

Annual Environmental Report

2020



Murroe

D0306-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

- 2.1 MURROE WWTP - 2020 - TREATED DISCHARGE
 - 2.1.1 INFLUENT SUMMARY - MURROE WWTP - 2020
 - 2.1.2 EFFLUENT MONITORING SUMMARY - MURROE WWTP - 2020 -
 - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
 - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR MURROE WWTP - 2020
 - 2.1.5 SLUDGE/OTHER INPUTS TO MURROE WWTP - 2020

3 COMPLAINTS AND INCIDENTS

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
 - 3.2.1 SUMMARY OF INCIDENTS
 - 3.2.2 SUMMARY OF OVERALL INCIDENTS

4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
 - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
 - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
 - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY
 - 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

5 LICENCE SPECIFIC REPORTS

- 5.1 PRIORITY SUBSTANCES ASSESSMENT

6 CERTIFICATION AND SIGN OFF

- 6.1 SUMMARY OF AER CONTENTS

7 APPENDIX

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 AER

This Annual Environmental Report has been prepared for D0306-01, Murroe, in Limerick 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.

Activated Sludge Programme In progress.

1.2 TREATMENT SUMMARY

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

- MURROE WWTP - 2020 with a Plant Capacity PE of 800, the treatment type is 2 - Secondary treatment

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
TPEFF1900D0306SW001	MURROE WWTP - 2020	Treated	Non-Compliant	ortho-Phosphate (as P) - unspecified mg/l

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
There are no Licence Specific Reports included in the AER.	

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 MURROE WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - MURROE WWTP - 2020

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
Suspended Solids mg/l	6	300	146.22
COD-Cr mg/l	6	627	323.3
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	6	240	114.07
Hydraulic Capacity	N/A	2541	813

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 greater than the peak Treatment Plant Capacity. The annual maximum hydraulic loading is greater than the peak Treatment Plant Capacity. Further details on the plant capacity and efficiency can be found under the sectional 'Operational Performance Summary'.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF1900D0306SW001

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	6	N/A	N/A	33.53	Pass
Suspended Solids mg/l	35	87.5	N/A	6	N/A	N/A	4.53	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	6	N/A	N/A	2.74	Pass
pH pH units	9	9	N/A	6	N/A	N/A	7.7	Pass
Ammonia-Total (as N) mg/l	2	2.4	N/A	6	N/A	N/A	0.3	Pass
ortho-Phosphate (as P) - unspecified mg/l	1.5	1.8	N/A	6	4	4	1.61	Fail

Notes:

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

Cause of Exceedance(s):

No chemical dosing.

Significance of Results:

Ortho P failed due to lack of chemical dosing.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0306SW001

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 Status
Upstream	173357, 154201	RS25K420760	No	No	No	No	Unassigned
Downstream	172372, 153585	RS25K420930	No	No	No	No	Unassigned

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
BOD - 5 days (Total) mg/l	RS25K420760	2	RS25K420930	2	1.5	0
Ammonia-Total (as N) mg/l	RS25K420760	0.045	RS25K420930	0.047	0.065	2.6
ortho-Phosphate (as P) - unspecified mg/l	RS25K420760	0.019	RS25K420930	0.05	0.035	89.5
Dissolved Oxygen % O2	RS25K420760	99.367	RS25K420930	97.683		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Temperature °C	RS25K420760	10.217	RS25K420930	10.233		
pH pH units	RS25K420760	7.967	RS25K420930	7.85		
Suspended Solids mg/l	RS25K420760	10	RS25K420930	11.5		

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results does not meet the required EQS. 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 Phosphorus., concentrations downstream of the effluent discharge is noted.

The discharge from the wastewater treatment plant does have an observable negative impact on the Water Framework Directive status.

2.1.4 OPERATIONAL PERFORMANCE SUMMARY - MURROE WWTP - 2020

2.1.4.1 Treatment Efficiency Report - MURROE WWTP - 2020

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	N/A	N/A	N/A
SS	52881	1078	98

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
COD	116924	7978	93
TN	N/A	N/A	N/A
cBOD	41256	653	98

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

2.1.4.2 Treatment Capacity Report Summary - MURROE WWTP - 2020

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.

MURROE WWTP - 2020	
Peak Hydraulic Capacity (m ³ /day) - As Constructed	540
DWF to the Treatment Plant (m ³ /day)	120
Current Hydraulic Loading - annual max (m ³ /day)	2541
Average Hydraulic loading to the Treatment Plant (m ³ /day)	813
Organic Capacity (PE) - As Constructed	800
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	1539
Organic Capacity (PE) - Remaining	0
Will the capacity be exceeded in the next three years? (Yes/No)	Yes

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 - MURROE WWTP - 2020

'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)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

3 COMPLAINTS AND INCIDENTS

3.1 COMPLAINTS SUMMARY

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2020.			

