

# Annual Environmental Report

2022



Upper Liffey Valley Sewerage Scheme

D0002-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0002-01, Upper Liffey Valley Sewerage Scheme, in Kildare in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports where relevant are included as an appendix to the AER.

## 1.1 ANNUAL STATEMENT OF MEASURES

A summary of any improvements undertaken is provided where applicable.

**Contract 2A (Newbridge Eastern Interceptor Sewer Contract)** Contract 2A involved the construction of a new Eastern Interceptor Sewer between Newbridge and Osberstown Wastewater Treatment Plant. The Contract was awarded by Irish Water to Roadbridge in February 2019. The Contract involved the construction of new sewers, rising mains and 3 new pumping stations along the route at Kilbelin, Little Connell and Newhall. The construction work was completed and then moved to an operate phase. The operate phase ended on the 8<sup>th</sup> February 2022 with the operation of the 3 pumping stations reverting back to KCC/UÉ Ops.

**Contract 2B (Network)** Contract 2B involves upgrading of various elements of the sewerage network in the Upper Liffey Valley Catchment primarily in Clane, Sallins, Naas and Newbridge. The Contract was awarded by Irish Water to Coffey Construction Ltd in August 2019. The Contract involves the construction of new sewers, rising mains and 2 new pumping stations at Clane and Monread and a new storm tank upgrade at Sallins. The work on Contract 2B has now entered a contractor operation phase before the operation is handed over to KCC/UÉ operations.

## 1.2 TREATMENT SUMMARY

The agglomeration is served by a wastewater treatment plant(s)

- Upper Liffey Valley WWTP with a Plant Capacity PE of 130000, the treatment type is 3P - Tertiary P removal.

## 1.3 ELV OVERVIEW

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.

Discharge Point Reference	Treatment Plant	Discharge Type	Compliance Status	Parameters failing if relevant
TPEFF1400D0002SW001	Upper Liffey Valley WWTP	Treated	Compliant	N/A

## 1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
Priority Substances Assessment

## 2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

### 2.1 UPPER LIFFEY VALLEY WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - UPPER LIFFEY VALLEY WWTP

A summary of influent monitoring for the treatment plant is presented below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

Parameters	Number of Samples	Annual Max	Annual Mean
pH pH units	33	7.85	7.33
Total Nitrogen mg/l	33	74	32
COD-Cr mg/l	33	1244	392
Ammonia-Total (as N) mg/l	33	32	21
Total Phosphorus (as P) mg/l	33	12	5.65
Suspended Solids mg/l	33	599	188
BOD, 5 days with Inhibition (Carbonaceous) mg/l	33	176	102
ortho-Phosphate (as P) - unspecified mg/l	32	4.95	2.80
Hydraulic Capacity	N/A	72389	33773

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 2.1.5 if applicable.

## Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliance with Emission Limit Values.

### 2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF1400D0002SW001

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included <sup>Note 1</sup>	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
<b>COD-Cr mg/l</b>	100	200	N/A	33	N/A	N/A	26	Pass
<b>Suspended Solids mg/l</b>	35	87.5	N/A	33	N/A	N/A	8.76	Pass
<b>Total Nitrogen mg/l</b>	20	24	N/A	32	N/A	N/A	8.51	Pass
<b>Total Oxidised Nitrogen (as N) mg/l</b>	20	24	N/A	32	N/A	N/A	7.23	Pass
<b>Fats, Oils &amp; Greases mg/l</b>	15	18	N/A	11	N/A	N/A	3.54	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	10	20	N/A	33	N/A	N/A	2.10	Pass
<b>pH pH units</b>	6.00	9.00	N/A	33	N/A	N/A	7.42	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included <sup>Note 1</sup>	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Ammonia-Total (as N) mg/l	0.900	1.08	N/A	33	N/A	N/A	0.179	Pass
Total Phosphorus (as P) mg/l	0.900	1.08	N/A	33	N/A	N/A	0.362	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.500	0.600	N/A	32	N/A	N/A	0.047	Pass
Nitrite (as N) mg/l	N/A	N/A	N/A	33	N/A	N/A	0.020	
Faecal coliforms MPN/100ml	N/A	N/A	N/A	10	N/A	N/A	4772	
Faecal coliforms cfu/100ml	N/A	N/A	N/A	1	N/A	N/A	19863	
Kjeldahl Nitrogen mg/l	N/A	N/A	N/A	33	N/A	N/A	1.43	
Nitrate (as N) mg/l	N/A	N/A	N/A	33	N/A	N/A	7.25	

Notes:

1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

2 – For pH the WWDA specifies a range of pH 6 - 9

### Cause of Exceedance(s):

Not applicable

## Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

### 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1400D0002SW001

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Ecological Status
Upstream	285423, 220755	RS09L011100	No	No	No	No	Good
Downstream	287711 222643	RS09L011300	No	Yes	No	No	Good
Downstream	286940, 221639	RS09L011200	No	Yes	No	No	Good

The results for ambient results and / or additional monitoring data sets are included in the **Appendix 7.1 - Ambient monitoring summary**.

