

Annual Environmental Report

2021



Upper Liffey Valley Sewerage Scheme

D0002-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 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 8th February 2022. The operation of the 3 pumping stations reverted to KCC Ops/IW Ops on the 08/02/2022.

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. Works are continuing on this contract.

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
Total Phosphorus (as P) mg/l	37	8.85	5.16
Ammonia-Total (as N) mg/l	37	141	21
Total Nitrogen mg/l	37	34	25
ortho-Phosphate (as P) - unspecified mg/l	37	4.60	2.50
pH pH units	37	7.78	7.35
COD-Cr mg/l	37	1254	386.1
Suspended Solids mg/l	37	676	214.2
BOD, 5 days with Inhibition (Carbonaceous) mg/l	37	193	134
Hydraulic Capacity	N/A	84381	33935

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 ^{Note 1}	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)
COD-Cr mg/l	100	200	N/A	38	N/A	N/A	25	Pass
Suspended Solids mg/l	35	87.5	N/A	38	N/A	N/A	4.31	Pass
Total Nitrogen mg/l	20	24	N/A	38	N/A	N/A	9.12	Pass
Total Oxidised Nitrogen (as N) mg/l	20	24	N/A	38	N/A	N/A	8.53	Pass
Fats, Oils & Greases mg/l	15	18	N/A	9	N/A	N/A	4.34	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	10	20	N/A	38	N/A	N/A	1.76	Pass
pH pH units	6.00	9.00	N/A	38	N/A	N/A	7.60	Pass

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included ^{Note 1}	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	38	N/A	N/A	0.177	Pass
Total Phosphorus (as P) mg/l	0.900	1.08	N/A	38	N/A	N/A	0.270	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.500	0.600	N/A	38	N/A	N/A	0.099	Pass
Nitrate (as N) mg/l	N/A	N/A	N/A	38	N/A	N/A	8.50	
Faecal coliforms MPN/100ml	N/A	N/A	N/A	9	N/A	N/A	5458	
Nitrite (as N) mg/l	N/A	N/A	N/A	38	N/A	N/A	0.034	
Kjeldahl Nitrogen mg/l	N/A	N/A	N/A	38	N/A	N/A	0.593	

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	Moderate
Downstream	287711 222643	RS09L011300	No	Yes	No	No	Unassigned
Downstream	286940, 221639	RS09L011200	No	Yes	No	No	Moderate

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 Ortho-P concentrations at RS09L011300 downstream of the effluent discharge is noted.

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

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)
cBOD	1694970	21469	99
COD	4883921	299795	94
TP	65206	3288	95
TN	318753	111264	65
SS	2719308	52536	98

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	
Peak Hydraulic Capacity (m³/day) - As Constructed	85500
DWF to the Treatment Plant (m³/day)	28500
Current Hydraulic Loading - annual max (m³/day)	84381

Upper Liffey Valley WWTP	
Average Hydraulic loading to the Treatment Plant (m ³ /day)	33935
Organic Capacity (PE) - As Constructed	130000
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	100425
Organic Capacity (PE) - Remaining	29575
Will the capacity be exceeded in the next three years? (Yes/No)	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)
Domestic /Septic Tank Sludge	14158.1	Weight (Tonnes)	173	0.11	Yes	Yes	No
Industrial / Commercial Sludge	2464.56	Weight (Tonnes)	30	0.02	Yes	Yes	No
Landfill Leachate (delivered by sewer network)	23373	Volume (m ³)	289	0.19	Yes	No	No

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)
Waterworks Sludge	2092.16	Weight (Tonnes)	25.5	0.02	Yes	Yes	No
Other	54329.52	Weight (Tonnes)	662	0.4	Yes	Yes	No

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
There were no relevant environmental complaints in 2021.			

