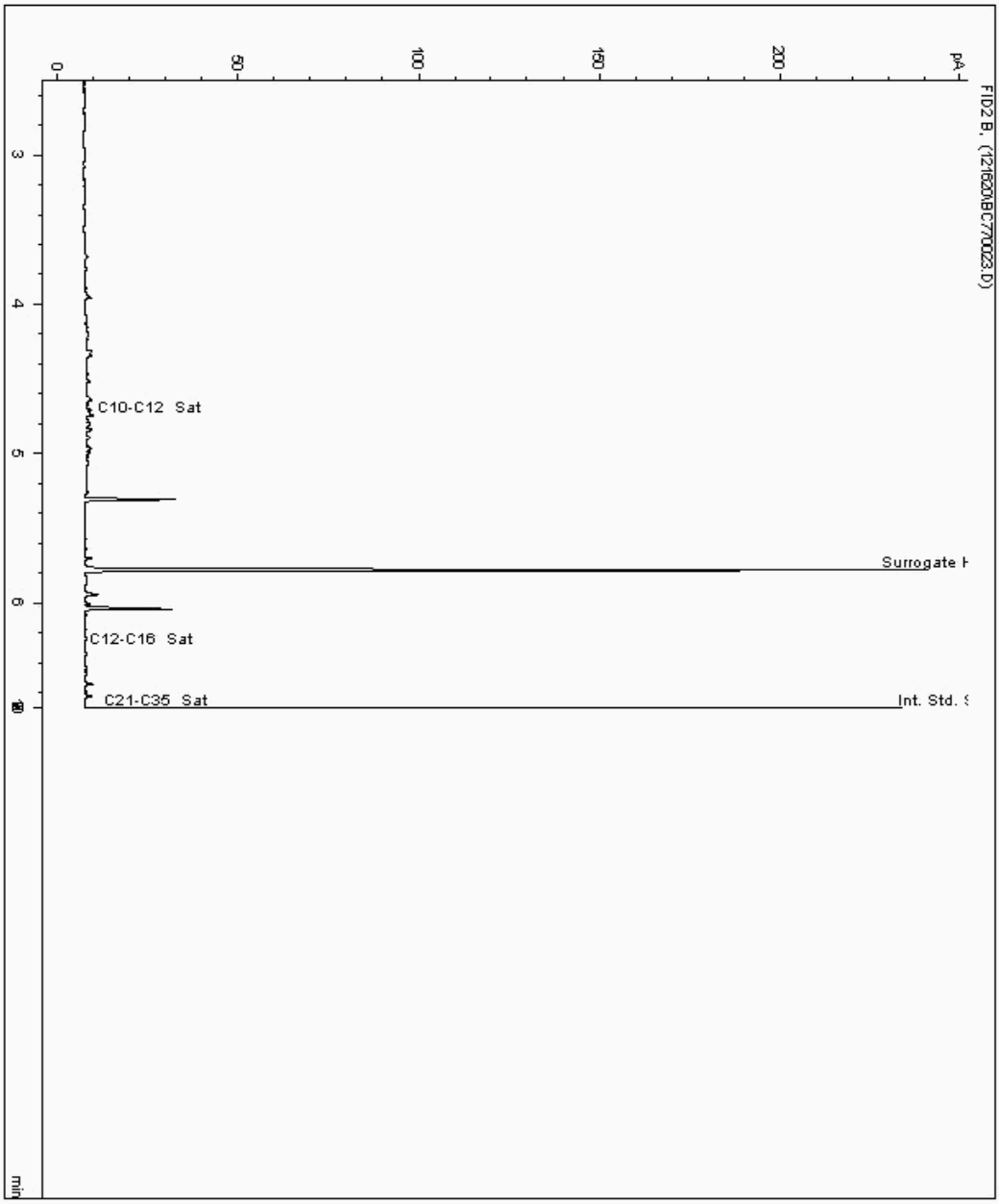
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23413354 **Sample ID :** BH303 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965337-
Date Acquired : 12/17/2020 8:03:56 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

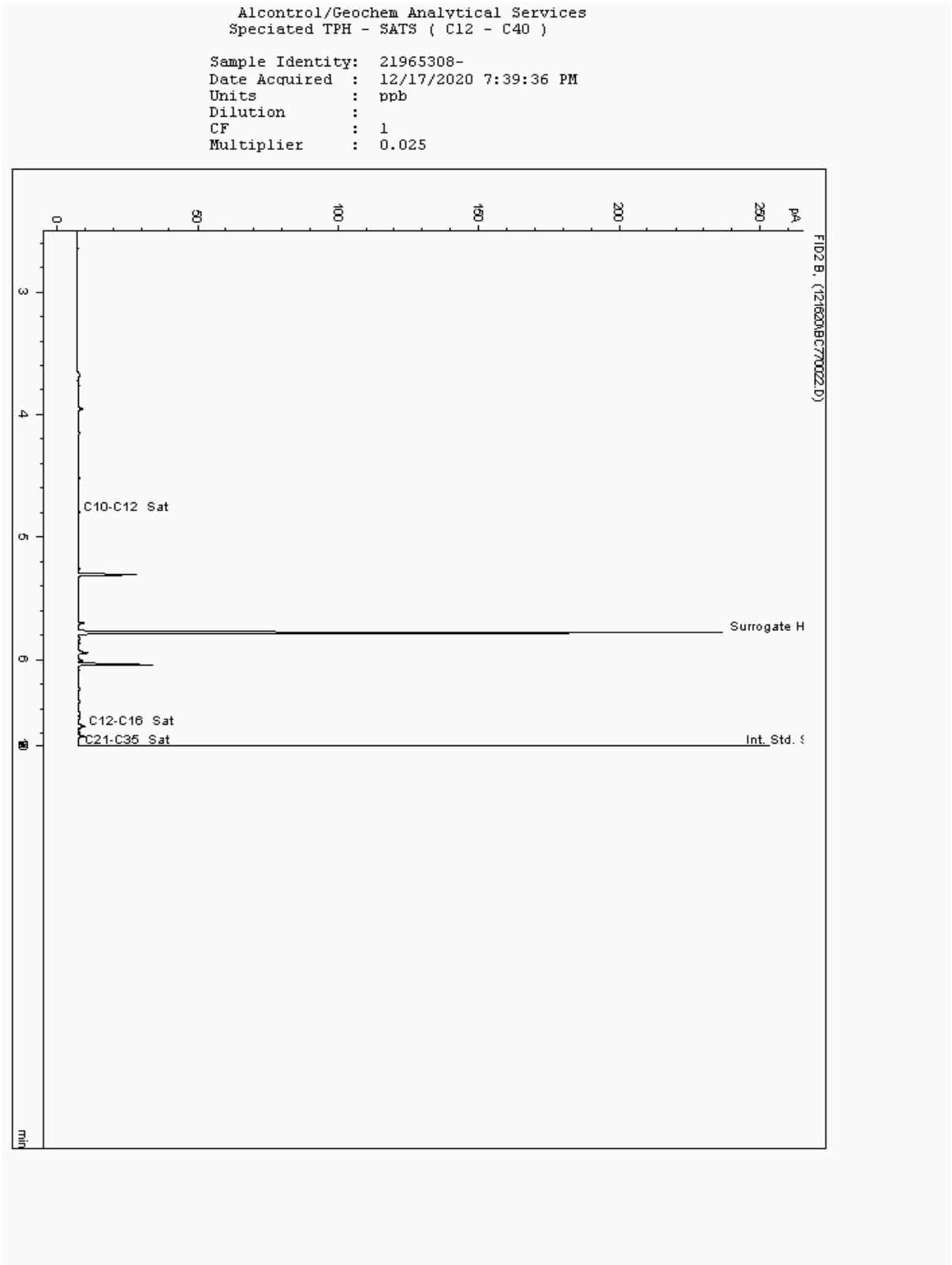


CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23413367 **Sample ID :** BH302 **Depth :** 0.00 - 0.00



CERTIFICATE OF ANALYSIS

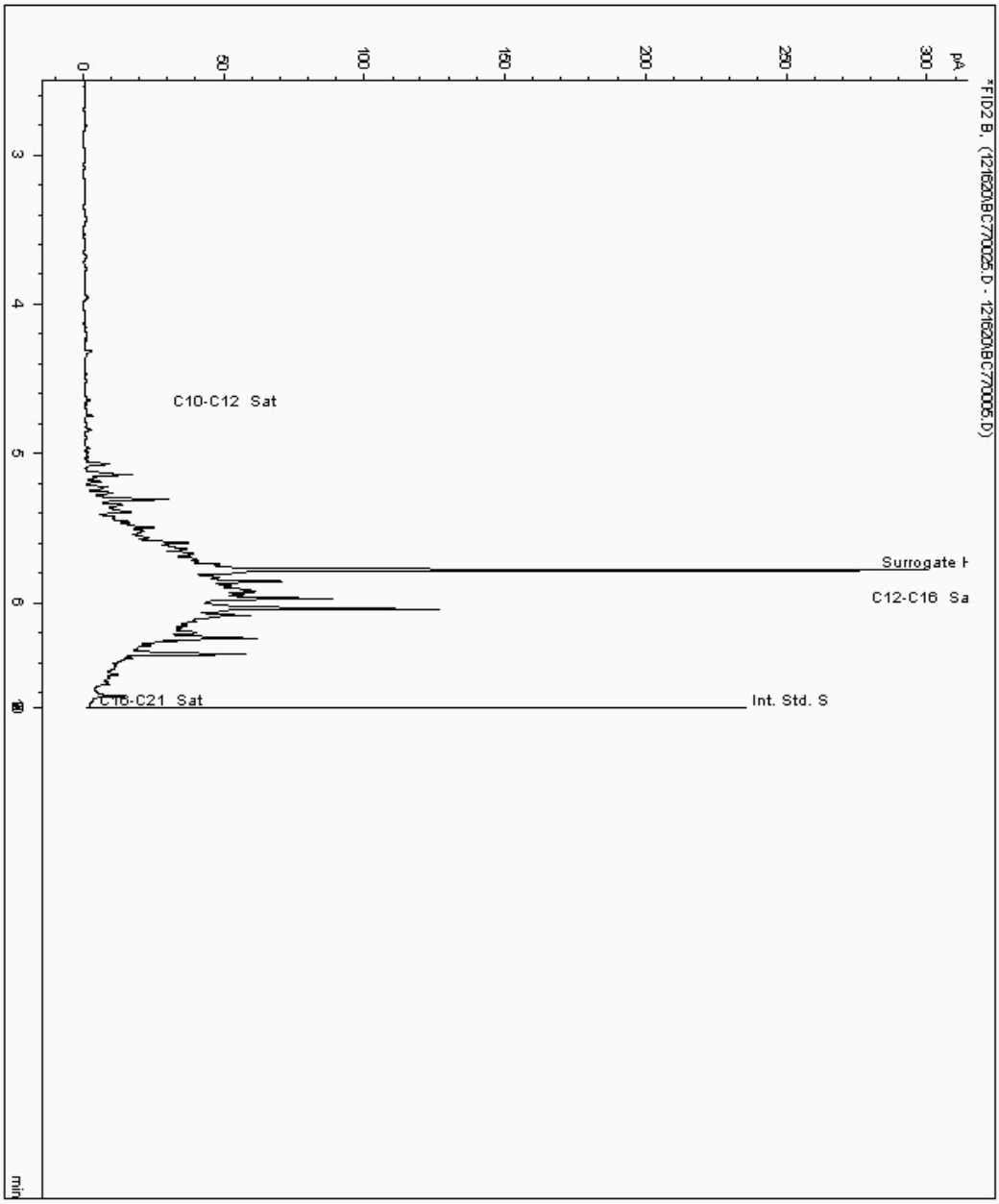
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23413383 **Sample ID :** BH304 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965360-
Date Acquired : 12/17/2020 8:52:31 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