## Significance of Results:

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

Based on ambient monitoring results a deterioration in Ammonia concentration at RS09L011300 downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it is or is not caused by the WWTP.

Other causes of deterioration in water quality in the area are: Other causes of deterioration in water quality in the area are unknown.



The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

## 2.1.4 OPERATIONAL PERFORMANCE SUMMARY - UPPER LIFFEY VALLEY WWTP

### 2.1.4.1 Treatment Efficiency Report - Upper Liffey Valley WWTP

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
TP	69580	4341	94
cBOD	1258787	25188	98
COD	4827589	312347	94
SS	2310455	105120	95
TN	388274	101192	74

Note: The above data is based on sample results for the number of dates reported.

### 2.1.4.2 Treatment Capacity Report Summary - Upper Liffey Valley WWTP

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

Upper Liffey Valley WWTP	
<b>Peak Hydraulic Capacity (m<sup>3</sup>/day) - As Constructed</b>	85500
<b>DWF to the Treatment Plant (m<sup>3</sup>/day)</b>	28500
<b>Current Hydraulic Loading - annual max (m<sup>3</sup>/day)</b>	72389
<b>Average Hydraulic loading to the Treatment Plant (m<sup>3</sup>/day)</b>	33773
<b>Organic Capacity (PE) - As Constructed</b>	130000
<b>Organic Capacity (PE) - Collected Load (peak week)<sup>Note1</sup></b>	99966
<b>Organic Capacity (PE) – Remaining</b>	30034
<b>Will the capacity be exceeded in the next three years? (Yes/No)</b>	No

Nominal design capacities can be based on conservative design principles. In some cases assessment of existing plants has shown organic capacities significantly higher than the nominal design capacity. Accordingly plants that appear to be overloaded when comparing a collected peak load with the nominal design capacity can be fully compliant due to the safety factors in the original design.

## 2.1.5 SLUDGE / OTHER INPUTS - UPPER LIFFEY VALLEY WWTP

'Other inputs' to the waste water treatment plant are summarised in table below.

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
<b>Industrial / Commercial Sludge</b>	2,748.84	Weight (Tonnes)	33.47	0.01	Yes	Yes	Yes
<b>Domestic /Septic Tank Sludge</b>	18,101.96	Weight (Tonnes)	220.42	0.07	Yes	Yes	Yes
<b>Landfill Leachate (delivered by sewer network)</b>	17,324	Volume (m <sup>3</sup> )	210.95	0.07	Yes	No	No
<b>Other</b>	52,675.54	Weight (Tonnes)	641.41	0.2	Yes	Yes	Yes
<b>Waterworks Sludge</b>	2,461.3	Weight (Tonnes)	29.97	0.01	Yes	Yes	Yes

## 3 COMPLAINTS AND INCIDENTS

### 3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
<b>There were no relevant environmental complaints in 2022.</b>			

### 3.2 REPORTED INCIDENTS SUMMARY

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Uisce Éireann but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

#### 3.2.1 SUMMARY OF INCIDENTS

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	Yes
<b>Abatement Equipment offline</b>	Plant or equipment breakdown at WWTP	1	No	No
<b>Abatement Equipment offline</b>	Adverse Weather	1	No	Yes
<b>Spillage</b>	Tank Overflow	1	No	Yes
<b>Spillage</b>	Plant or equipment maintenance at WWTP	1	Yes	No
<b>Uncontrolled release</b>	SWO exceptional rainfall and overflow expected	1	No	No
<b>Uncontrolled release</b>	SWO exceptional rainfall and overflow expected	1	No	Yes
<b>Uncontrolled release</b>	EO caused by pump failure	1	No	Yes
<b>Uncontrolled release</b>	EO caused by pump failure	1	No	Yes
<b>Uncontrolled release</b>	SWO exceptional rainfall and overflow expected	1	No	Yes
<b>Uncontrolled release</b>	SWO exceptional rainfall and overflow expected	1	No	Yes
<b>Uncontrolled release</b>	Broken Sewer Pipe	1	No	Yes
<b>Uncontrolled release</b>	SWO exceptional rainfall and overflow expected	1	No	Yes
<b>Uncontrolled release</b>	Blocked Sewer	1	No	Yes
<b>Uncontrolled release</b>	SWO exceptional rainfall and overflow expected	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	No

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	22
Number of Incidents reported to the EPA via EDEN in 2022	22
Explanation of any discrepancies between the two numbers above	N/A

## 4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

### 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT

A summary of the operation of the storm water overflows and their significance where known is included below:

#### 4.1.1 SWO IDENTIFICATION

WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m <sup>3</sup> )	Monitoring Status
SW13	288495 223661	Yes	High Significance	Not Meeting Criteria	Unknown	Unknown	Monitored
SW2	286904 220669	Yes	High Significance	Not Meeting Criteria	Unknown	9,009	Monitored
GW1	277379 208983	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW10	290250 221496	Yes	High Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
SW11	291938 221572	Yes	High Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
SW14	282894 227675	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m <sup>3</sup> )	Monitoring Status
<b>SW15</b>	294105 224021	Yes	High Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW16</b>	294122 223047	Yes	High Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW18</b>	288003 227114	Yes	High Significance	Not Meeting Criteria	2	582	Monitored
<b>SW2</b>	278959 208228	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW20</b>	279004 208215	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW21</b>	276234 206829	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW3</b>	285325 219612	Yes	High Significance	Meeting Criteria	0	0	Monitored
<b>SW5</b>	281664 217255	Yes	High Significance	Not Meeting Criteria	0	0	Monitored
<b>SW6</b>	280695 215432	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW019</b>	281185 216905	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored



WWDL Name / Code for Storm Water Overflow (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2022 (No. of events)	Total volume discharged in 2022 (m <sup>3</sup> )	Monitoring Status
TBC	281356 213626	No	High Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	281841 212369	No	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
GW2	278157 210416	Yes	High Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored
SW17	284096 209917	Yes	High Significance	Not Meeting Criteria	Unknown	393	Monitored
SW19	281841 212369	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW22	284960 221155	Yes	High Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW8	280783 214486	Yes	High Significance	Not Meeting Criteria	Unknown	Unknown	Not Monitored

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

SWO Summary	
How much sewage was discharged via monitored SWOs in the agglomeration in the year (m <sup>3</sup> )?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	Yes

## SWO Summary

Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?

N/A

## 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS.

### 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
D0002-SIP:01	Infiltration programme	C	31/03/2013	Yes	Not Started		Awaiting outputs of DAP to determine if measure applicable.
D0002-SIP:02	Infiltration programme	C	31/03/2013	Yes	Not Started		Awaiting outputs of DAP to determine if measure applicable.
D0002-SIP:03	Upgrade of the Monread Road Pumping Station (associate with SW9)	C	31/03/2013	Yes	Works Completed	2022	

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
<b>D0002-SIP:04</b>	Upgrade of the Newhall Pumping Station (associated with SW3),	C	31/03/2013	Yes	Works Completed		
<b>D0002-SIP:05</b>	Upgrade to Blessington Road Pumping Station	C	31/03/2011	Yes	Works Completed		
<b>D0002-SIP:06</b>	Upgrading of sewer network to ensure all SWO comply with the criteria outlined in the DoEHLG 'Procedures and Criteria in relation to Storm Water Overflows, 1995'	C	31/12/2020	No	Works Completed		
<b>D0002-SIP:07</b>	Waste water sewer network rehabilitation programme	C	31/03/2013	Yes	Works Completed		Rehabilitation will under go national prioritisation to cater for high risk areas and will not be agglomeration focussed. Rehab for this agglomeration completed under the Pilot.
<b>D0002-SIP:08</b>	Waste Water treatment plant upgrade and ancillary works	C	31/03/2013	Yes	Works Completed		

Specified Improvement Programmes (under Schedule A and C of WWDL)	Description	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
<b>D0002-SIP:09</b>	Waste Water works network rehabilitation programme	C	31/03/2013	No	Works Completed		Rehabilitation will under go national prioritisation to cater for high risk areas and will not be agglomeration focussed. Rehab for this agglomeration completed under the Pilot.

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.

#### 4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
<b>No additional improvements planned at this time.</b>				

#### 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Tables 4.2.1 and 4.2.2.

## 5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides a list of the various reports required for this agglomeration and a brief summary of their recommendations.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER
Drinking Water Abstraction Point Risk Assessment	Yes	2013	No
Priority Substances Assessment	Yes	2012	Yes

## 6 CERTIFICATION AND SIGN OFF

### 6.1 SUMMARY OF AER CONTENTS

Parameter	Answer
Does the AER include an Executive Summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for Consideration of a Technical Amendment/Review of the Licence?	N/A
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modification to the existing WWDL with respect to condition 4 changes to monitoring location, frequency etc	Yes
List reason e.g. changes to monitoring requirements	Ambient Monitoring Location Changes
Have these processes commenced?	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	N/A

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Date: 01/12/2023

This AER has been produced by Uisce Éireann's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of,

Eleanor Roche

Acting Head of Environmental Regulation.