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 Irish Water 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)
Abatement Equipment offline	EO caused by pump failure	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment maintenance at WWTP	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	No
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Spillage	EO caused by pump failure	1	No	Yes
Spillage	Blocked Sewer	1	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	Yes
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	Yes
Uncontrolled release	SWO Design not meeting DoEHLG Criteria	1	No	Yes
Uncontrolled release	SWO Design not meeting DoEHLG Criteria	1	No	Yes
Uncontrolled release	SWO Design not meeting DoEHLG Criteria	1	No	Yes
Uncontrolled release	EO caused by pump failure	1	No	Yes
Uncontrolled release	SWO Design not meeting DoEHLG Criteria	1	No	Yes
Uncontrolled release	SWO Design not meeting DoEHLG Criteria	1	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	Yes
Uncontrolled release	Plant or equipment maintenance at WWTP	1	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	Yes
Uncontrolled release	EO caused by ragging or blocking	1	No	Yes
Uncontrolled release	SWO Design not meeting DoEHLG Criteria	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Adverse Weather	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	21
Number of Incidents reported to the EPA via EDEN in 2021	21
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 2021 (No. of events)	Total volume discharged in 2021 (m ³)	Monitoring Status
GW1	277379, 208983	Yes	High	Meeting	Unknown	Unknown	Not Monitored
GW2	278157, 210417	Yes	High	Not Meeting	Unknown	Unknown	Not Monitored
TBC	281356, 213626	No	High	Not Meeting	Unknown	Unknown	Not Monitored
TBC	2818414, 212369	No	High	Meeting	Unknown	Unknown	Not Monitored
SW019	281185, 216905	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW10	290250, 221496	Yes	High	Not Meeting	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 2021 (No. of events)	Total volume discharged in 2021 (m ³)	Monitoring Status
SW11	291938, 221572	Yes	High	Not Meeting	Unknown	Unknown	Not Monitored
SW13	288495, 223661	Yes	High	Not Meeting	Unknown	Unknown	Not Monitored
SW14	282894, 227675	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW15	294105, 224021	Yes	High	Not Meeting	Unknown	Unknown	Not Monitored
SW16	294122, 223047	Yes	High	Not Meeting	Unknown	Unknown	Not Monitored
SW17	284096, 209917	Yes	High	Not Meeting	Unknown	Unknown	Not Monitored
SW18	288003, 227114	Yes	High	Not Meeting	Unknown	Unknown	Not Monitored
SW19	281841, 212369	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW2	278959, 208228	Yes	High	Meeting	2	1799	Monitored
SW20	279004, 208215	Yes	High	Meeting	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 2021 (No. of events)	Total volume discharged in 2021 (m ³)	Monitoring Status
SW21	276234, 206829	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW22	284960, 221155	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW3	285325, 219613	Yes	High	Meeting	0	0	Monitored
SW5	281664, 217255	Yes	High	Not Meeting	0	0	Monitored
SW6	280695, 215432	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW8	280783, 214486	Yes	High	Not Meeting	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 ³)?	1799
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
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	Work ongoing on-site	31/12/2022	
D0002-SIP:04	Upgrade of the Newhall Pumping Station (associated with SW3),	C	31/03/2013	Yes	Works Completed		
D0002-SIP:05	Upgrade to Blessington Road Pumping Station	C	31/03/2011	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
D0002-SIP:06	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		
D0002-SIP:07	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.
D0002-SIP:08	Waste Water treatment plant upgrade and ancillary works	C	31/03/2013	Yes	Works Completed		
D0002-SIP:09	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
No additional improvements planned at this time.				

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

5.1 DRINKING WATER ABSTRACTION POINT RISK ASSESSMENT

The Drinking Water Abstraction Point Risk Assessment Report has been included in the AER 2013.

5.2 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report is included in Appendix 7.2 - Priority Substances Assessment. A summary of the findings of this report is included below.

Parameter	Value
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	Yes

Parameter	Value
Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Screening Analysis
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g., impact on the relevant EQS standard for the receiving water)	Yes
Is the agglomeration included in the Irish Water Dangerous Substance Effluent Monitoring Programme (if yes, what year)	Yes (2018)
Does the Dangerous Substance Effluent Monitoring Programme reporting identify Irish Water measures for minimising priority substances and eliminating priority hazardous substances in the discharges	N/A
Does the Dangerous Substance Effluent Monitoring assessment identify that priority substances were found at levels above EQS or target LOD values??	N/A

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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	No
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: 22/04/2022

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

Katherine Walshe

Acting Head of Environmental Regulation.