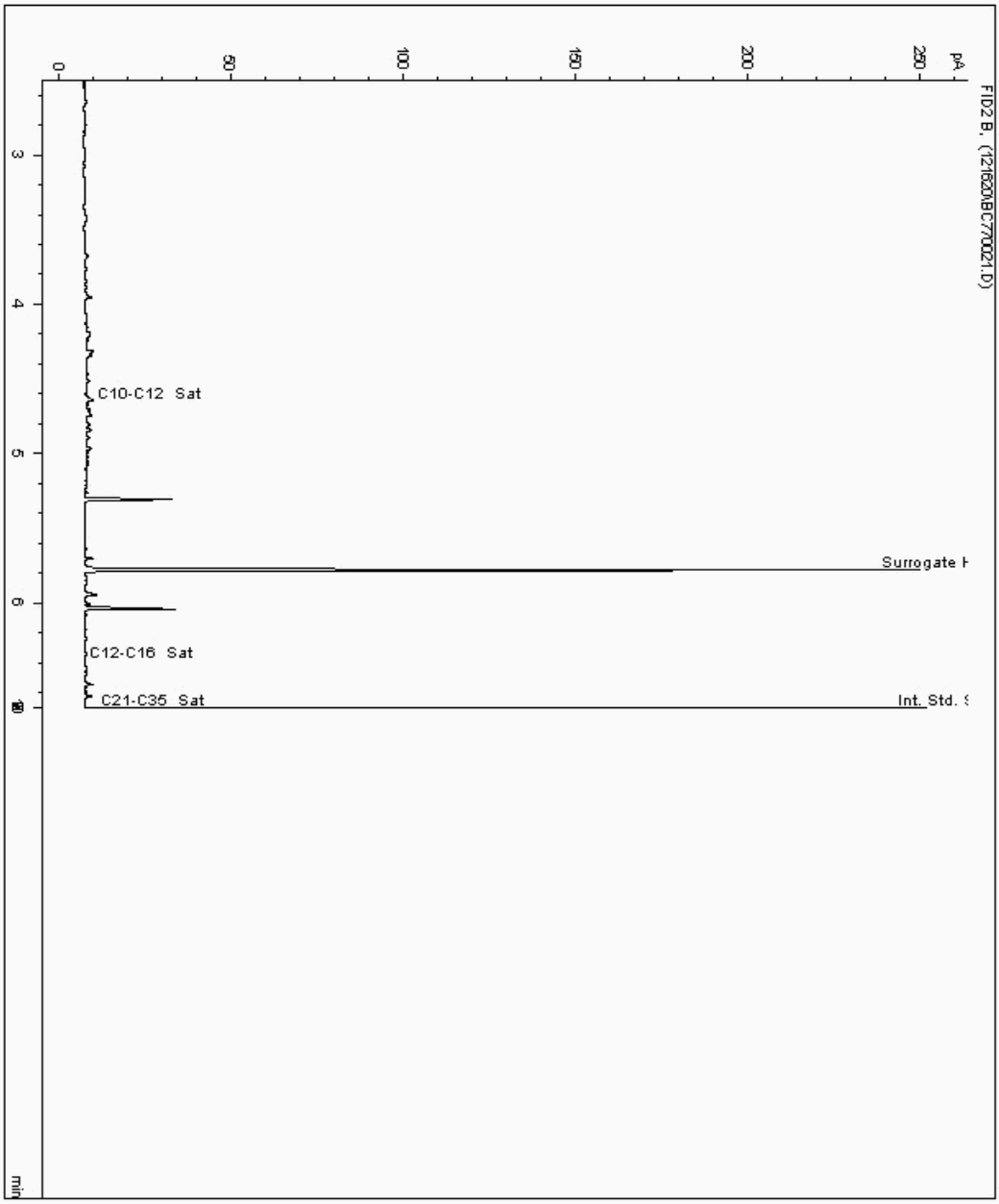
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23414119 **Sample ID :** BH301 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965284-
Date Acquired : 12/17/2020 7:15:17 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

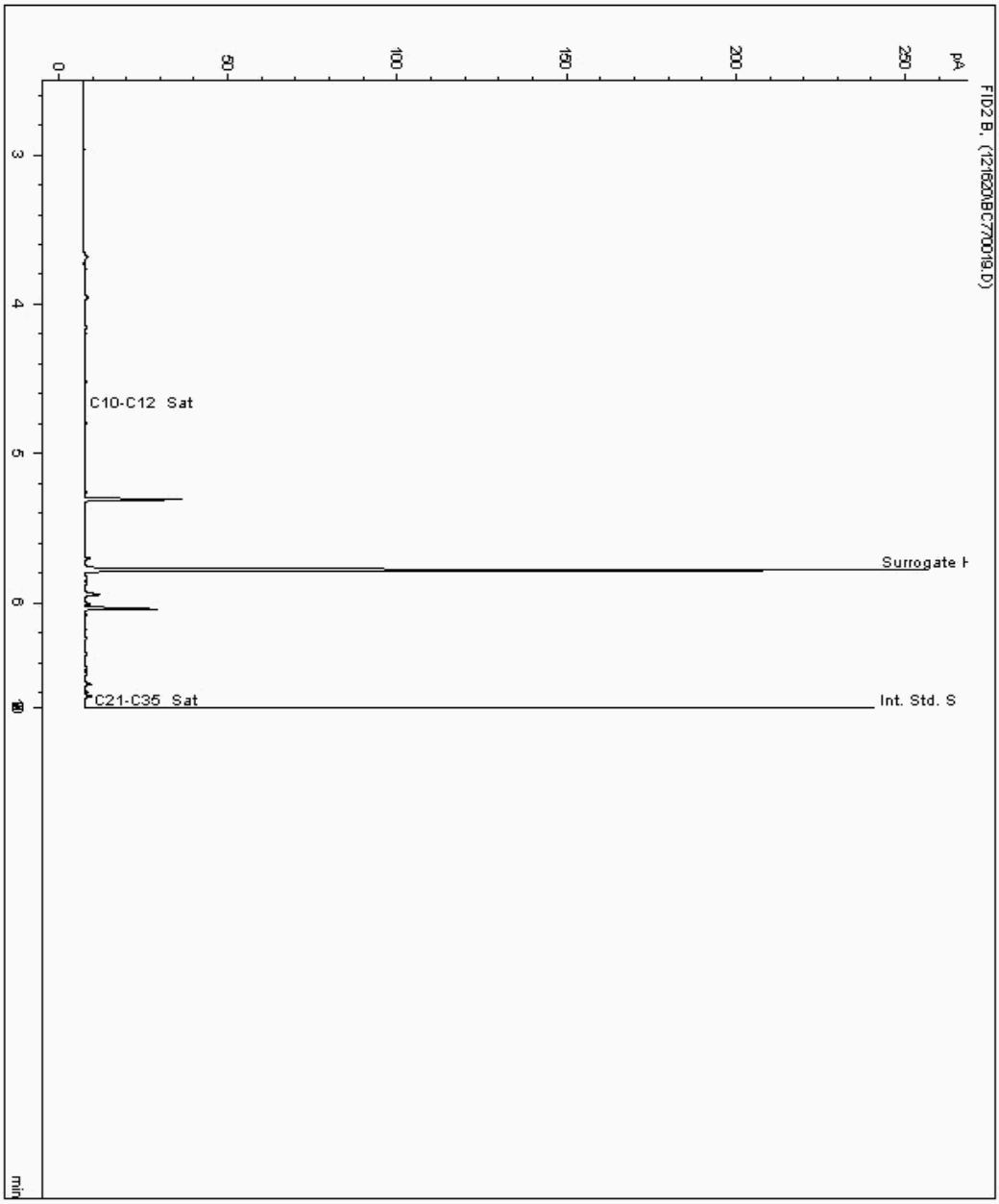
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aliphatic) Aqueous GC (W) **Sample No :** 23414125 **Sample ID :** BH305 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965383-
Date Acquired : 12/17/2020 6:26:52 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

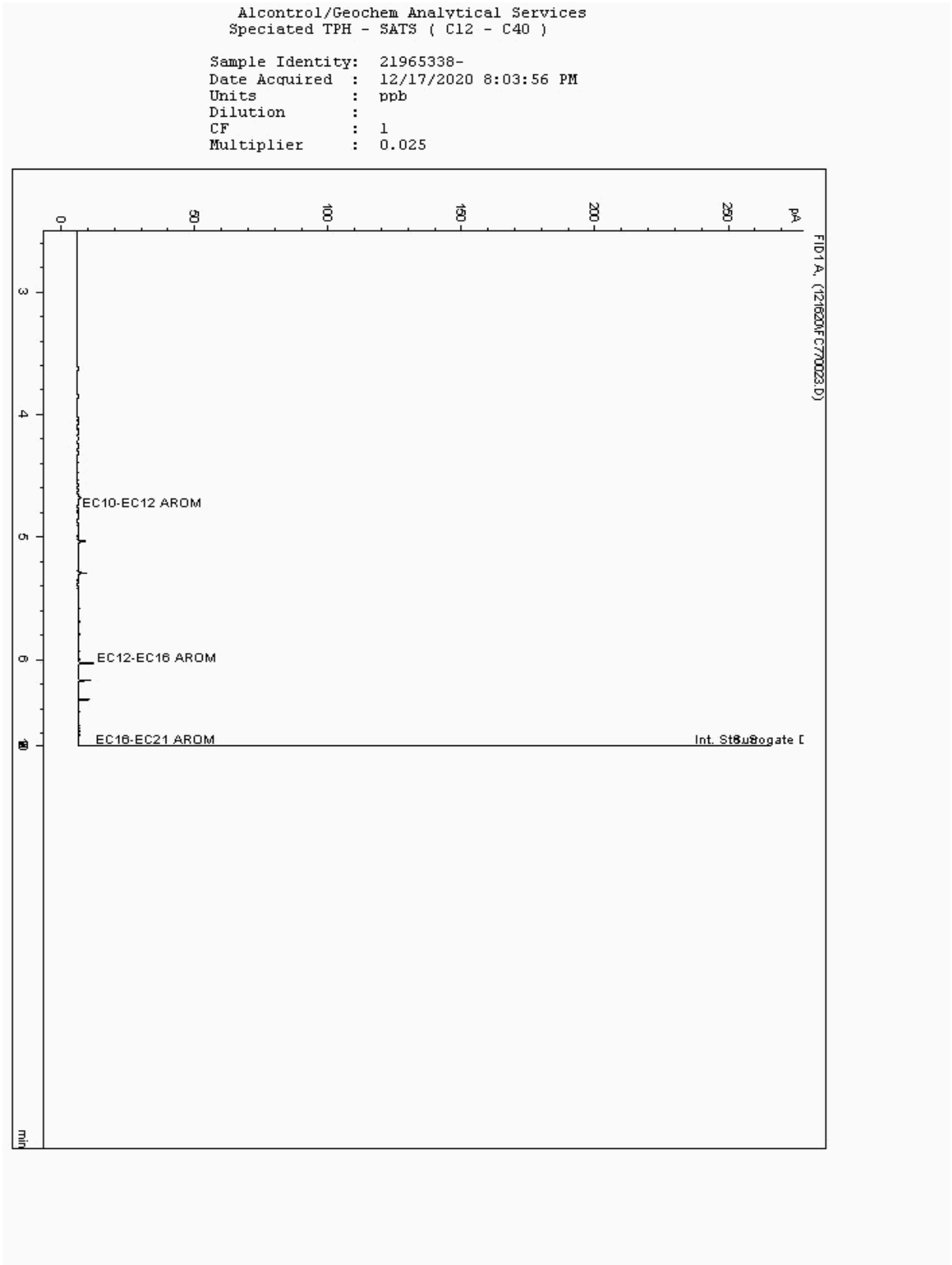


CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23413354 **Sample ID :** BH303 **Depth :** 0.00 - 0.00