## 7 APPENDIX

Appendix
Appendix 7.1 - Ambient Monitoring Summary
Appendix 7.2 - Priority Substances Assessment



## ULVSS Ambient Monitoring Summary 2022

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)			
			Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	285423, 220755	RS09L011100	No	No	No	No
Downstream Monitoring Point #1	286940, 221639	RS09L011200	No	Yes	No	No
Downstream Monitoring Point #2	287711, 222643	RS09L011300	No	Yes	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	Good	1.162	0.053	0.158
Downstream Monitoring Point #1	Good	1.000	0.027	0.143
Downstream Monitoring Point #2	Good	0.992	0.028	0.170
<i>Difference between Upstream and Downstream #1</i>		-0.162	-0.026	-0.014
<i>Difference between Upstream and Downstream #2</i>		-0.169	-0.025	0.012
EQS		1.500	0.035	0.065
% of EQS #1		-0.108	-0.755	-0.221
% of EQS #2		-11.282%	-70.330%	18.935%

## 2022 ULVSS Ambient Monitoring Data

Upstream Results											
Date		Temperature °C	pH pH units	BOD mg/ l	COD mg/l	SS mg/l	Total Nitrogen mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l	OFG (mg/l)
12/01/2022	U/S aSW1		7.03	2			2.4		0.23	0.03	< 5
23/02/2022	U/S aSW1	18.7	7.18	1			2		0.28	0.04	
09/03/2022	U/S aSW1		7.21	2	9	11		0.08	0.21	0.04	< 5
09/03/2022	U/S aSW1	14.9	7.45	1			2.26		0.02	0.03	
13/04/2022	U/S aSW1	16.7	7.61	1			2.21		0.08	0.02	< 5
11/05/2022	U/S aSW1		7.47	1			1.73		0.05	0.01	< 5
08/06/2022	U/S aSW1	18.1	7.85	1			2.21		0.12	0.02	< 5
13/07/2022	U/S aSW1	19.6	7.81	1			1.38		0.08	0.02	< 5
10/08/2022	U/S aSW1	19.7	7.13	0.3			1.35		0.11	0.4	< 5
14/09/2022	U/S aSW1	16.1	7.56	0.5			1.22		0.08	0.02	< 5
12/10/2022	U/S aSW1	12.8	7.53	0.8			1.59		0.09	0.03	< 5
09/11/2022	U/S aSW1	12.7	7.54	1.1			1.21		0.21	0.02	< 5
14/12/2022	U/S aSW1	7.4	7.67	2.4			1.37		0.49	0.01	< 5
<b>Mean</b>		<b>15.670</b>	<b>7.465</b>	<b>1.162</b>	<b>9.000</b>	<b>11.000</b>	<b>1.744</b>	<b>0.080</b>	<b>0.158</b>	<b>0.053</b>	<b>3.536</b>
<b>95%ile</b>		<b>19.655</b>	<b>7.826</b>	<b>2.160</b>	<b>9.000</b>	<b>11.000</b>	<b>2.323</b>	<b>0.080</b>	<b>0.364</b>	<b>0.184</b>	<b>3.536</b>

Downstream Results								
Date		Temperature °C	pH pH units	BOD mg/ l	Total Nitrogen mg/l	Ammonia mg/l	Ortho-Phosphate mg/l	OFG (mg/l)
12/01/2022	D/S aSW1		7.11	2	2.1	0.21	0.03	< 5
23/02/2022	D/S aSW1	18.5	7.18	1	5	0.28	0.04	
09/03/2022	D/S aSW1	14.8	7.48	1	2.72	0.05	0.03	< 5
13/04/2022	D/S aSW1	16.4	7.6	1	2.14	0.1	0.02	< 5
11/05/2022	D/S aSW1		7.46	1	2.1	0.06	0.02	< 5
08/06/2022	D/S aSW1	17.9	7.86	1	1.74	0.1	0.02	< 5
13/07/2022	D/S aSW1	19.6	7.81	1	1.79	0.11	0.02	< 5
10/08/2022	D/S aSW1	18.7	7.19	0.2	1.76	0.13	0.06	< 5
14/09/2022	D/S aSW1	15.8	7.57	0.2	1.84	0.11	0.03	< 5
12/10/2022	D/S aSW1	12.3	7.57	0.9	2.1	0.09	0.02	< 5
09/11/2022	D/S aSW1	12.7	7.5	0.9	1.33	0.21	0.02	< 5
14/12/2022	D/S aSW1	7.3	7.66	1.8	1.46	0.27	0.01	< 5
<b>Mean</b>		<b>15.400</b>	<b>7.499</b>	<b>1.000</b>	<b>2.173</b>	<b>0.143</b>	<b>0.027</b>	<b>3.536</b>
<b>95%ile</b>		<b>19.195</b>	<b>7.833</b>	<b>1.890</b>	<b>3.746</b>	<b>0.275</b>	<b>0.049</b>	<b>3.536</b>

