

Certificate of Analysis

Issuing Laboratory SOCOTEC, Marine Department, Advanced Chemistry and Research, Etwall House, Bretby Business Park, Ashby Road, Burton-upon-Trent DE15 0YZ



Test Report ID MAR02590

Issue Version: 1

Customer: Tayport Harbour Trust Ltd, Harbour Road, Tayport, Fife, DD6 9EU

Customer Reference: Marine Scotland Sediment Analysis

Date Sampled: 11-Feb-25

Date Samples Received: 17-Feb-25

Test Report Date: 17-Mar-25

Condition of samples: Cold Satisfactory

Opinions and Interpretations expressed herein are outside the scope of our UKAS accreditation
The results reported relate only to the sample tested
The results apply to the sample as received

<Redacted>

Authorised by: Jane Colbourne

Position: Customer Service Specialist



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		Units	%	%	%	%	%	Mg/m3
		Method No	ASC/SOP/303	ASC/SOP/303	SUB_01*	SUB_01*	SUB_01*	SUB_03*
		Limit of Detection	0.2	0.2	N/A	N/A	N/A	N/A
		Accreditation	UKAS	UKAS	N	N	N	N
Client Reference:	SOCOTEC Ref:	Matrix	Total Moisture @ 120°C	Total Solids	Gravel (>2mm)	Sand (63-2000 µm)	Silt (<63 µm)	Particle Density
S1	MAR02590.001	Sediment	50.6	49.4	3.21	79.99	16.80	2.67
S2	MAR02590.002	Sediment	48.1	51.9	39.21	24.48	36.31	2.64
S3	MAR02590.003	Sediment	33.7	66.3	0.09	82.67	17.23	2.67
Reference Material (% Recovery)			N/A	N/A	N/A	N/A	N/A	N/A
QC Blank			N/A	N/A	N/A	N/A	N/A	N/A

* See Report Notes
 NAD - No Asbestos Detected In Sample

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		Units	N/A	% M/M
		Method No	SUB_02*	WSLM59*
		Limit of Detection	N/A	0.02
		Accreditation	UKAS	UKAS
Client Reference:	SOCOTEC Ref:	Matrix	Asbestos	TOC
S1	MAR02590.001	Sediment	NAD	0.50
S2	MAR02590.002	Sediment	NAD	1.31
S3	MAR02590.003	Sediment	NAD	0.24
		Reference Material (% Recovery)	N/A	106
		QC Blank	N/A	<0.02

* See Report Notes

NAD - No Asbestos Detected In Sample

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		Units	mg/Kg (Dry Weight)							
		Method No	ICPMSS*							
		Limit of Detection	0.5	0.04	0.5	0.5	0.01	0.5	0.5	2
		Accreditation	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS
Client Reference:	SOCOTEC Ref:	Matrix	Arsenic	Cadmium	Chromium	Copper	Mercury	Nickel	Lead	Zinc
S1	MAR02590.001	Sediment	9.7	0.22	39.6	25.4	0.04	27.5	22.0	108
S2	MAR02590.002	Sediment	16.4	0.27	58.2	43.4	2.52	37.6	41.2	118
S3	MAR02590.003	Sediment	7.8	0.19	41.1	16.3	0.22	26.0	18.9	77.2
Certified Reference Material SETOC 768 (% Recovery)			93	102	90	100	95	93	99	101
QC Blank			<0.5	<0.04	<0.5	<0.5	<0.01	<0.5	<0.5	<2

* See Report Notes

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		Units	µg/Kg (Dry Weight)	
		Method No	ASC/SOP/301	
		Limit of Detection	1	1
		Accreditation	UKAS	UKAS
Client Reference:	SOCOTEC Ref:	Matrix	Dibutyltin (DBT)	Tributyltin (TBT)
S1	MAR02590.001	Sediment	<5	<5
S2	MAR02590.002	Sediment	<5	<5
S3	MAR02590.003	Sediment	<1	<1
Certified Reference Material BCR-646 (% Recovery)			62	61
QC Blank			<1	<1

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		Units	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)
		Method No	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304
		Limit of Detection	1	1	1	1	1	1
		Accreditation	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS
Client Reference:	SOCOTEC Ref:	Matrix	ACENAPTH	ACENAPHY	ANTHRACN	BAA	BAP	BBF
S1	MAR02590.001	Sediment	105	86.6	279	685	765	612
S2	MAR02590.002	Sediment	15.2	15.0	25.5	74.9	100	106
S3	MAR02590.003	Sediment	2.00	4.80	21.3	14.2	16.4	14.1
Certified Reference Material NIST 1941b (% Recovery)			62	97	64	64	55	79
QC Blank			<1	<1	<1	<1	<1	<1