CERTIFICATE OF ANALYSIS

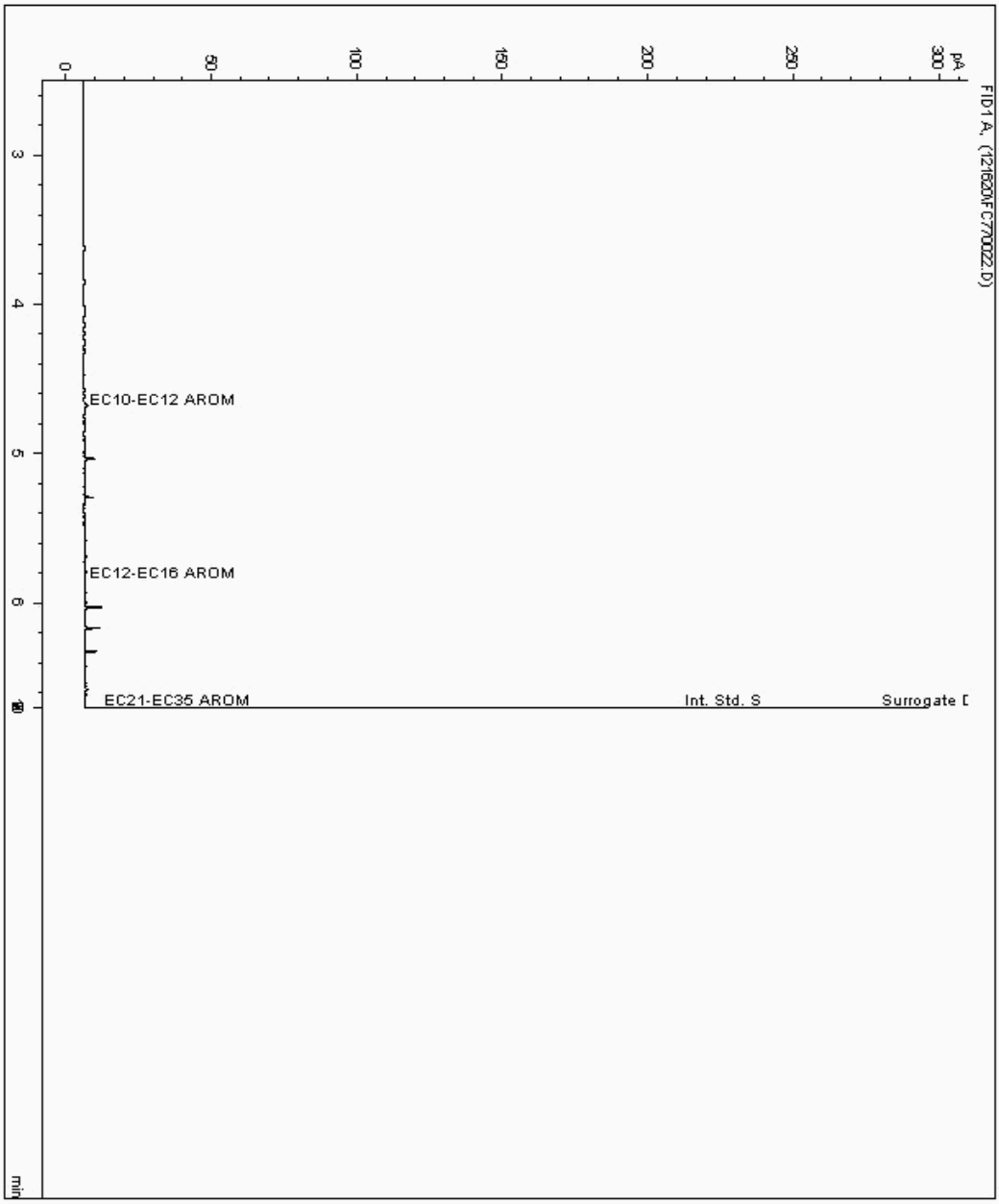
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23413367 **Sample ID :** BH302 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965309-
Date Acquired : 12/17/2020 7:39:36 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

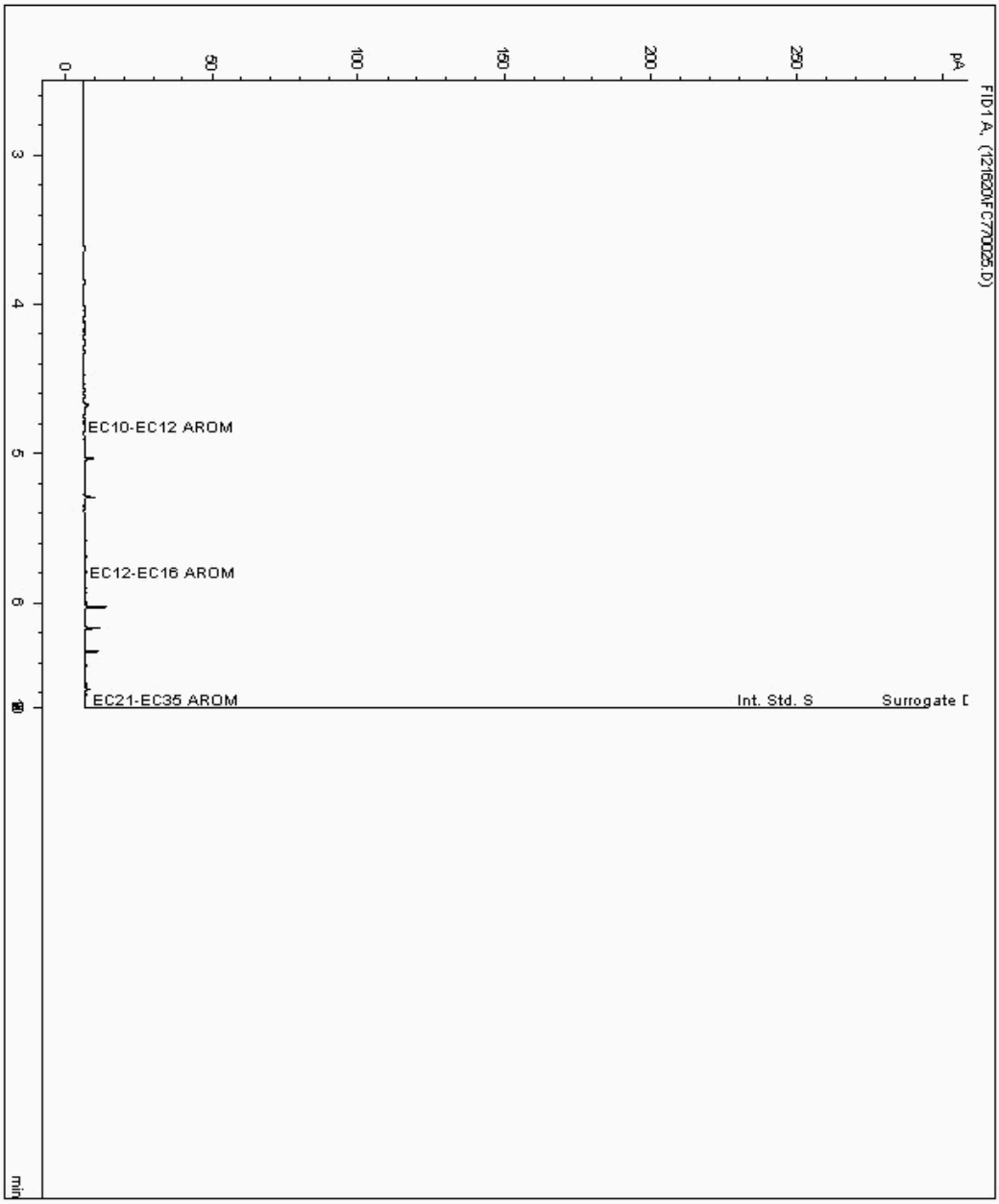
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23413383 **Sample ID :** BH304 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965361-
Date Acquired : 12/17/2020 8:52:31 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

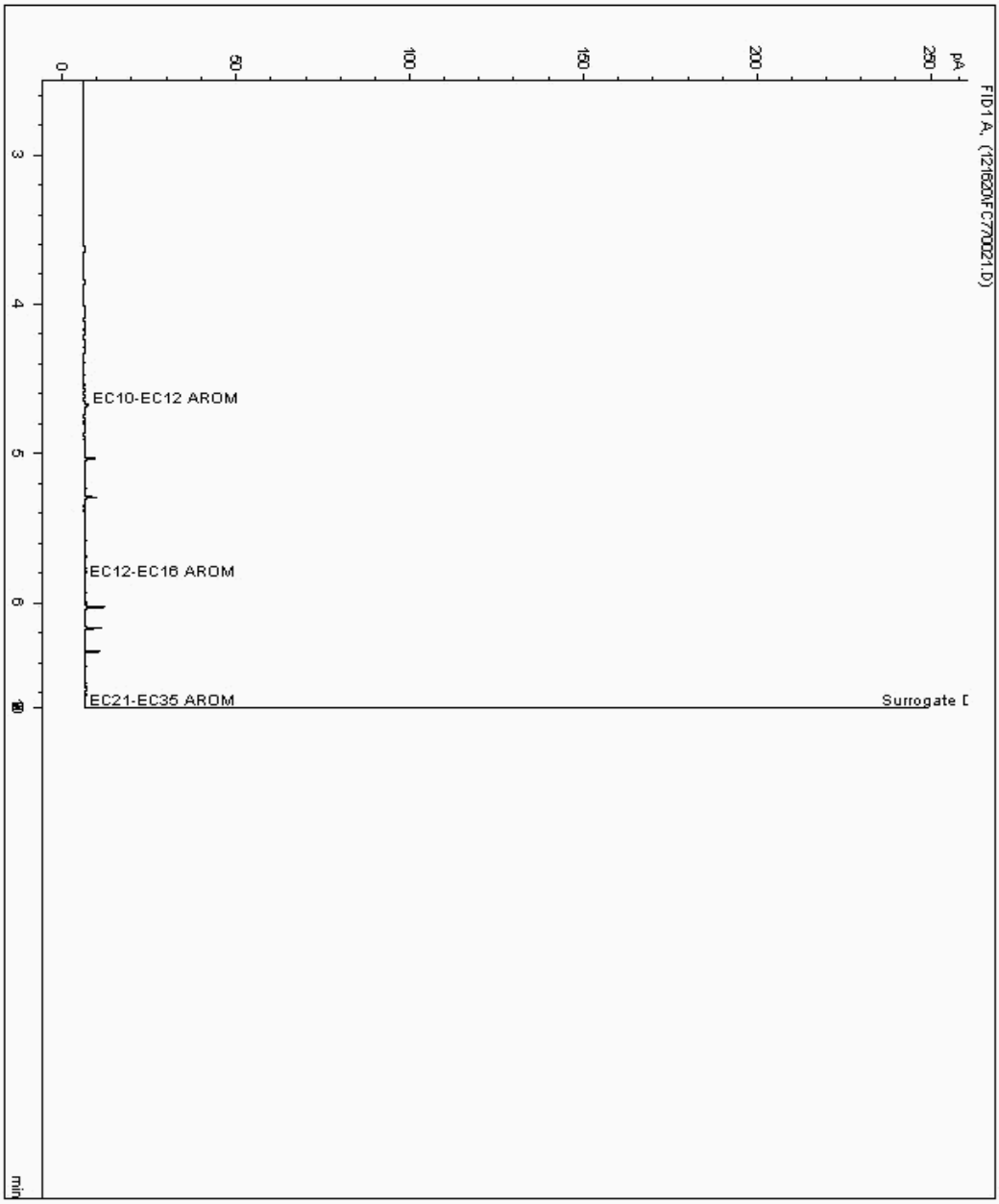
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23414119 **Sample ID :** BH301 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965285-
Date Acquired : 12/17/2020 7:15:17 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025



