



CERTIFICATE OF ANALYSIS

Client : Michael J. Murphy
 Kiltiernan Group Water Scheme
 Caheradoo
 Kilcolgan
 Co. Galway

Report No. : 442469
 Date of Receipt : 10/03/2021
 Start Date of Analysis : 10/03/2021
 Date of Report : 25/03/2021
 Order Number :
 Sample taken by : Client

Lab No	Sample Description	Test	Ref.	Result	Units
1153184	Kiltiernan GWS. Treated Water	BOD	I,R	<1	mg/l
		Colour	I,R	<4	mg/l Pt Co
		COD	I,R	<10	mg/l
		Turbidity	I,R	0.2	N.T.U.
		pH	I,R	7.5	pH Units
		Conductivity @20C	I,R	586	uS/cm
		Nitrite as N	I,R	<0.005	mg/l
		Copper, total	I,R	3	ug/l
		Sodium, total	I,R	20	mg/l
		Chloride	I,R	29.9	mg/l
		Ammonium as NH4	I,R	<0.01	mg/l
		Nitrate as NO3	I,R	5.15	mg/l
		Dissolved Oxygen (%)	F,R	96.2@lab	%Sat
		Iron, total	I,R	<10	ug/l
		Potassium, total	I,R	4	mg/l
		Total Hardness (Kone)	I,R	246	mg/l CaCO3
		Magnesium, total	I,R	6	mg/l
		Sulphate	I,R	8.3	mg/l
		Orthophosphate as PO4-P	I,R	<0.01	mg/l
		Arsenic, total	I,R	<0.5	ug/l
		Manganese, total	I,R	<5	ug/l
		Zinc, total	I,R	<5	ug/l
		Calcium, total	I,R	98	mg/l
		Aluminium, dissolved	I,R	19	ug/l
		Iron, dissolved	I,R	<10	ug/l
		Manganese, dissolved	I,R	<5	ug/l
		Copper, dissolved	I,R	3	ug/l
		Lead, dissolved	I,R	<0.5	ug/l
		Chromium, dissolved	I,R	<0.5	ug/l
		Nickel, dissolved	I,R	<0.5	ug/l
		Cadmium, dissolved	I,R	<0.5	ug/l
		Arsenic, dissolved	I,R	<0.5	ug/l
		Zinc, dissolved	I,R	<5	ug/l
		Barium, dissolved	I,R	6	ug/l
TOC	I,R	1.90	mg/l		
Clostridium Perfringens in Water	I,R	0	cfu/100ml		
Strontium, dissolved	I,R	147	ug/l		
E coli (Filtration) (Environmental Waters)	I,R	0	cfu/100ml		
Total Coliforms (Filtration) (Environmental Waters)	I,R	0	cfu/100ml		
TPH (>C5 - C44) by GC-FID	I,R	55 **Unknown Pattern	ug/l		
Silica as Si	R	0.952	mg/l		



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Approved by:

James Feighan
Scientific Project
Manager

See below for test specifications and accreditation status.

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Ocfu is reported in waters, this refers to 'not detected in volume tested'

It is recommended that water samples requiring microbiological analysis should be tested within 24 hours of sampling. CLS will test food, water and swabs samples within 24 hours of receipt.

Where samples have been taken by the Client, results apply to the samples as received.