Downstream Results											
Date		Temperature °C	pH pH units	BOD mg/ l	UWW Regs COD mg/l	UWW Regs SS mg/l	Total Nitrogen mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l	OFG (mg/l)
12/01/2022	D/S aSW2		7.07	2			2.2		0.2	0.04	< 5
23/02/2022	D/S aSW2	18.8	7.18	1			4		0.28	0.05	
09/03/2022	D/S aSW2		7.36	1	9	7		0.09	0.13	0.03	
09/03/2022	D/S aSW2	14.8	7.5	1			3.38		0.12	0.03	< 5
13/04/2022	D/S aSW2	16.4	7.59	1			1.69		0.08	0.02	< 5
11/05/2022	D/S aSW2		7.44	1			2.17		0.07	0.02	< 5
08/06/2022	D/S aSW2	17.5	7.89	1			2.29		0.11	0.03	< 5
13/07/2022	D/S aSW2	19.6	7.79	1			1.9		0.11	0.03	< 5
10/08/2022	D/S aSW2	18.6	7.28	0			1.77		0.11	0.04	< 5
14/09/2022	D/S aSW2	15.7	7.57	0.3			2.3		0.12	0.03	< 5
12/10/2022	D/S aSW2	12.7	7.58	1			2.31		0.1	0.02	< 5
09/11/2022	D/S aSW2	11.8	7.64	0.8			1.36		0.26	0.02	< 5
14/12/2022	D/S aSW2	7.5	7.64	1.8			1.4		0.52	0.01	< 5
<b>Mean</b>		<b>15.340</b>	<b>7.502</b>	<b>0.992</b>	<b>9.000</b>	<b>7.000</b>	<b>2.231</b>	<b>0.090</b>	<b>0.170</b>	<b>0.028</b>	<b>3.536</b>
<b>95%ile</b>		<b>19.240</b>	<b>7.830</b>	<b>1.880</b>	<b>9.000</b>	<b>7.000</b>	<b>3.659</b>	<b>0.090</b>	<b>0.376</b>	<b>0.044</b>	<b>3.536</b>

## Certificate of Analysis

<b>Customer:</b>	Irish Water	<b>Site/Project:</b>	Dangerous Substances
<b>Local Authority:</b>	Kildare County Council	<b>Date Received:</b>	09/03/2022
<b>Customer Contact:</b>		<b>Condition of Sample(s):</b>	Satisfactory
<b>Customer PO</b>		<b>Date Analysed:</b>	09/03/2022 - 21/04/2022
<b>Quote No.</b>		<b>Issue Date:</b>	21/04/2022
		<b>BATCH NUMBER:</b>	<b>22-18046</b>

*Conor Murphy*

Conor Murphy  
Operations Manager

### Index to symbols used:

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	S.I. No. 122 of 2014 - European Union (Drinking Water) Regulations 2014 & 2017.
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrinc Laboratory.
LOD	Parameter Limit of Quantification

### Notes

Note A	The water should not be aggressive.
Note C	Acceptable to customers and no abnormal change.
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for.
Note E	Irish water parametric limit for TVC is <100 cfu/mL.
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.
Note 6	Subcontracted Parameter.

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4 park business centre | **farranfore** | county kerry | ireland | telephone +353 66 976 3588 | fax +353 66 976 3589  
dunrinc | **killarney** | county kerry | ireland | telephone +353 64 66 33922 | fax +353 64 66 39022

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directors: K. Murphy, M. Murphy & C. Murphy  
registered in ireland no 323196 | vat reg no IE 6343196 M





<b>Customer Sample Ref:</b>	OSB Effluent	<b>Customer Sample Code:</b>	63-OSB-22
<b>Entity Name:</b>	Osberstown WWTP	<b>Sample Condition:</b>	Satisfactory
<b>Site / Project:</b>	Operational	<b>Entity Code:</b>	
<b>Our Reference:</b>	57691 (22-18046) -	<b>Sampled By:</b>	P.T.
<b>Date Sampled:</b>	09/03/2022	<b>Sample Matrix:</b>	WWTP Effluent
		<b>Time Sampled:</b>	09:30