CERTIFICATE OF ANALYSIS

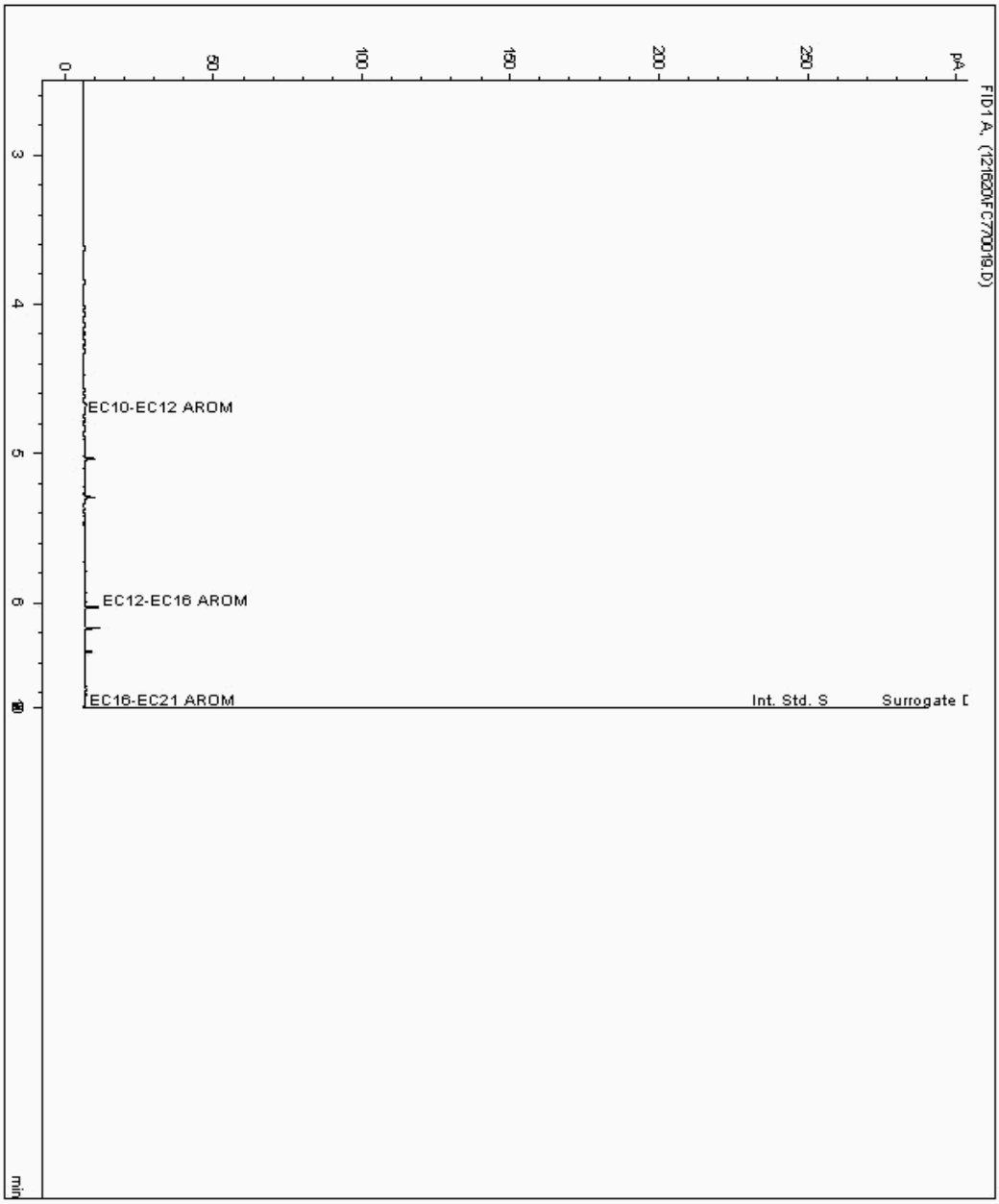
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: EPH CWG (Aromatic) Aqueous GC (W) **Sample No :** 23414125 **Sample ID :** BH305 **Depth :** 0.00 - 0.00

Alcontrol/Geochem Analytical Services
Speciated TPH - SATS (C12 - C40)

Sample Identity: 21965384-
Date Acquired : 12/17/2020 6:26:52 PM
Units : ppb
Dilution :
CF : 1
Multiplier : 0.025

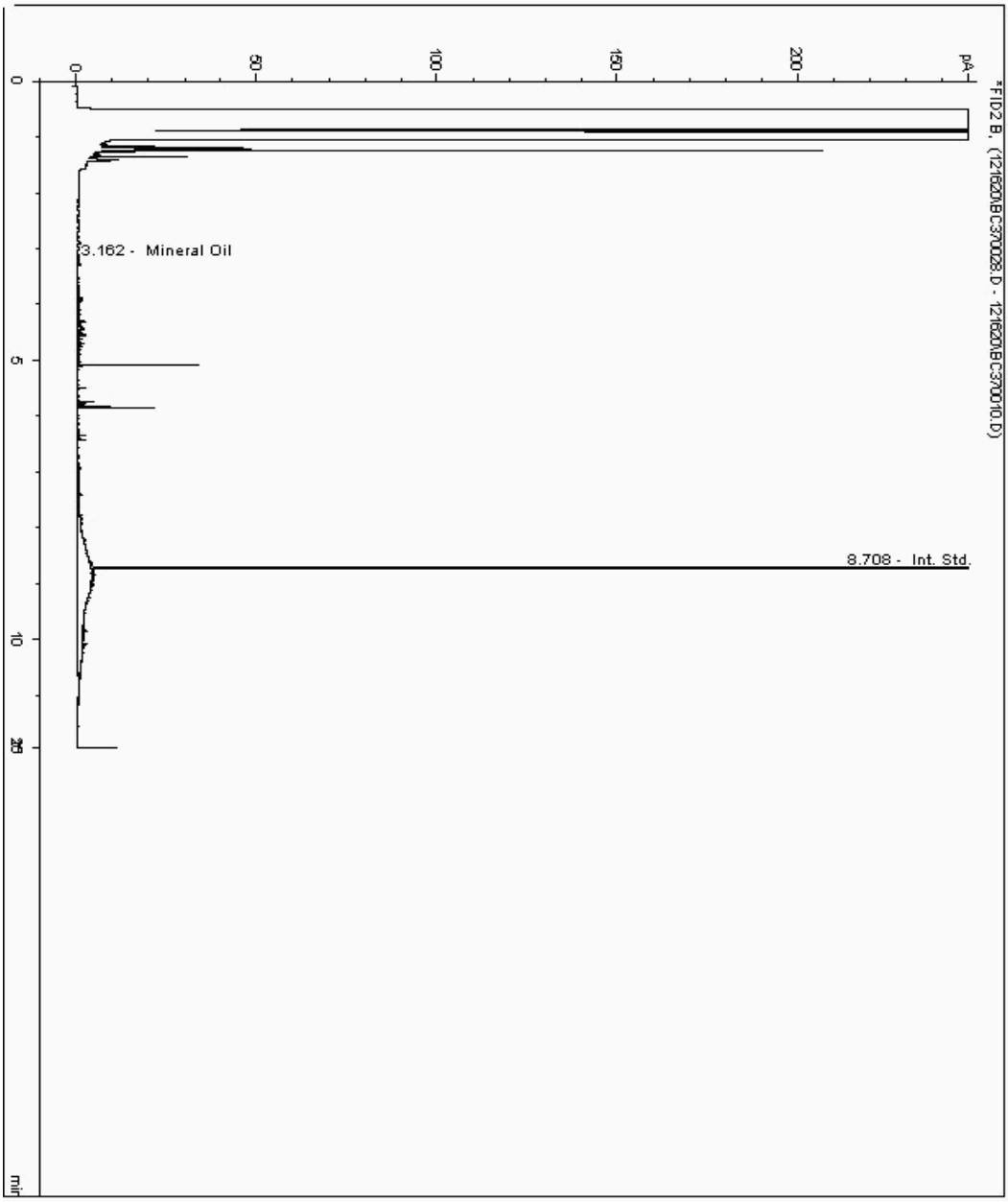


CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: Mineral Oil C10-40 Aqueous (W) **Sample No :** 23413354 **Sample ID :** BH303 **Depth :** 0.00 - 0.00

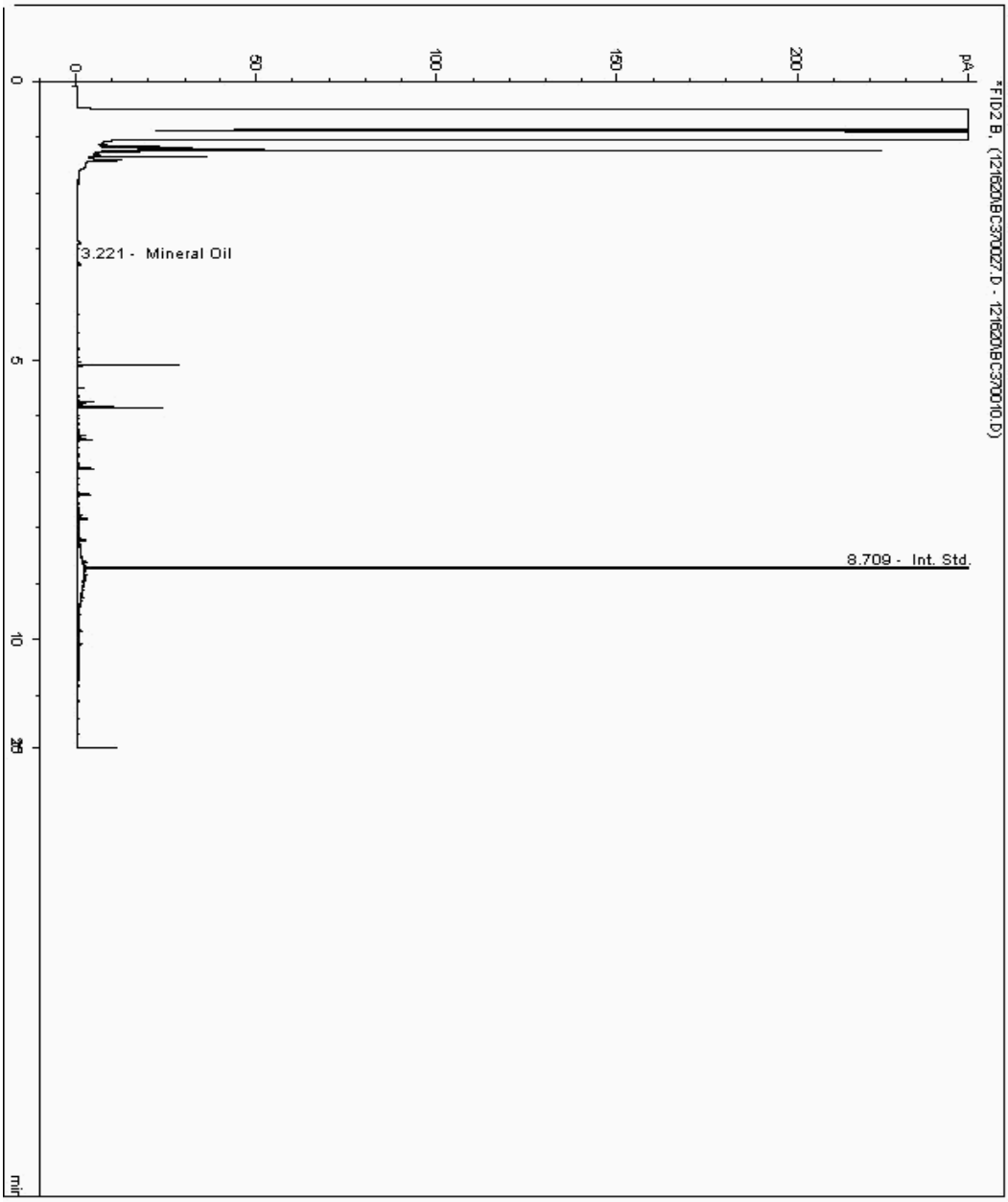


CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: Mineral Oil C10-40 Aqueous (W) **Sample No :** 23413367 **Sample ID :** BH302 **Depth :** 0.00 - 0.00