7 APPENDIX

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

ULVSS Ambient Monitoring Summary 2021

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	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	Moderate	1.000	0.037	0.150
Downstream Monitoring Point #1	Moderate	1.000	0.034	0.148
Downstream Monitoring Point #2	Unassigned	1.000	0.041	0.143
<i>Difference between Upstream and Downstream #1</i>		<i>0.000</i>	<i>-0.003</i>	<i>-0.002</i>
<i>Difference between Upstream and Downstream #2</i>		<i>0.000</i>	<i>0.0033</i>	<i>-0.007</i>
EQS		1.500	0.035	0.065
% of EQS #1		0.000%	-9.048%	-3.333%
% of EQS #2		0.000%	9.524%	-10.256%

2021 ULVSS Ambient Monitoring Data

		Biological Oxygen Demand	Total Ammonia N	Faecal Coliforms	Ortho-Phosphate P	Fats, Oils & Grease	pH	Total Nitrogen N
Station	Sample Date	mg/l	mg/l	MPN/100mls	mg/l	mg/l	pH units	mg/l
Upstream aSW1-Pu	13-Jan-2021	1	0.34	1203	0.05	< 5	7.86	1.3
Upstream aSW1-Pu	10-Feb-2021	1	0.25	160	0.06	< 5	7.17	1.3
Upstream aSW1-Pu	10-Mar-2021	1	0.11	365	0.04	< 5	7.09	1
Upstream aSW1-Pu	14-Apr-2021	1	0.04	345	0.02	8	7.01	2
Upstream aSW1-Pu	12-May-2021	1	0.18	2046	0.05	< 5	7.07	1
Upstream aSW1-Pu	2-June-2021	1	0.25		0.04		7.08	1
Upstream aSW1-Pu	3-June-2021	1	0.22		0.02		7.65	1.6
Upstream aSW1-Pu	9-June-2021	1	0.18	349	0.01	< 5	7.34	1.4
Upstream aSW1-Pu	14-July-2021	1	0.04	276	0.03	< 5	7.36	0.9
Upstream aSW1-Pu	11-Aug-2021	1	0.1	488	0.03	< 5	7.21	1.2
Upstream aSW1-Pu	8-Sep-2021	1	0.17	288	0.02	< 5	7.19	2
Upstream aSW1-Pu	13-Oct-2021	1	0.13	727	0.02	< 5	7.03	1.3
Upstream aSW1-Pu	28-Oct-2021	1	0.025		0.13		7.05	1.9
Upstream aSW1-Pu	10-Nov-2021	1	0.17	365	0.02	< 5	7.53	2.2
Upstream aSW1-Pu	8-Dec-2021	1	0.04	1414	0.02	< 5	6.94	1.7
	Mean	1.0000	0.1497	668.8333	0.0373	3.9076	7.2387	1.4533
	95%ile	1.0000	0.2770	1698.4000	0.0810	5.5446	7.7130	2.0600
		Biological Oxygen Demand	Total Ammonia N	Faecal Coliforms	Ortho-Phosphate P	Fats, Oils & Grease	pH	Total Nitrogen N
Station	Sample Date	mg/l	mg/l	MPN/100mls	mg/l	mg/l	pH units	mg/l
Downstream aSW1-Pd	13-Jan-2021	1	0.31	1733	0.05	< 5	7.82	1.2
Downstream aSW1-Pd	10-Feb-2021	1	0.23	225	0.05	< 5	7.13	1.3
Downstream aSW1-Pd	10-Mar-2021	1	0.11	687	0.04	< 5	7.11	1
Downstream aSW1-Pd	14-Apr-2021	1	0.03	1046	0.03	< 5	7.02	2
Downstream aSW1-Pd	12-May-2021	1	0.17	2143	0.05	< 5	7.08	1
Downstream aSW1-Pd	9-June-2021	1	0.2	1300	0.01	< 5	7.39	1.4
Downstream aSW1-Pd	14-July-2021	1	0.03	387	0.05	< 5	7.44	0.9
Downstream aSW1-Pd	11-Aug-2021	1	0.11	517	0.03	< 5	7.24	1.1
Downstream aSW1-Pd	8-Sep-2021	1	0.17	579	0.03	< 5	7.12	1.9
Downstream aSW1-Pd	13-Oct-2021	1	0.16	770	0.03	< 5	7.04	1.2
Downstream aSW1-Pd	10-Nov-2021	1	0.2	461	0.02	< 5	7.5	2.3
Downstream aSW1-Pd	8-Dec-2021	1	0.05	> 2420	0.02	< 5	6.97	1.8
	Mean	1.0000	0.1475	963.2679	0.0342	3.5356	7.2383	1.4250
	95%ile	1.0000	0.2660	1917.5000	0.0500	3.5356	7.6440	2.1350