Method:	Parameter:	Units	LOQ	Result	***Limits
	<u>Chemical Analysis: (F)</u>				
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	827	
SCP 027B	Chloride	mg/L	0.5	90.7	
SCP 027I	Total Hardness	mg/L CaCO3	5	279	
SCP 053A	Calcium (Ca)	mg/L	1.0	91.3	
SCP 027L	Cyanide Free	µg/L	10	< 10	
SCP 053A	Magnesium (Mg)	mg/L	0.2	7.8	
SCP 063	Fluoride	mg/L	0.1	0.2	
SCP 038/073	Antimony	µg/L	1	< 1	
SCP 038/073	Arsenic	µg/L	1	< 1	
- Note 6	Barium - Total	µg/L	3.0	< 3.0	
SCP 038/073	Boron	µg/L	20	< 20	
SCP 038/073	Cadmium	µg/L	0.45	< 0.45	
SCP 038/073	Chromium	µg/L	1	< 1	
SCP 038/073	Cobalt (Co)	µg/L	1	< 1	
SCP 038/073	Copper	µg/L	1	< 1	
SCP 038/073	Lead	µg/L	1	< 1	
SCP 038/073	Mercury	µg/L	0.5	< 0.5	
SCP 038/073	Molybdenum (Mo)	µg/L	5	< 5	
SCP 038/073	Nickel	µg/L	1	< 1	
SCP 038/073	Selenium	µg/L	5.00	< 5.00	
- Note 6	Tin - Total	µg/L	3	< 3	
SCP 073	Vanadium (V)	µg/L	1.0	< 1.0	
SCP 038/73	Zinc (Zn)	µg/L	8	< 5	
SCP 114A	Benzene	µg/L	0.1	< 0.1	
- Note 6	Diuron	µg/L	0.05	< 0.05	
- Note 6	Hexachlorobenzene	µg/L	0.050	< 0.050	
- Note 6	Isoproturon	µg/L	0.05	< 0.10	
- Note 6	Linuron	µg/L	0.05	< 0.10	
SCP 060B	Sum Benzo (b)&(k) fluoranthene	µg/L	0.005	< 0.005	
- Note 6	1,3,5-Trichlorobenzene	µg/L	0.01	< 0.05	
- Note 6	2, 6-dichlorobenzamide	µg/L	0.1	< 0.1	
SCP 060B	Acenaphthene	µg/L	0.005	< 0.005	
SCP 060B	Acenaphthylene	µg/L	0.005	< 0.005	
SCP 060B	Anthracene	µg/L	0.005	< 0.005	
SCP 060B	Benz(a)anthracene	µg/L	0.005	< 0.005	
SCP 060B	Benzo(a)pyrene	µg/L	0.003	< 0.003	
SCP 060B	Benzo(b)fluoranthene	µg/L	0.005	< 0.005	
SCP 060B	Benzo(ghi)perylene	µg/L	0.005	< 0.005	

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directors: K. Murphy, M. Murphy & C. Murphy  
 registered in ireland no 323196 | vat reg no IE 6343196 M





<b>Customer Sample Ref:</b>	OSB Effluent	<b>Customer Sample Code:</b>	63-OSB-22
<b>Entity Name:</b>	Osberstown WWTP	<b>Sample Condition:</b>	Satisfactory
<b>Site / Project:</b>	Operational	<b>Entity Code:</b>	
<b>Our Reference:</b>	57691 (22-18046) -	<b>Sampled By:</b>	P.T.
<b>Date Sampled:</b>	09/03/2022	<b>Sample Matrix:</b>	WWTP Effluent
		<b>Time Sampled:</b>	09:30

Method:	Parameter:	Units	LOQ	Result	***Limits
SCP 060B	Benzo(k)fluoranthene	µg/L	0.005	< 0.005	
SCP 114A	Carbon tetrachloride	µg/L	1	< 1	
SCP 060B	Chrysene	µg/L	0.005	< 0.005	
SCP 060B	Dibenz(a,h)anthracene	µg/L	0.005	< 0.005	
- Note 6	Dichloromethane	µg/L	5.0	< 5.0	
SCP 060B	Fluoranthene	µg/L	0.005	< 0.005	
SCP 060B	Fluorene	µg/L	0.005	< 0.005	
SCP 060B	Indeno(1,2,3-cd)pyrene	µg/L	0.005	< 0.005	
- Note 6	Isodrin	µg/L	0.050	< 0.100	
SCP 060B	Naphthalene	µg/L	0.005	< 0.005	
SCP 060B	Phenanthrene	µg/L	0.005	< 0.005	
SCP 060B	Pyrene	µg/L	0.005	< 0.005	
SCP 060B	Total PAH	µg/L	0.020	< 0.020	
- Note 6	Aplha-HCH	ug/L	0.050	< 0.050	
- Note 6	Beta-HCH	µg/L	0.050	< 0.050	
SCP 060B	Dichlobenil	µg/L	0.005	< 0.005	
SCP 060B	Dieldrin	µg/L	0.005	< 0.005	
- Note 6	Gamma-HCH (Lindane)	µg/L	0.0500	< 0.0500	
- Note 6	2,4-D	µg/L	0.05	0.30	
- Note 6	MCPA	µg/L	0.05	< 0.10	
- Note 6	MCPP (Mecoprop)	µg/L	0.05	< 0.10	
- Note 6	Glyphosate	µg/L	0.1	0.2	
SCP 114A	1,2,3-Trichlorobenzene	µg/L	1	< 1	
SCP 114A	1,2,4-Trichlorobenzene	µg/L	0.5	< 0.5	
SCP 114A	1,2-Dichloroethane	µg/L	0.2	< 0.2	
- Note 6	Atrazine	µg/L	0.020	< 0.100	
SCP 114A	Chloroform	µg/L	2	< 2	
SCP 114A	Ethylbenzene	µg/L	0.5	< 0.5	
SCP 114A	Hexachlorobutadiene	µg/L	0.5	< 0.5	
SCP 114A	m,p Xylene	µg/L	0.5	< 0.5	
SCP 114A	o Xylene	µg/L	0.5	< 0.5	
- Note 6	Simazine	µg/L	0.020	< 0.100	
SCP 114A	Tetrachloroethene	µg/L	0.1	< 0.1	
SCP 114A	Toluene	µg/L	0.5	< 0.5	
SCP 114A	Trichloroethene	µg/L	0.1	< 0.1	