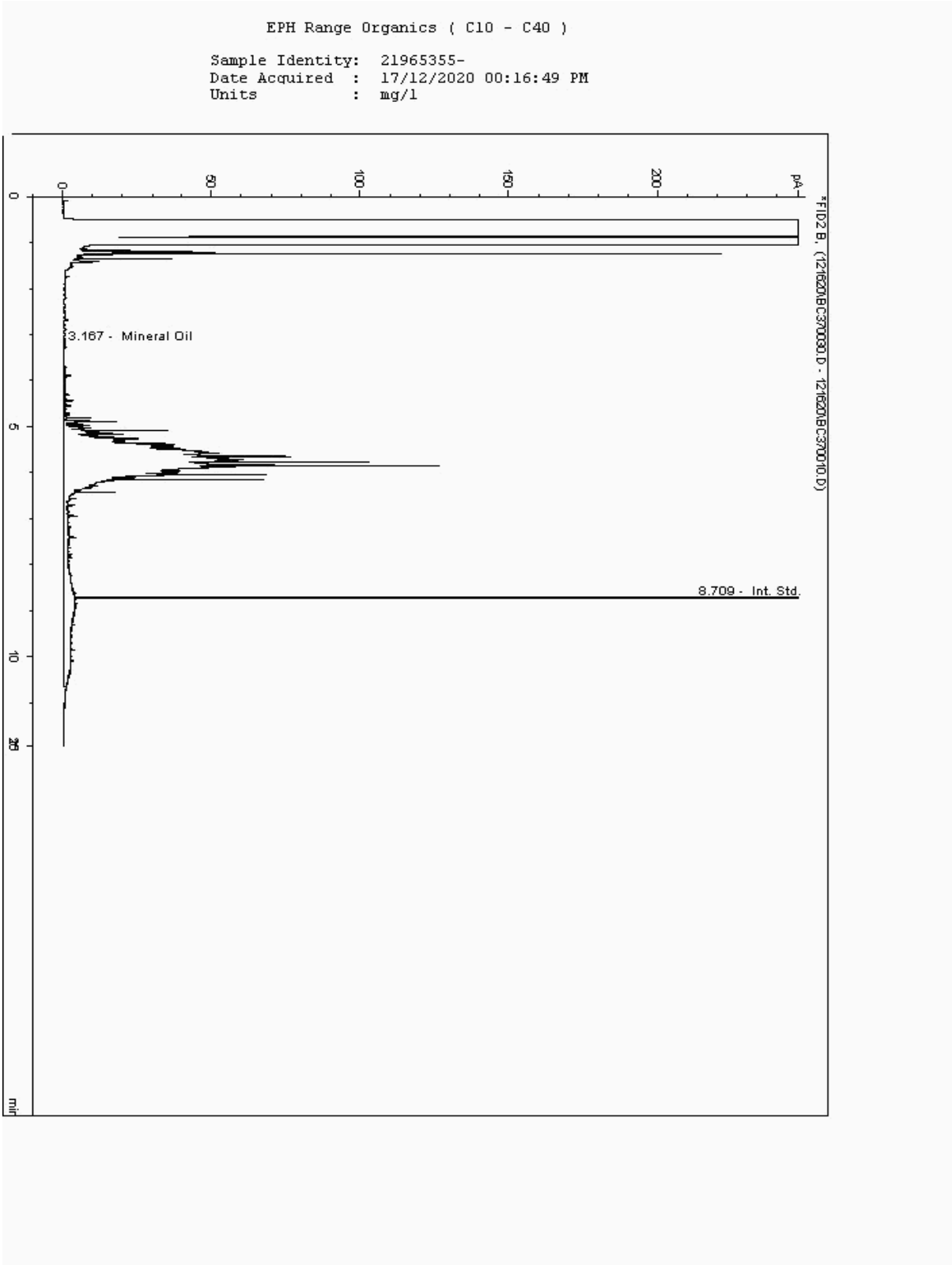


CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: Mineral Oil C10-40 Aqueous (W) **Sample No :** 23413383 **Sample ID :** BH304 **Depth :** 0.00 - 0.00

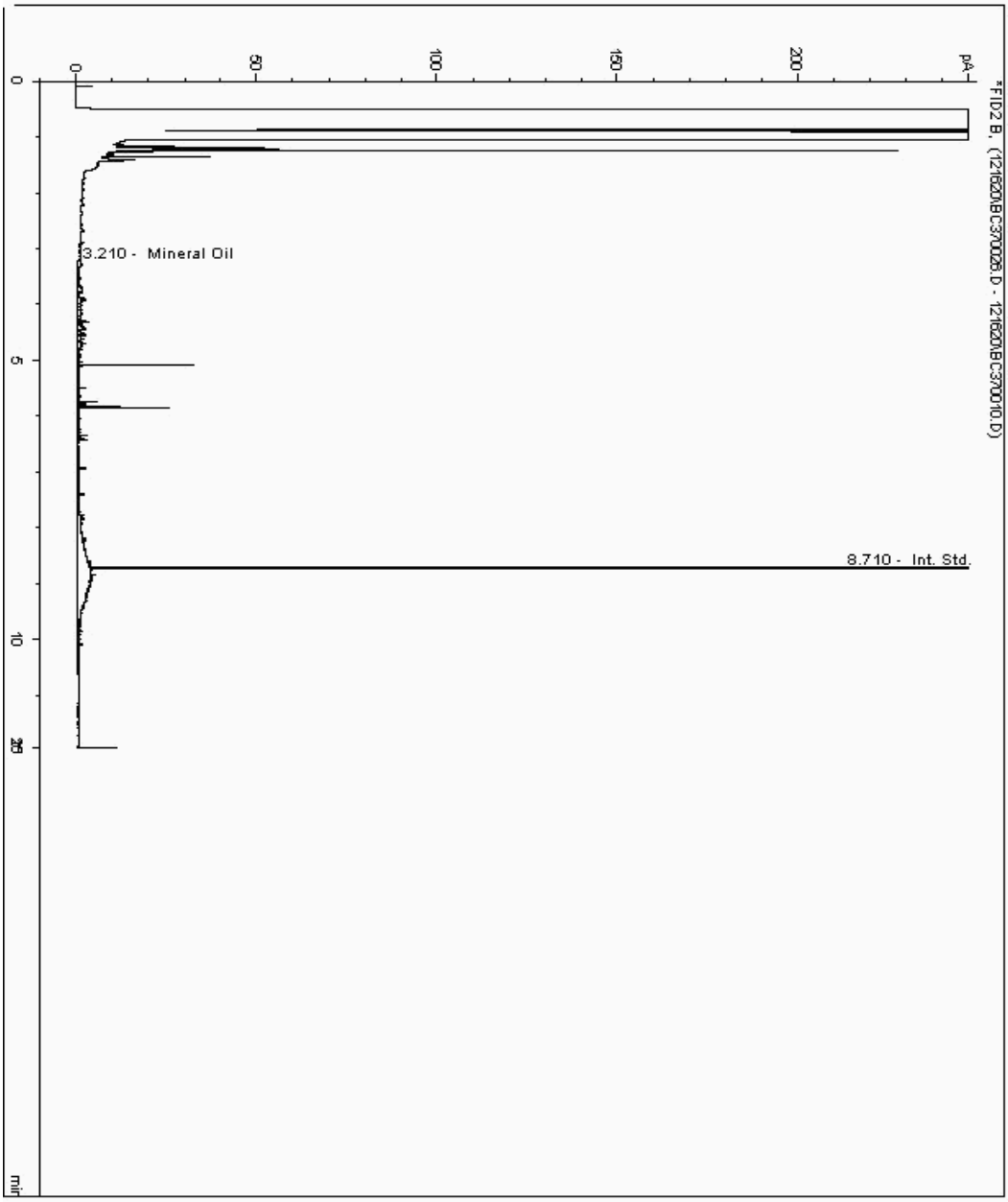


CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: Mineral Oil C10-40 Aqueous (W) **Sample No :** 23414119 **Sample ID :** BH301 **Depth :** 0.00 - 0.00