For full analyte name see method summaries
~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are available.
As the method uses surrogate standards to correct for losses, the RM results are reported as percentage trueness, not recovery.
*See report notes

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		Units	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)
		Method No	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304
		Limit of Detection	1	1	1	1	1	1
		Accreditation	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS
Client Reference:	SOCOTEC Ref:	Matrix	BENZGHIP	BKF*	CHRYSENE *	DBENZAH	FLUORANT	FLUORENE
S1	MAR02590.001	Sediment	460	547	718	89.4	1570	148
S2	MAR02590.002	Sediment	89.3	84.8	81.7	19.9	173	15.4
S3	MAR02590.003	Sediment	12.1	14.5	15.9	2.98	18.0	3.57
Certified Reference Material NIST 1941b (% Recovery)			63	74	85	81	77	53
QC Blank			<1	<1	<1	<1	<1	<1

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		Units	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)
		Method No	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/304	ASC/SOP/303/306
		Limit of Detection	1	1	1	1	100
		Accreditation	UKAS	UKAS	UKAS	UKAS	N
Client Reference:	SOCOTEC Ref:	Matrix	INDPYR	NAPTH	PHENANT	PYRENE	THC
S1	MAR02590.001	Sediment	494	79.0	1050	1450	163000
S2	MAR02590.002	Sediment	103	36.0	72.6	156	213000
S3	MAR02590.003	Sediment	12.5	3.76	11.1	25.3	25100
Certified Reference Material NIST 1941b (% Recovery)			63	56	75	68	105~
QC Blank			<1	<1	<1	<1	<100

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		Units	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)
		Method No	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302
		Limit of Detection	0.08	0.08	0.08	0.08	0.08	0.08	0.08
		Accreditation	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS
Client Reference:	SOCOTEC Ref:	Matrix	PCB28	PCB52	PCB101	PCB118	PCB138	PCB153	PCB180
S1	MAR02590.001	Sediment	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
S2	MAR02590.002	Sediment	0.12	0.17	0.39	0.49	0.45	0.49	0.30
S3	MAR02590.003	Sediment	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08
Certified Reference Material NIST 1941b (% Recovery)			79	100	101	95	83	102	110
QC Blank			<0.08	<0.08	<0.08	<0.08	<0.08	<0.08	<0.08

For full analyte name see method summaries
 ~ Indicates result is for an In-house Reference Material as no Certified Reference Materials are available.

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		Units	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)	µg/Kg (Dry Weight)
		Method No	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302	ASC/SOP/302
		Limit of Detection	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
		Accreditation	UKAS	N*	N*	UKAS	UKAS	N*	N*	UKAS
Client Reference:	SOCOTEC Ref:	Matrix	AHCH	BHCH	GHCH	DIELDRIN	HCB	DDE	DDT	DDD
S1	MAR02590.001	Sediment	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
S2	MAR02590.002	Sediment	<0.1	<0.1	<0.1	<0.1	<0.1	0.15	<0.1	0.15
S3	MAR02590.003	Sediment	<0.1	<0.1	<0.1	0.18	<0.1	0.59	0.56	0.62
Certified Reference Material NIST 1941b (% Recovery)			90~	65~	63~	91~	124	91	67~	50
QC Blank			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

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REPORT NOTES

Method Code	Sample ID	The following information should be taken into consideration when using the data contained within this report
WSLM59*	MAR02590.001-003	Analysis was conducted by an internal SOCOTEC laboratory. UKAS accredited analysis by this laboratory is under UKAS number 1252.
ICPMSS*	MAR02590.001-003	Analysis was conducted by an internal SOCOTEC laboratory. UKAS accredited analysis by this laboratory is under UKAS number 1252.
SUB_01*	MAR02590.001-003	Analysis was conducted by an approved subcontracted laboratory.
SUB_02*	MAR02590.001-003	Analysis was conducted by an approved subcontracted laboratory.
SUB_03*	MAR02590.001-003	Analysis was conducted by an approved subcontracted laboratory.
ASC/SOP/301	MAR02590.001-002	The matrix of this sample has been found to interfere with the result for this test. The sample has therefore been diluted, but in doing so, the detection limit for this test has been elevated.
ASC/SOP/302	MAR02590.001-003	The Primary process control data associated with this Test has not wholly met the requirements of the Laboratory Quality Management System QMS with one or more target analytes falling outside acceptable limits. The remaining data gives the Laboratory confidence that the test has performed satisfactorily and that the validity of the data may not have been significantly affected. However in line with our QMS policy we have removed accreditation, where applicable, from the affected analytes (BHCH, GHCH, DDE, DDT) . These circumstances should be taken into consideration when utilising the data.
ASC/SOP/303/304	MAR02590.001-003	Benzo[k]fluoranthene is known to coelute with Benzo[j]fluoranthene and these peaks can not be resolved. It is believed Benzo[j]fluoranthene is present in these samples therefore it is suggested that the Benzo[k]fluoranthene results should be taken as a Benzo[k]fluoranthene (inc. Benzo[j]fluoranthene). Benzo[j]fluoranthene is not UKAS accredited. This should be taken into consideration when utilising the data.
ASC/SOP/303/304	MAR02590.001-003	Chrysene is known to coelute with Triphenylene and these peaks can not be resolved. It is believed Triphenylene is present in these samples therefore it is suggested that the Chrysene results should be taken as a Chrysene (inc. Triphenylene). This should be taken into consideration when utilising the data.