		Biological Oxygen Demand	Total Ammonia N	Faecal Coliforms	Ortho-Phosphate P	Fats, Oils & Grease	pH	Total Nitrogen N
Station	Sample Date	mg/l	mg/l	MPN/100mls	mg/l	mg/l	pH units	mg/l
Downstream aSW2-Pd	13-Jan-2021	1	0.31	1733	0.05	< 5	7.81	1.3
Downstream aSW2-Pd	10-Feb-2021	1	0.24	1789	0.06	< 5	7.15	1.3
Downstream aSW2-Pd	10-Mar-2021	1	0.12	727	0.03	< 5	7.1	1
Downstream aSW2-Pd	14-Apr-2021	1	0.02	980	0.03	< 5	7.08	2
Downstream aSW2-Pd	12-May-2021	1	0.17	2755	0.05	< 5	7.06	1
Downstream aSW2-Pd	2-June-2021	1	0.22		0.05		7.12	1
Downstream aSW2-Pd	3-June-2021	1	0.23		0.03		7.63	1.6
Downstream aSW2-Pd	9-June-2021	1	0.18	921	0.02	< 5	7.44	1.4
Downstream aSW2-Pd	14-July-2021	1	0.05	345	0.02	< 5	7.41	0.8
Downstream aSW2-Pd	11-Aug-2021	1	0.07	525	0.04	< 5	7.23	0.8
Downstream aSW2-Pd	8-Sep-2021	1	0.18	436	0.03	< 5	7.14	1.7
Downstream aSW2-Pd	13-Oct-2021	1	0.12	816	0.03	< 5	7.02	1.3
Downstream aSW2-Pd	28-Oct-2021	1	0.025		0.13		7.11	1.8
Downstream aSW2-Pd	10-Nov-2021	1	0.18	326	0.02	< 5	7.54	2.2
Downstream aSW2-Pd	8-Dec-2021	1	0.03	> 2420	0.02	< 5	7.01	1.5
	Mean	1.0000	0.1430	1088.6846	0.0407	3.5356	7.2567	1.3800
	95%ile	1.0000	0.2610	2223.7000	0.0810	3.5356	7.6840	2.0600

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Monitored Entity Name	Monitored Entity Code	Station Name	Station Code	Sample Code	Sample Date	Sampling Method	Laboratory	Env Parameter	Result	Measurement Unit	Accredited	Limit of Detection	Irish Water/EPA requirement
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	TMS	pH	7.19	pH Units	Yes In House	Not applicable	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Chloride	72.7	mg/l	Yes In House	1	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	TMS	Conductivity (at 20 oC)	754	µS/cm	Yes In House	100	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Total Hardness (as CaCO3)	257	mg/l	Yes Subcontracted	Not applicable	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	Elab	Cyanide	< 5	µg/l	Yes Subcontracted	5	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	TMS	Fluoride	260	µg/l	Yes In House	10	250
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	2,4-D	< 0.05	µg/l	Yes Subcontracted	0.05	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS Prague	2,6-Dichlorobenzamide	< 0.050	µg/l	Yes Subcontracted	0.05	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Trichlorobenzene (all isomers)	< 0.03	µg/l	Yes Subcontracted	0.03	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Atrazine	< 0.020	µg/l	Yes Subcontracted	0.02	1
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	alpha-HCH - Hexachlorocyclohexane	< 0.003	µg/l	Yes Subcontracted	0.003	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	beta-HCH - Hexachlorocyclohexane	< 0.003	µg/l	Yes Subcontracted	0.003	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Dichlobenil	< 2	ng/l	Yes Subcontracted	2	Not applicable

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Dieldrin	< 4	ng/l	Yes Subcontracted	4	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Diuron	46.6	µg/l	Yes Subcontracted	0.01	0.9
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	gamma-HCH - Hexachlorocyclohexane	< 0.0027	µg/l	Yes Subcontracted	0.0027	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Hexachlorocyclohexane (all isomers)	< 0.0087	µg/l	Yes Subcontracted	0.0087	0.02
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Glyphosate	0.288	µg/l	Yes Subcontracted	0.1	30
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	Synlab	Hexachlorobutadiene	< 0.2	µg/l	Yes Subcontracted	0.2	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Isodrin	< 0.004	µg/l	Yes Subcontracted	0.004	1.0
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Isoproturon	< 0.01	µg/l	Yes Subcontracted	0.01	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	MCPA	0.13	µg/l	Yes Subcontracted	0.05	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Mecoprop	0.06	µg/l	Yes Subcontracted	0.04	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Simazine	< 0.020	µg/l	Yes Subcontracted	0.02	2
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Linuron	< 0.01	µg/l	Yes Subcontracted	0.01	0.35
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Antimony (filtered)	< 1.3	µg/l	Yes Subcontracted	1.6	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Arsenic (filtered)	0.83	µg/l	Yes Subcontracted	0.24	12.5