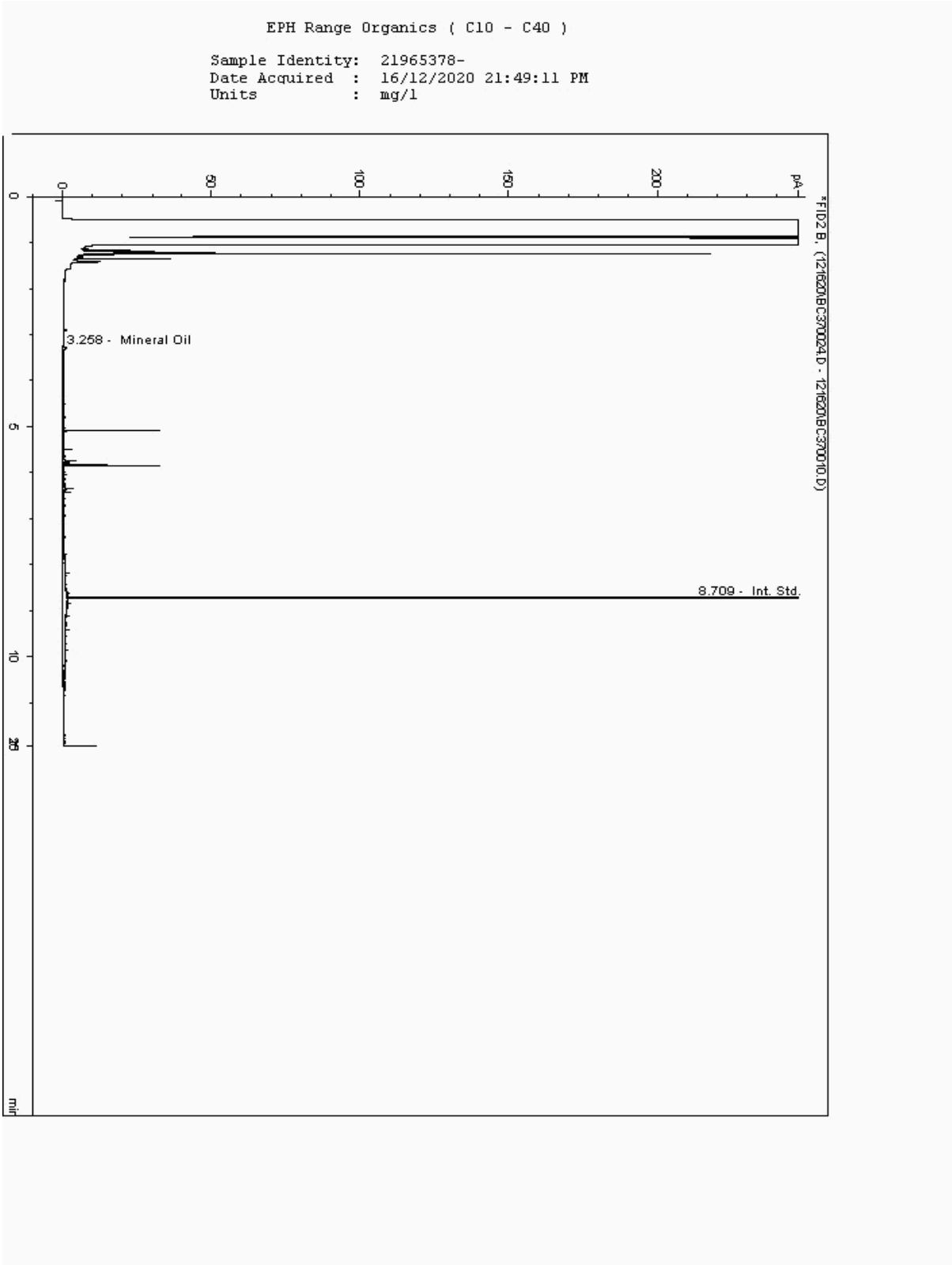


CERTIFICATE OF ANALYSIS

SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: Mineral Oil C10-40 Aqueous (W) **Sample No :** 23414125 **Sample ID :** BH305 **Depth :** 0.00 - 0.00



CERTIFICATE OF ANALYSIS

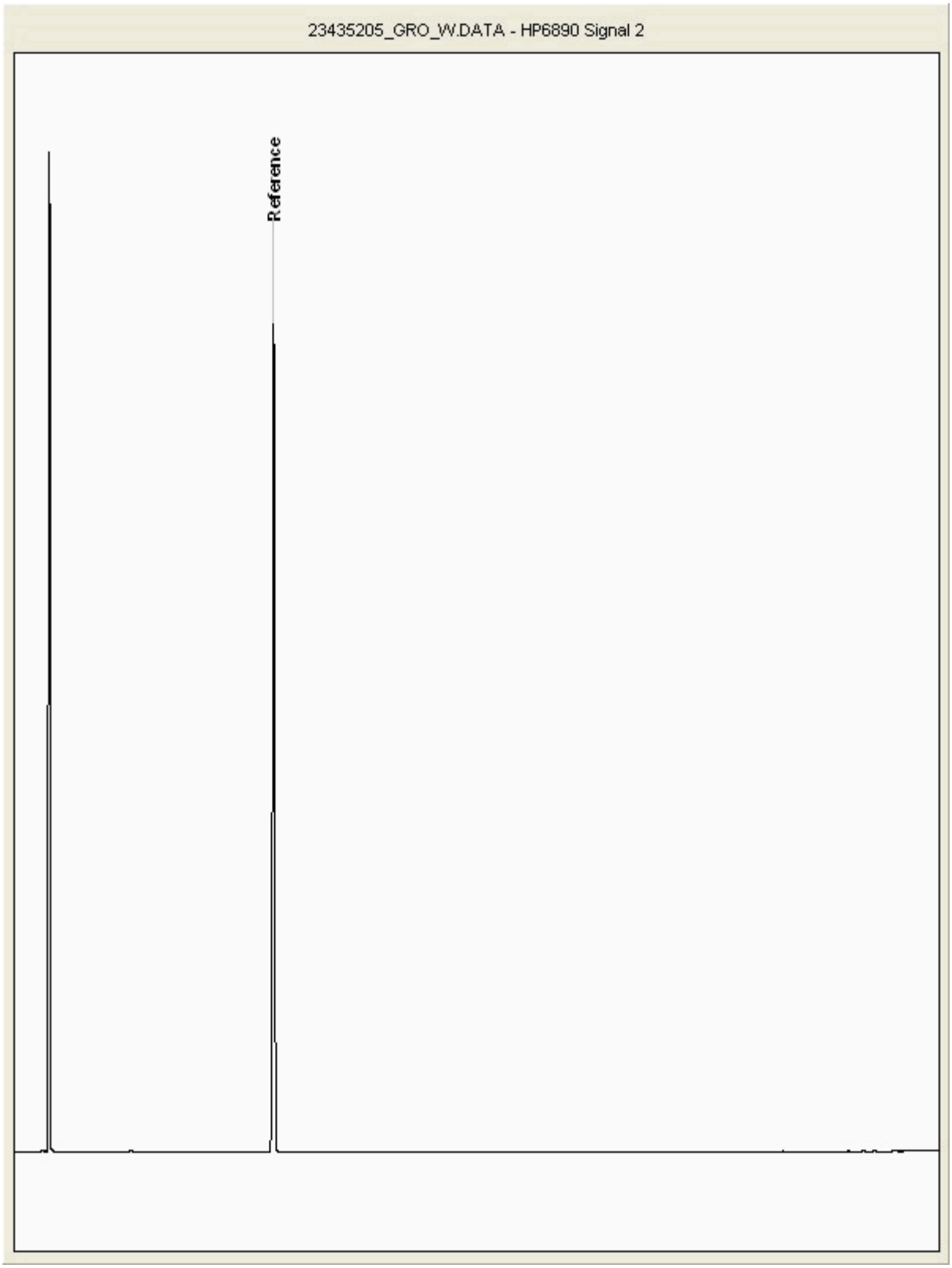
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23435205
Sample ID : BH302

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

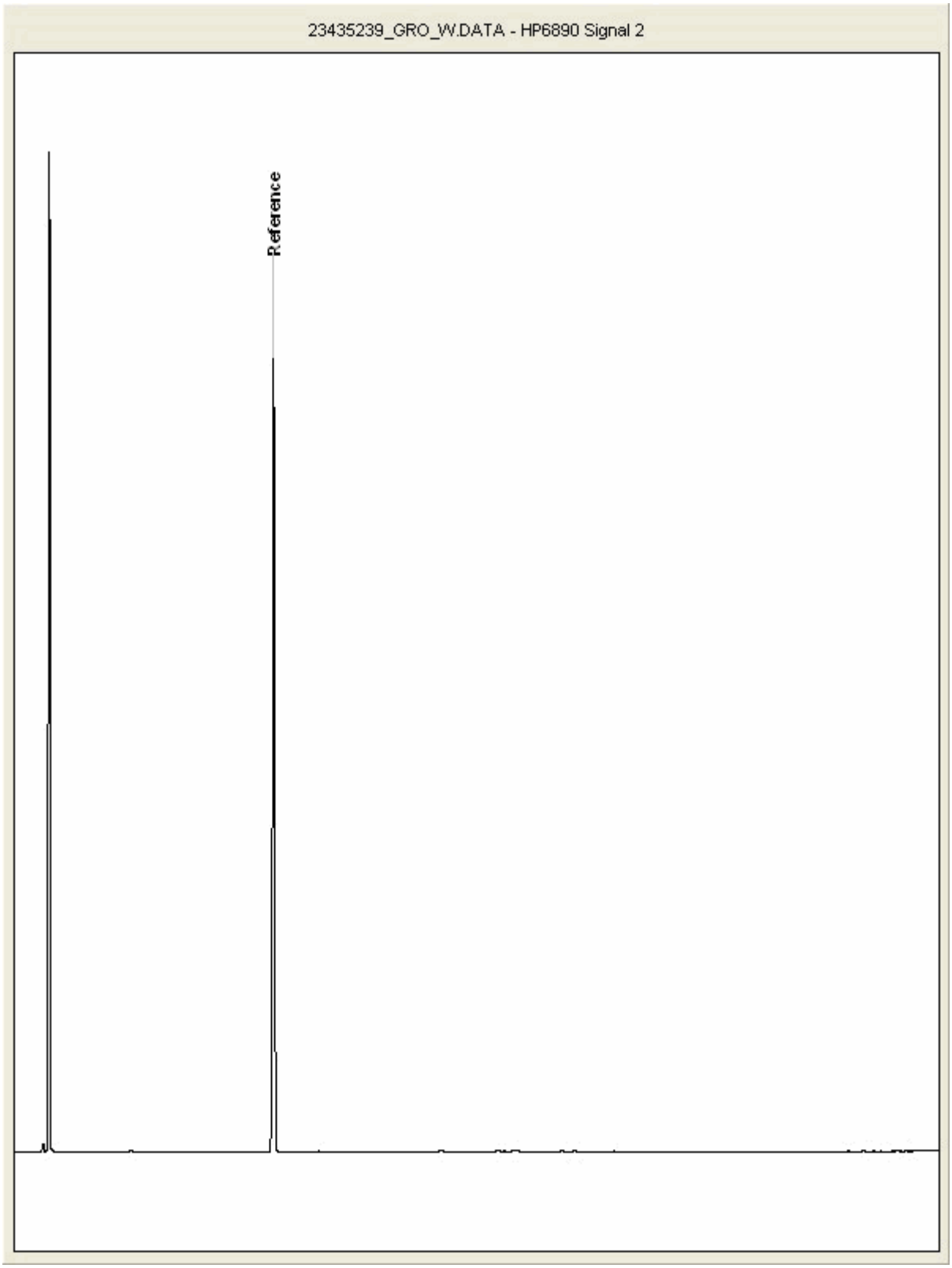
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23435239
Sample ID : BH303