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directors: K. Murphy, M. Murphy & C. Murphy  
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## Certificate of Analysis

<b>Customer:</b>	Irish Water	<b>Site/Project:</b>	Dangerous Substances
<b>Local Authority:</b>	Kildare County Council	<b>Date Received:</b>	13/10/2022
<b>Customer Contact:</b>	Caroline Murphy	<b>Condition of Sample(s):</b>	Satisfactory
<b>Customer PO</b>		<b>Date Analysed:</b>	13/10/2022 - 21/12/2022
<b>Quote No.</b>		<b>Issue Date:</b>	21/12/2022
		<b>BATCH NUMBER:</b>	<b>22-23412</b>

*Conor Murphy*

Conor Murphy  
Operations Manager

### Index to symbols used:

*	Analysis is not INAB/UKAS accredited
**	Adapted from Standard Methods for the Examination of Water and Wastewater.
***	S.I. No. 122 of 2014 - European Union (Drinking Water) Regulations 2014 & 2017.
(F)	Analysis carried out at our Farranfore Laboratory.
(D)	Analysis carried out at our Dunrinc Laboratory.
LOD	Parameter Limit of Quantification

### Notes

Note A	The water should not be aggressive.
Note C	Acceptable to customers and no abnormal change.
Note D	In the case of surface water treatment, a parametric value not exceeding 1 NTU in the water ex treatment works must be strived for.
Note E	Irish water parametric limit for TVC is <100 cfu/mL.
Note F	Fluoridated supplies 0.8 mg/L; Natural supplies 1.5 mg/L.
Note 6	Subcontracted Parameter.

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directors: K. Murphy, M. Murphy & C. Murphy  
registered in ireland no 323196 | vat reg no IE 6343196 M





<b>Customer Sample Ref:</b>	Final Effluent, Oberstown WWTP	<b>Customer Sample Code:</b>	257-OSB-22
<b>Entity Name:</b>	Oberstown WWTP	<b>Sample Condition:</b>	Satisfactory
<b>Site / Project:</b>	Operational	<b>Entity Code:</b>	
<b>Our Reference:</b>	75222 (22-23412) -	<b>Sampled By:</b>	P.T.
<b>Date Sampled:</b>	12/10/2022	<b>Sample Matrix:</b>	WWTP Effluent
		<b>Time Sampled:</b>	:

Method:	Parameter:	Units	LOQ	Result	***Limits
<u>Chemical Analysis: (F)</u>					
SCP 052	Hydrogen Ion (pH)	pH units	4.0	8.0	
SCP 052	Conductivity	µS/cm @ 20 °C	15	738	
SCP 027B	Chloride	mg/L	0.5	90.8	
SCP 027I	Total Hardness	mg/L CaCO3	5	237	
SCP 053A/053D	Calcium (Ca)	mg/L	1.0	62.3	
SCP 027L	Cyanide Free	µg/L	10	< 10	
SCP 053A/053D	Magnesium (Mg)	mg/L	0.2	6.7	
SCP 063	Fluoride	mg/L	0.1	0.3	
SCP 038/073	Antimony	µg/L	1	< 1	
SCP 038/073	Arsenic	µg/L	1	< 1	
- Note 6	Barium - Total	µg/L	3.0	20.0	
SCP 038/073	Boron	µg/L	20	64	
SCP 038/073	Cadmium	µg/L	0.45	< 0.45	
SCP 038/073	Chromium	µg/L	1	< 1	
SCP 038/073	Cobalt (Co)	µg/L	1	< 1	
SCP 038/073	Copper	µg/L	1	5	
SCP 038/073	Lead	µg/L	1	< 1	
SCP 038/073	Mercury	µg/L	0.5	< 0.5	
SCP 038/073	Molybdenum (Mo)	µg/L	5	< 5	
SCP 038/073	Nickel	µg/L	1	25	
SCP 038/073	Selenium	µg/L	5.00	< 5.00	
- Note 6	Tin - Total	µg/L	3	< 3	
SCP 073	Vanadium (V)	µg/L	1.0	< 1.0	
SCP 038/73	Zinc (Zn)	µg/L	8	34	
SCP 114A	Benzene	µg/L	0.1	< 0.1	
- Note 6	Hexachlorobenzene	µg/L	0.050	< 0.050	
- Note 6	Isoproturon	µg/L	0.05	< 0.05	
- Note 6	Linuron	µg/L	0.05	< 0.05	
SCP 060B	Sum Benzo (b)&(k) fluoranthene	µg/L	0.005	< 0.005	
- Note 6	1,3,5-Trichlorobenzene	µg/L	0.01	< 0.01	
- Note 6	2, 6-dichlorobenzamide	µg/L	0.1	< 0.1	
SCP 060B	Acenaphthene	µg/L	0.005	< 0.005	
SCP 060B	Acenaphthylene	µg/L	0.005	< 0.005	
SCP 060B	Anthracene	µg/L	0.005	< 0.005	
SCP 060B	Benz(a)anthracene	µg/L	0.005	< 0.005	
SCP 060B	Benzo(a)pyrene	µg/L	0.003	< 0.003	
SCP 060B	Benzo(b)fluoranthene	µg/L	0.005	< 0.005	
SCP 060B	Benzo(ghi)perylene	µg/L	0.005	< 0.005	
SCP 060B	Benzo(k)fluoranthene	µg/L	0.005	< 0.005	