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Barium (filtered)	14	µg/l	Yes Subcontracted	2	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Boron (filtered)	116	µg/l	Yes Subcontracted	60	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Cadmium (filtered)	< 0.02	µg/l	Yes Subcontracted	0.07	0.225
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Chromium (filtered)	0.28	µg/l	Yes Subcontracted	2	2.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Cobalt (filtered)	0.34	µg/l	Yes Subcontracted	0.08	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Copper (filtered)	< 4.0	µg/l	Yes Subcontracted	1.8	2.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Lead (filtered)	0.5	µg/l	Yes Subcontracted	0.3	1
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Mercury (filtered)	< 0.010	µg/l	Yes Subcontracted	0.01	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Molybdenum (filtered)	< 2.50	µg/l	Yes Subcontracted	2.7	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Nickel (filtered)	2.9	µg/l	Yes Subcontracted	1	17
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Selenium (filtered)	< 1.2	µg/l	Yes Subcontracted	0.6	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Tin (filtered)	< 1.5	µg/l	Yes Subcontracted	1.5	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Vanadium (filtered)	0.44	µg/l	Yes Subcontracted	0.08	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Zinc (Filtered)	52	µg/l	Yes Subcontracted	4	4

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Monitored Entity Name	Monitored Entity Code	Station Name	Station Code	Sample Code	Sample Date	Sampling Method	Laboratory	Env Parameter	Result	Measurement Unit	Accredited	Limit of Detection	Irish Water/EPA requirement
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Acenaphthene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Acenaphthylene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Anthracene	< 0.010	µg/l	Yes Subcontracted	0.01	0.05
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Benzo(a)anthracene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Benzo(g,h,i)perylene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Benzo(a)pyrene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Benzo(b)fluoranthene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Benzo(k)fluoranthene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Chrysene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Dibenz (a,h) anthracene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Fluoranthene	< 0.010	µg/l	Yes Subcontracted	0.01	0.6
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Fluorene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Indeno(1,2,3-c,d)pyrene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Naphthalene	< 0.010	µg/l	Yes Subcontracted	0.01	65

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Phenanthrene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Pyrene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Polyaromatic Hydrocarbons (PAH) -Sum	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	1,2-Dichloroethane	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Benzene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Carbon Tetrachloride	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Chloroform - Trichloromethane	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Dichloromethane	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Ethyl benzene	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	m&p xylene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	o-xylene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Trichloroethene - Trichloroethylene	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Tetrachloroethene - Tetrachloroethylene	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Toluene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Hexachlorobenzene	< 0.002	µg/l	Yes Subcontracted	0.002	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28568-1	01/06/2021	Composite	ALS	Xylenes (Total)	< 2.0	µg/l	Yes Subcontracted	2.0	5

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	TMS	pH	7.43	pH Units	Yes In House	Not applicable	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	TMS	Chloride	100	mg/l	Yes In House	1	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	TMS	Conductivity (at 20 oC)	798	µS/cm	Yes In House	100	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Total Hardness (as CaCO3)	243	mg/l	Yes Subcontracted	Not applicable	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	Elab	Cyanide	< 5	µg/l	Yes Subcontracted	5	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	TMS	Fluoride	< 250	µg/l	Yes In House	10	250
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	2,4-D	< 0.05	µg/l	Yes Subcontracted	0.05	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS Prague	2,6-Dichlorobenzamide	< 0.050	µg/l	Yes Subcontracted	0.05	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Trichlorobenzene (all isomers)	< 0.03	µg/l	Yes Subcontracted	0.03	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Atrazine	< 0.020	µg/l	Yes Subcontracted	0.02	1
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	alpha-HCH - Hexachlorocyclohexane	< 0.003	µg/l	Yes Subcontracted	0.003	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	beta-HCH - Hexachlorocyclohexane	< 0.003	µg/l	Yes Subcontracted	0.003	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Dichlobenil	< 2	ng/l	Yes Subcontracted	2	Not applicable