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

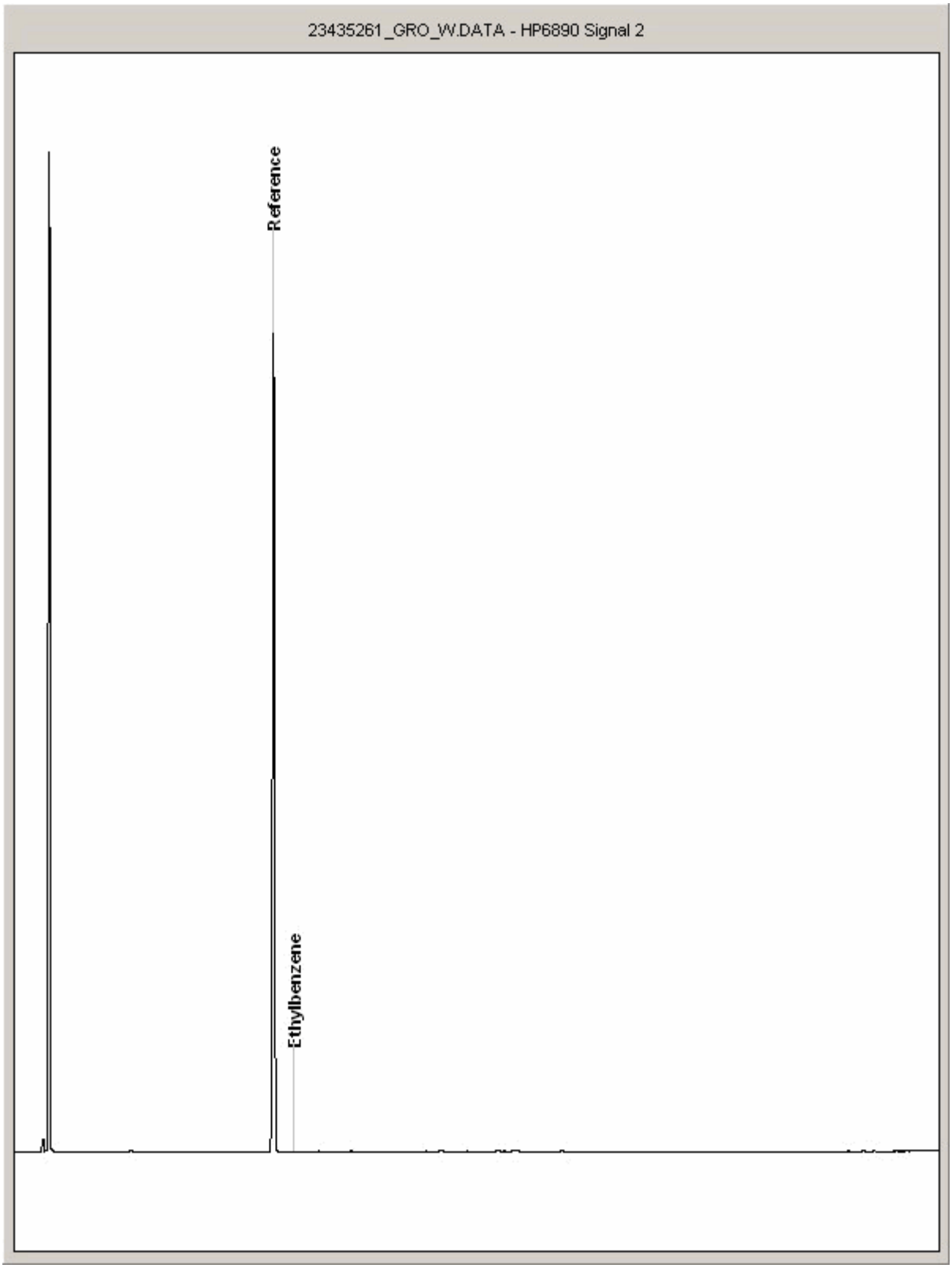
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23435261
Sample ID : BH301

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

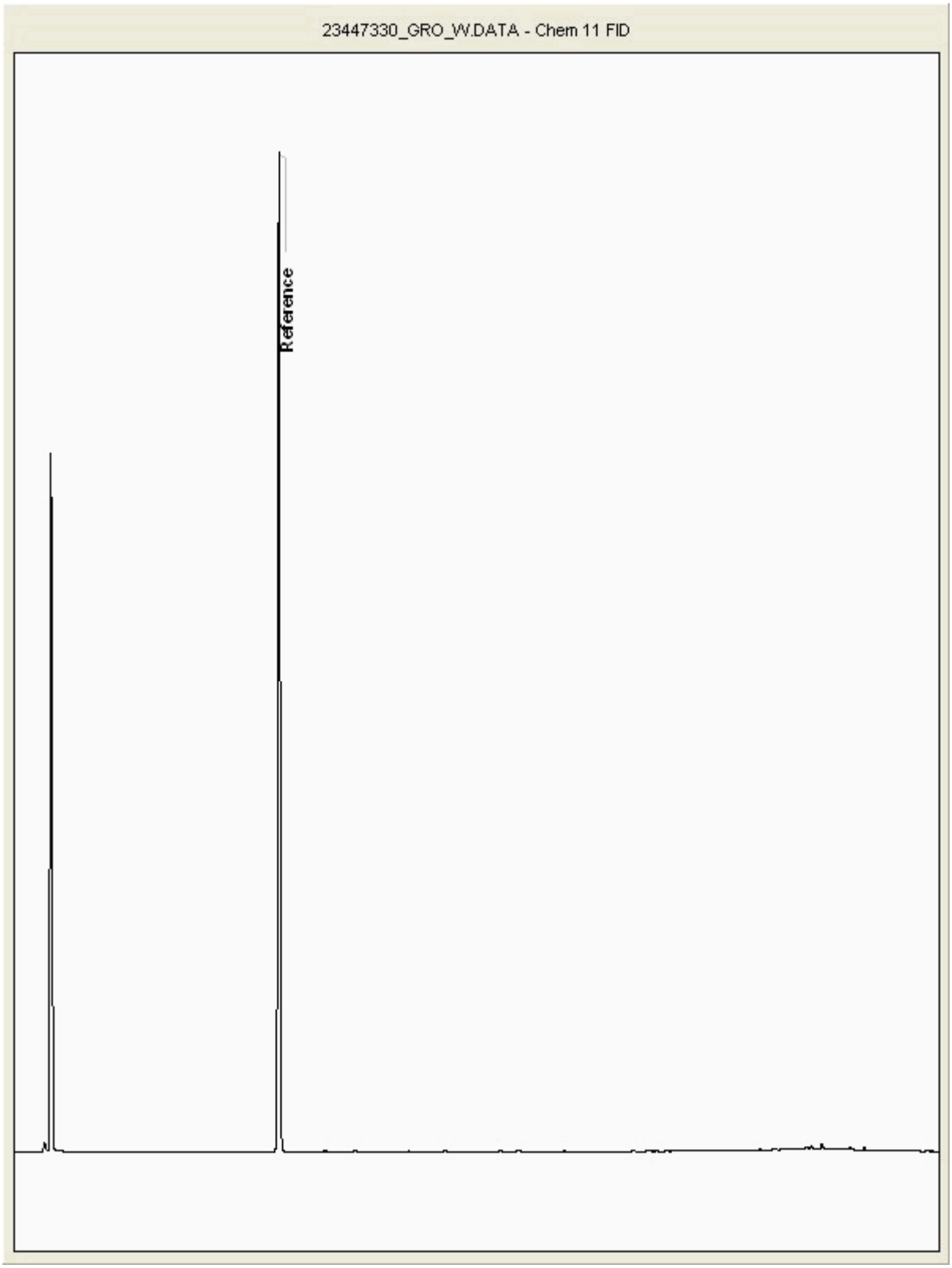
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23447330
Sample ID : BH304

Depth : 0.00 - 0.00



CERTIFICATE OF ANALYSIS

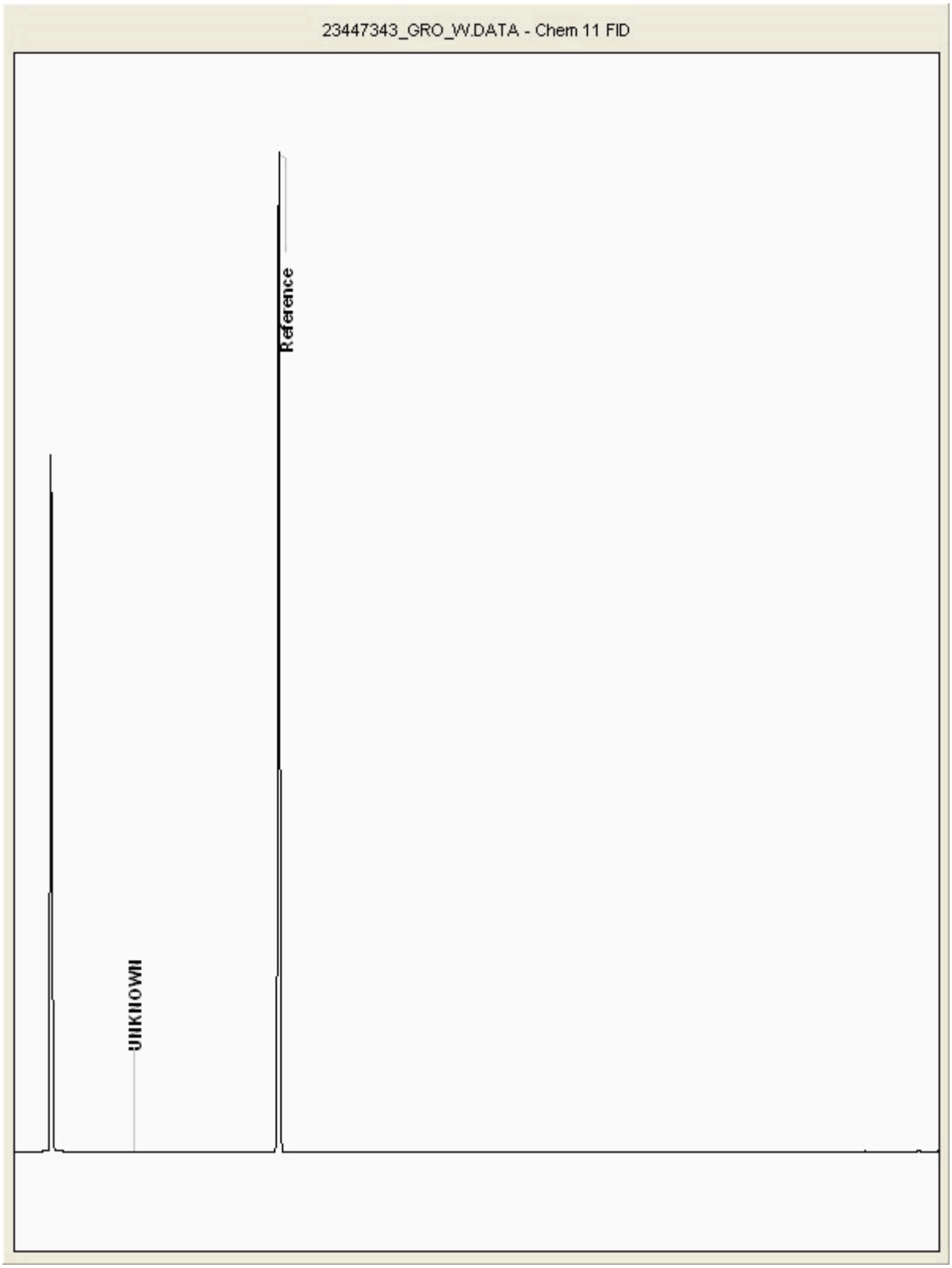
SDG:	201211-80	**Client Reference:**	2020WW102	**Report Number:**	581136
Location:	Arklow Bank	**Order Number:**	9028	**Superseded Report:**	

Chromatogram

Analysis: GRO by GC-FID (W)

Sample No : 23447343
Sample ID : BH305

Depth : 0.00 - 0.00



Appendix General

1. Results are expressed on a dry weight basis (dried at 35ºC) 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. 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 (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.

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. **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.

18. **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**

19. **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, based on HSG 248 (2005).

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.
Standing Committee of Analysts, *The Quantification of Asbestos in Soil (2017).*

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.