DEVIATING SAMPLE STATEMENT

Deviation Code	Deviation Definition	Sample ID	Deviation Details. The following information should be taken into consideration when using the data contained within this report
D1	Holding Time Exceeded	N/A	N/A
D2	Sample Contaminated through Damaged Packaging	N/A	N/A
D3	Sample Contaminated through Sampling	N/A	N/A
D4	Inappropriate Container/Packaging	N/A	N/A
D5	Damaged in Transit	N/A	N/A
D6	Insufficient Quantity of Sample	N/A	N/A
D7	Inappropriate Headspace	N/A	N/A
D8	Retained at Incorrect Temperature	N/A	N/A
D9	Lack of Date & Time of Sampling	N/A	N/A
D10	Insufficient Sample Details	N/A	N/A
D11	Sample integrity compromised or not suitable for analysis	N/A	N/A

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Method	Sample and Fraction Size	Method Summary
Total Solids	Wet Sediment	Calculation (100%-Moisture Content).Moisture content determined by drying a portion of the sample at 120°C to constant weight.
Particle Size Analysis	Wet Sediment	Wet and dry sieving followed by laser diffraction analysis.
Total Organic Carbon (TOC)	Air dried and ground	Carbonate removal and sulphurous acid/combustion at 1600°C/NDIR.
Metals	Air dried and seived to <63µm	Aqua-regia extraction followed by ICP analysis.
Organotins	Wet Sediment	Solvent extraction and derivatisation followed by GC-MS analysis.
Polyaromatic Hydrocarbons (PAH)	Wet Sediment	Solvent extraction and clean up followed by GC-MS analysis.
Total Hydrocarbon Content (THC)	Wet Sediment	Solvent extraction and clean up followed by GC-FID analysis.
Polychlorinated Biphenyls (PCBs)	Air dried and seived to <2mm	Solvent extraction and clean up followed by GC-MS-MS analysis.
Organochlorine Pesticides (OCPs)	Air dried and seived to <2mm	Solvent extraction and clean up followed by GC-MS-MS analysis.

Analyte Definitions					
Analyte Abbreviation	Full Analyte name	Analyte Abbreviation	Full Analyte name	Analyte Abbreviation	Full Analyte name
ACENAPTH	Acenaphthene	C2N	C2-naphthalenes	THC	Total Hydrocarbon Content
ACENAPHY	Acenaphthylene	C3N	C3-naphthalenes	AHCH	alpha-Hexachlorocyclohexane
ANTHRACN	Anthracene	CHRYSENE	Chrysene	BHCH	beta-Hexachlorocyclohexane
BAA	Benzo[a]anthracene	DBENZAH	Dibenzo[ah]anthracene	GHCH	gamma-Hexachlorocyclohexane
BAP	Benzo[a]pyrene	FLUORANT	Fluoranthene	DIELDRIN	Dieldrin
BBF	Benzo[b]fluoranthene	FLUORENE	Fluorene	HCB	Hexachlorobenzene
BEP	Benzo[e]pyrene	INDPYR	Indeno[1,2,3-cd]pyrene	DDD	p,p'-Dichlorodiphenyldichloroethane
BENZGHIP	Benzo[ghi]perylene	NAPTH	Naphthalene	DDE	p,p'-Dichlorodiphenyldichloroethylene
BKF	Benzo[k]fluoranthene	PERYLENE	Perylene	DDT	p,p'-Dichlorodiphenyltrichloroethane
C1N	C1-naphthalenes	PHENANT	Phenanthrene		
C1PHEN	C1-phenanthrene	PYRENE	Pyrene		

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