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Monitored Entity Name	Monitored Entity Code	Station Name	Station Code	Sample Code	Sample Date	Sampling Method	Laboratory	Env Parameter	Result	Measurement Unit	Accredited	Limit of Detection	Irish Water/EPA requirement
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Dieldrin	< 4	ng/l	Yes Subcontracted	4	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Diuron	0.02	µg/l	Yes Subcontracted	0.01	0.9
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	gamma-HCH - Hexachlorocyclohexane	< 0.0027	µg/l	Yes Subcontracted	0.0027	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Hexachlorocyclohexane (all isomers)	< 0.0087	µg/l	Yes Subcontracted	0.0087	0.02
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Glyphosate	0.296	µg/l	Yes Subcontracted	0.1	30
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	Synlab	Hexachlorobutadiene	< 0.2	µg/l	Yes Subcontracted	0.05	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Isodrin	< 0.004	µg/l	Yes Subcontracted	0.004	1
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Isoproturon	< 0.01	µg/l	Yes Subcontracted	0.01	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	MCPA	< 0.05	µg/l	Yes Subcontracted	0.05	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Mecoprop	< 0.04	µg/l	Yes Subcontracted	0.04	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Simazine	< 0.020	µg/l	Yes Subcontracted	0.02	2
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Linuron	< 0.01	µg/l	Yes Subcontracted	0.01	0.35
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Antimony (filtered)	< 1.3	µg/l	Yes Subcontracted	1.3	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Arsenic (filtered)	0.56	µg/l	Yes Subcontracted	0.24	12.5

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Barium (filtered)	15	µg/l	Yes Subcontracted	2	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Boron (filtered)	61	µg/l	Yes Subcontracted	60	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Cadmium (filtered)	< 0.02	µg/l	Yes Subcontracted	0.07	0.225
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Chromium (filtered)	< 0.20	µg/l	Yes Subcontracted	2	2.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Cobalt (filtered)	0.30	µg/l	Yes Subcontracted	0.08	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Copper (filtered)	< 4.0	µg/l	Yes Subcontracted	1.8	2.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Lead (filtered)	< 0.30	µg/l	Yes Subcontracted	0.3	1
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Mercury (filtered)	< 0.010	µg/l	Yes Subcontracted	0.01	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Molybdenum (filtered)	< 2.50	µg/l	Yes Subcontracted	2.7	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Nickel (filtered)	2.5	µg/l	Yes Subcontracted	1	17
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Selenium (filtered)	< 1.2	µg/l	Yes Subcontracted	0.6	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Tin (filtered)	< 1.5	µg/l	Yes Subcontracted	1.5	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Vanadium (filtered)	0.45	µg/l	Yes Subcontracted	0.08	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Zinc (Filtered)	27	µg/l	Yes Subcontracted	4	4

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Acenaphthene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Acenaphthylene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Anthracene	< 0.010	µg/l	Yes Subcontracted	0.01	0.05
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Benzo(a)anthracene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Benzo(g,h,i)perylene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Benzo(a)pyrene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Benzo(b)fluoranthene	< 0.010	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Benzo(k)fluoranthene	0.011	µg/l	Yes Subcontracted	0.01	0.01
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Chrysene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Dibenzo (a,h) anthracene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Fluoranthene	< 0.010	µg/l	Yes Subcontracted	0.01	0.6
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Fluorene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Indeno(1,2,3-c,d)pyrene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Naphthalene	< 0.010	µg/l	Yes Subcontracted	0.01	65

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Phenanthrene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Pyrene	< 0.010	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Polyaromatic Hydrocarbons (PAH) -Sum	0.011	µg/l	Yes Subcontracted	0.01	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	1,2-Dichloroethane	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Benzene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Carbon Tetrachloride	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Chloroform - Trichloromethane	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Dichloromethane	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Ethyl benzene	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	m&p xylene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	o-xylene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Trichloroethene - Trichloroethylene	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Tetrachloroethene - Tetrachloroethylene	< 1.00	µg/l	Yes Subcontracted	1.0	Not applicable

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Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Toluene	< 1.00	µg/l	Yes Subcontracted	1.0	5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Hexachlorobenzene	< 0.002	µg/l	Yes Subcontracted	0.002	0.5
Osberstown	Not Stated	Osberstown WWTP	Not Stated	28886-1	18/08/2021	Composite	ALS	Xylenes (Total)	< 2	µg/l	Yes Subcontracted	2.0	5

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