Appendix A
Exploratory Hole Records



Figure 1 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP301(1).JPG



Figure 2 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP301(2).JPG



Figure 3 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP301(3).JPG



Figure 4 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP302(1).JPG



Figure 5 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP302(2).JPG



Figure 6 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP302(3).JPG



Figure 7 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP303(1).JPG



Figure 8 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP303(2).JPG



Figure 9 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP303(3).JPG



Figure 10 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP303(4).JPG



Figure 11 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP304(1).JPG



Figure 12 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP304(2).JPG



Figure 13 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP304(3).JPG



Figure 14 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP304(4).JPG



Figure 15 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP305(1).JPG



Figure 16 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP305(2).JPG



Figure 17 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP306(1).JPG



Figure 18 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP306(2).JPG



Figure 19 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP306(3).JPG



Figure 20 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP307(1).JPG



Figure 21 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP307(2).JPG



Figure 22 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP307(3).JPG



Figure 23 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP308(1).JPG



Figure 24 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP308(2).JPG



Figure 25 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP309(1).JPG



Figure 26 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP309(2).JPG



Figure 27 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP310(1).JPG



Figure 28 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP310(2).JPG



Figure 29 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP310(3).JPG



Figure 30 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP311(1).JPG



Figure 31 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP311(2).JPG



Figure 32 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP312(1).JPG



Figure 33 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP312(2).JPG



Figure 34 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP313(1).JPG



Figure 35 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP313(2).JPG



Figure 36 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP314(1).JPG



Figure 37 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP314(2).JPG



Figure 38 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP315(1).JPG



Figure 39 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP315(2).JPG



Figure 40 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP315(3).JPG



Figure 41 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP316(1).JPG



Figure 42 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP316(2).JPG



Figure 43 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP316(3).JPG



Figure 44 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP317(1).JPG



Figure 45 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP317(2).JPG



Figure 46 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP318(1).JPG



Figure 47 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP318(2).JPG



Figure 48 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP319(1).JPG



Figure 49 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP319(2).JPG



Figure 50 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP320(1).JPG



Figure 51 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP320(2).JPG



Figure 52 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP321(1).JPG



Figure 53 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP321(2).JPG



Figure 54 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP322(1).JPG



Figure 55 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP322(2).JPG



Figure 56 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP322(3).JPG



Figure 57 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP323(1).JPG



Figure 58 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP323(2).JPG



Figure 59 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP323(3).JPG



Figure 60 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP324(1).JPG



Figure 61 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP324(2).JPG



Figure 62 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP325(1).JPG



Figure 63 H:\2020-WW-102 Arklow Bank\Arklow Bank Tp Photos\TP325(2).JPG

Appendix 10
Core Photographic Record


Arklow Bank
Onshore Works
Co. Wicklow
2020 WW 102
BH 301
Box
1. 2. 3.


Arklow Bank
Onshore Works
Co. Wicklow
2020 WW 102
BHR C 302
Box
1. 2.


Arklow Bank
Onshore Works
Co. Wicklow
2020 WW 102
-BH 303-
Box
1. 2. 3.
266
EOH


Arklow Bank
Onshore Works
Co. Wicklow
2020 WW 102
-BH 304
Box
1. 2. 3.
Washed Away


Arklow Bank
Onshore Works
Co. Wicklow
2020 WW 102
BH 304
Box
4. 5. 6.
22.3
23.8m
23.8
25.3m
25.3


Arklow Bank
Onshore Works
Co. Wicklow
2020 WW 102
BH 305
Box
1. 2. 3.
7.2
8.2
8.2m
9.7
11.2

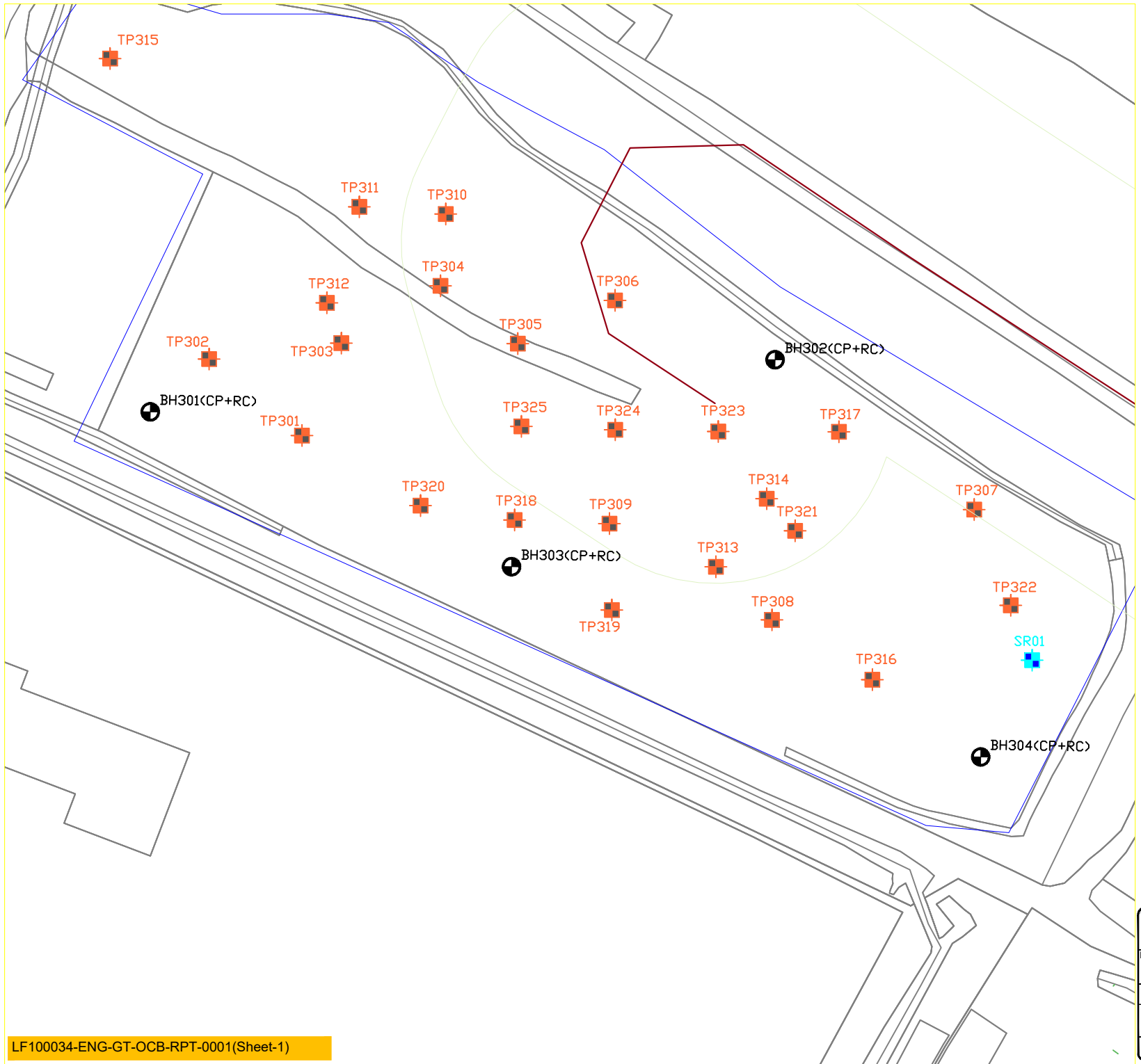

Arklow Bank
Onshore Works
Co. Wicklow
2020 WW 102
-BH 305
Box
4. 5. 6.
127
142
172
187
202

Appendix 11
'As Found' Drawing



LF100034-ENG-GT-OCB-RPT-0001(Overview)

Client :	SURE PARTNERS LIMITED (SPL)
Project :	ARKLOW BANK WIND PARK (SUB-STATION)
Date : 23-11-2020	**Scale :** not to scale
Description :	I.D.L (AS BUILT)
Drawing Number :	LF100034-ENG-GT-OCB-RPT-0001(Overview)



LEGEND

TRIAL PIT

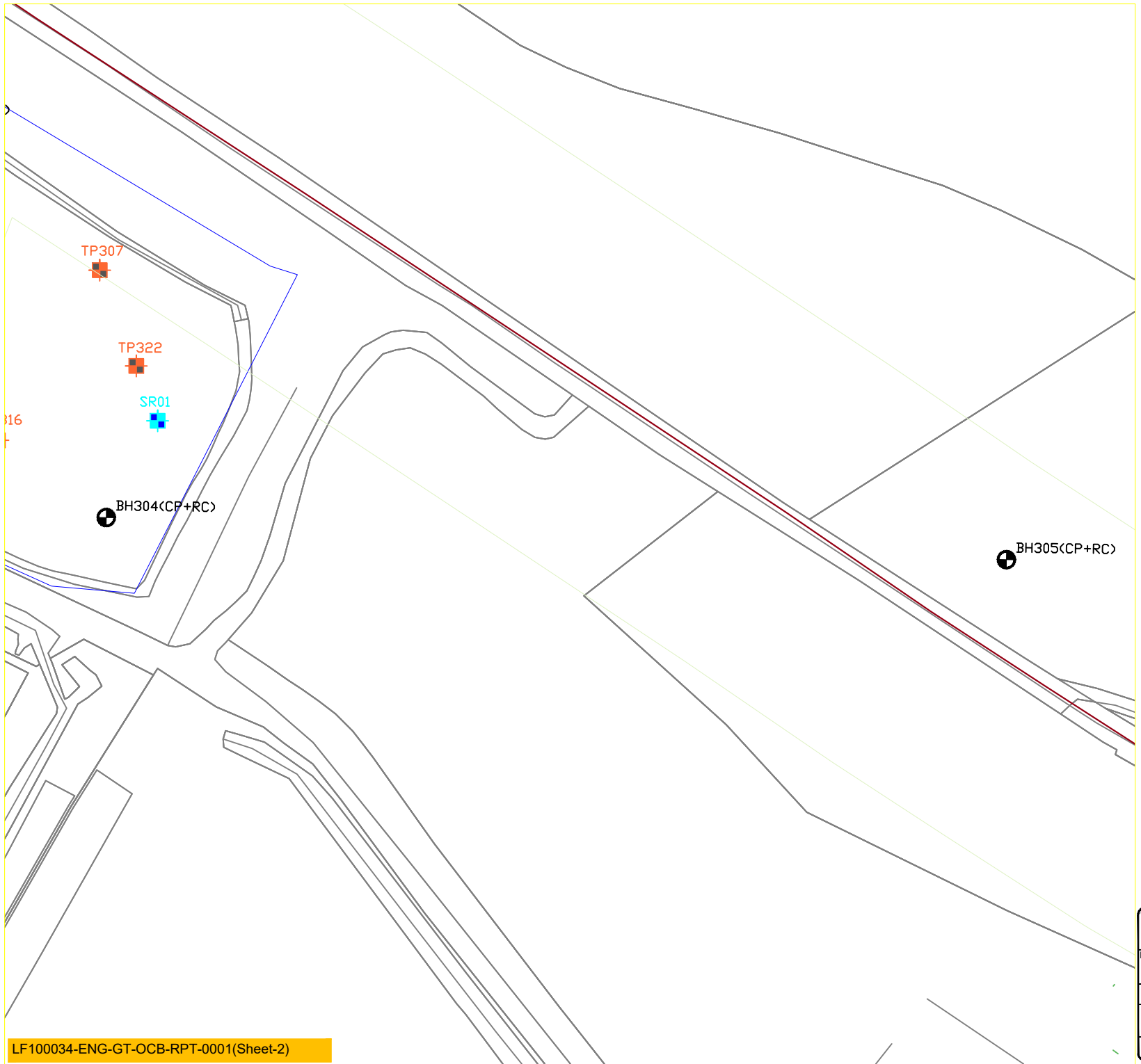
BOREHOLE (CP+RC)

CP- CABLE PERCUSSIVE

RC- ROTARY CORE

SOIL RESISTIVITY

Client :	SURE PARTNERS LIMITED (SPL)
Project :	ARKLOW BANK WIND PARK (SUB-STATION)
Date : 23-11-2020	**Scale :** not to scale
Description :	I.D.L (AS BUILT)
Drawing Number :	LF100034-ENG-GT-OCB-RPT-0001(Sheet-1)



LEGEND

TRIAL PIT

BOREHOLE (CP+RC)

CP- CABLE PERCUSSIVE

RC- ROTARY CORE

SOIL RESISTIVITY

Client :	SURE PARTNERS LIMITED (SPL)
Project :	ARKLOW BANK WIND PARK (SUB-STATION)
Date : 23-11-2020	**Scale :** not to scale
Description :	I.D.L (AS BUILT)
Drawing Number :	LF100034-ENG-GT-OCB-RPT-0001(Sheet-2)

Appendix 12
Digital Data