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directors: K. Murphy, M. Murphy & C. Murphy  
 registered in ireland no 323196 | vat reg no IE 6343196 M





<b>Customer Sample Ref:</b>	Final Effluent, Oberstown WWTP	<b>Customer Sample Code:</b>	257-OSB-22
<b>Entity Name:</b>	Oberstown WWTP	<b>Sample Condition:</b>	Satisfactory
<b>Site / Project:</b>	Operational	<b>Entity Code:</b>	
<b>Our Reference:</b>	75222 (22-23412) -	<b>Sampled By:</b>	P.T.
<b>Date Sampled:</b>	12/10/2022	<b>Sample Matrix:</b>	WWTP Effluent
		<b>Time Sampled:</b>	:

Method:	Parameter:	Units	LOQ	Result	***Limits
SCP 114A	Carbon tetrachloride	µg/L	1	< 1	
SCP 060B	Chrysene	µg/L	0.005	< 0.005	
SCP 060B	Dibenz(a,h)anthracene	µg/L	0.005	< 0.005	
- Note 6	Dichloromethane	µg/L	5.0	< 5.0	
SCP 060B	Fluoranthene	µg/L	0.005	< 0.005	
SCP 060B	Fluorene	µg/L	0.005	< 0.005	
SCP 060B	Indeno(1,2,3-cd)pyrene	µg/L	0.005	< 0.005	
- Note 6	Isodrin	µg/L	0.050	< 0.050	
SCP 060B	Naphthalene	µg/L	0.005	< 0.005	
SCP 060B	Phenanthrene	µg/L	0.005	< 0.005	
SCP 060B	Pyrene	µg/L	0.005	< 0.005	
SCP 060B	Total PAH	µg/L	0.020	< 0.020	
- Note 6	Aplha-HCH	ug/L	0.050	< 0.050	
- Note 6	Beta-HCH	µg/L	0.050	< 0.050	
SCP 060B	Dichlobenil	µg/L	0.005	< 0.005	
SCP 060B	Dieldrin	µg/L	0.005	< 0.005	
- Note 6	Gamma-HCH (Lindane)	µg/L	0.0500	< 0.0500	
- Note 6	2,4-D	µg/L	0.10	< 0.10	
- Note 6	MCPA	µg/L	0.10	< 0.10	
- Note 6	MCPP (Mecoprop)	µg/L	0.10	< 0.10	
- Note 6	Glyphosate	µg/L	0.1	0.2	
SCP 114A	1,2,3-Trichlorobenzene	µg/L	1	< 1	
SCP 114A	1,2,4-Trichlorobenzene	µg/L	0.5	< 0.5	
SCP 114A	1,2-Dichloroethane	µg/L	0.2	< 0.2	
- Note 6	Atrazine	µg/L	0.020	< 0.020	
SCP 114A	Chloroform	µg/L	2	< 2	
- Note 6	Diuron	µg/L	0.005	0.040	
SCP 114A	Ethylbenzene	µg/L	0.5	< 0.5	
SCP 114A	Hexachlorobutadiene	µg/L	0.5	< 0.5	
SCP 114A	m,p Xylene	µg/L	0.5	< 0.5	
SCP 114A	o Xylene	µg/L	0.5	< 0.5	
- Note 6	Simazine	µg/L	0.020	< 0.020	
SCP 114A	Tetrachloroethene	µg/L	0.1	< 0.1	
SCP 114A	Toluene	µg/L	0.5	< 0.5	
SCP 114A	Trichloroethene	µg/L	0.1	< 0.1	

(registered office)

4 park business centre | **farranfore** | county kerry | ireland | telephone +353 66 976 3588 | fax +353 66 976 3589  
 dunrine | **killarney** | county kerry | ireland | telephone +353 64 66 33922 | fax +353 64 66 39022

web site [www.southernscientificireland.com](http://www.southernscientificireland.com) | e-mail [info@southernscientificireland.com](mailto:info@southernscientificireland.com)

directors: K. Murphy, M. Murphy & C. Murphy  
 registered in ireland no 323196 | vat reg no IE 6343196 M