In-House Test	Specification	Measurement of Uncertainty	17025	GMP/FDA*	ISO**
BOD	CLS 12	+/- 9.33 %	Yes	No	Yes
Colour	CLS 29	+/- 9.86 %	Yes	No	Yes
COD	CLS 52	+/- 4.48 %	Yes	No	Yes
Turbidity	CLS 30	+/- 22.03 %	Yes	No	Yes
pH	CLS 26	+/- 0.133 pH units	Yes	No	Yes
Conductivity @20C	CLS 67	+/- 4.92 %	Yes	No	Yes
Nitrite as N	Konelab CLS 37	+/- 7.55 %	Yes	No	Yes
Copper, total	ICP-MS CLS129	+/- 11.28 %	Yes	No	Yes
Sodium, total	ICP-MS CLS129	+/- 11.62 %	Yes	No	Yes
Chloride	Konelab CLS 36	+/- 12.10 %	Yes	No	Yes
Ammonium as NH4	Konelab CLS 40	+/- 5.13 %	Yes	No	Yes
Nitrate as NO3	Konelab CLS 39	+/- 2 @ 17 mg/l NO3	Yes	No	Yes
Dissolved Oxygen (%)	CLS 75	0	No	No	Yes
Iron, total	ICP-MS CLS129	+/- 10.28 %	Yes	No	Yes
Potassium, total	ICP-MS CLS129	+/-0.53@5mg/l	Yes	No	Yes
Total Hardness (Kone)	Konelab CLS 77	+/- 10 @ 180 mg/l	Yes	No	Yes
Magnesium, total	ICP-MS CLS129	+/-0.74@4mg/l	Yes	No	Yes
Sulphate	Konelab CLS 88	+/- 7.29 %	Yes	No	Yes
Orthophosphate as PO4-P	Konelab CLS 35	+/- 6.87 %	Yes	No	Yes
Arsenic, total	ICP-MS CLS 129	+/- 9.34 %	Yes	No	Yes
Manganese, total	ICP-MS CLS129	+/- 14.53 %	Yes	No	Yes
Zinc, total	ICP-MS CLS 129	+/- 9.38 %	Yes	No	Yes
Calcium, total	ICP-MS CLS129	+/-5.5@30mg/l	Yes	No	Yes
Aluminium, dissolved	ICP-MS CLS129	+/- 11.75 %	Yes	No	Yes
Iron, dissolved	ICP-MS CLS 129	+/- 10.28 %	Yes	No	Yes
Manganese, dissolved	ICP-MS CLS129	+/- 14.53 %	Yes	No	Yes
Copper, dissolved	ICP-MS CLS 129	+/- 11.28 %	Yes	No	Yes
Lead, dissolved	ICP-MS CLS129	+/-20@100ug/l	Yes	No	Yes
Chromium, dissolved	ICP-MS CLS 129	+/- 8.38 %	Yes	No	Yes
Nickel, dissolved	ICP-MS CLS129	+/- 7.91 %	Yes	No	Yes
Cadmium, dissolved	ICP-MS CLS129	+/- 10.42 %	Yes	No	Yes
Arsenic, dissolved	ICP-MS CLS129	+/- 9.34 %	Yes	No	Yes
Zinc, dissolved	ICP-MS CLS 129	+/- 9.38 %	Yes	No	Yes
Barium, dissolved	ICP-MS CLS129	+/-33@250ug/l	Yes	No	Yes
TOC	CLS 150	+/- 18.08 %	Yes	No	Yes
Clostridium Perfringens in Water	CLS 43	+/- 0.05	Yes	No	Yes
Strontium, dissolved	ICP-MS CLS129	+/-6@100ug/l	Yes	No	Yes
E coli (Filtration) (Environmental Waters)	CLS 16	+/-0.05	Yes	No	Yes
Total Coliforms (Filtration) (Environmental Waters)	CLS 16	+/- 0.10	Yes	No	Yes
TPH (>C5 - C44) by GC-FID	CLS 193	0	Yes	No	Yes
Silica as Si	Standard Methods for the examination of water and waste waters		No	No	Yes

*Analysis carried out in a GMP approved, FDA inspected facility (MedPharma site only).

**Laboratory Analysis, Sampling, Food Safety Monitoring and Analysts on Contract are all ISO 9001 certified.

Lab No	Sample ID	Sample Condition on Receipt	Sampling Date
1153184	Kiltiernan GWS. Treated Water	Good condition	10/03/2021



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