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)
Breach of ELV	Inadequate Infrastructure	1	Yes	No
Uncontrolled release	Adverse Weather	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	2
Number of Incidents reported to the EPA via EDEN in 2020	2
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	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow(High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2020 (No. of events)	Total volume discharged in 2020 (m3)	Monitoring Status
SW002	173619, 155333	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Not Monitored
SW003	173151, 154292	Yes	Low	Not Meeting	Unknown	Unknown	Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	Unknown
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	No
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?	No

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 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
D0306-SIP:01	Compliance with ELVs as specified in Schedule A: Discharges and Discharge Monitoring, of this licence	C	31/12/2019	Yes	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.
D0306-SIP:02	Upgrade to ensure sufficient treatment capacity at WWTP	C	31/12/2019	Yes	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.

A summary of the status of any improvements identified by under Condition 5.2 is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
There are no Improvements Programme for this Agglomeration.				

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 Table.

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 list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2015	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2015

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?	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	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	Yes

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

Signed: Date: 06/05/2021

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

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)				Current WFD Status	Mean (mg/l)		
			Bathing Water	Drinking Water	FWPM	Shellfish		cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	173357, 154201	RS25K420760					Good	1.000	0.019	0.028
Downstream Monitoring Point	172372, 153585	RS25K420930	No	No	No	No	Good	1.100	0.050	0.030
<i>Difference</i>								<i>0.100</i>	<i>0.031</i>	<i>0.002</i>
EQS								1.500	0.035	0.065
% of EQS								6.667%	88.571%	3.077%

Bruree Upstream

Location						Parameter					
Station	Station Reference	Station Easting	Station Northing	Sample Reference	Sample Date	Ammonia NH3-N	pH	Biological Oxygen Demand	Dissolved Oxygen % Saturat	Ortho-Phosphate PO4-P	Temperature
						mg/l	pH units	mg/l	% O2	mg/l	Degrees C
u/s Murroe STP - WDLE 28	RS25K420760	173357	154201	20370157	14-Jan-2020	0.07	7.7	1	102	0.026	6
u/s Murroe STP - WDLE 28	RS25K420760	173357	154201	20370973	10-Mar-2020	0.02	7.8	1	95	0.031	8.3
u/s Murroe STP - WDLE 28	RS25K420760	173357	154201	20371574	09-Jun-2020	0.02	8.3	1	102	0.01	10.6
u/s Murroe STP - WDLE 28	RS25K420760	173357	154201	20371945	14-Jul-2020	0.02	8.2	1	97.3	0.013	12.4
u/s Murroe STP - WDLE 28	RS25K420760	173357	154201	20372505	08-Sep-2020	0.02	7.8	1	103	0.02	13.9
u/s Murroe STP - WDLE 28	RS25K420760	173357	154201	20373319	10-Nov-2020	0.02	8	1	96.9	0.014	10.1
				EQS Std	individual value		6-9				
				EQS Std	good status mean	≤0.065	n/a	≤1.5		≤0.035	n/a
				EQS Std	good status 95%ile	≤0.14	n/a	≤2.6	>80, <120	≤0.075	n/a
					mean	0.028	8.0	1.0	99.4	0.019	10.2
					95%ile	0.058	8.3	1.0	102.8	0.030	13.5
					mean compliance	yes	yes	yes	yes	yes	
					95%ile compliance	yes	yes	yes	yes	yes	--

half of level of detection for statistical purposes
exceeds Surface Waters Regulations good status

Note: Individual results which exceed the good status mean are highlighted in red

Murroe Downstream

Location						Parameter					
Station	Station Reference	Station Easting	Station Northing	Sample Reference	Sample Date	Ammonia NH3-N	pH	Biological Oxygen Demand	Dissolved Oxygen % Saturat	Ortho-Phosphate PO4-P	Temperature
						mg/l	pH units	mg/l	% O2	mg/l	Degrees C
d/s Murroe STP - WDLE 29	RS25K420930	172372	153585	20370158	14-Jan-2020	0.08	7.8	1	101	0.04	5.9
d/s Murroe STP - WDLE 29	RS25K420930	172372	153585	20370974	10-Mar-2020	0.02	7.6	1	92	0.038	8.4
d/s Murroe STP - WDLE 29	RS25K420930	172372	153585	20371575	09-Jun-2020	0.02	8.3	1	101	0.088	10.6
d/s Murroe STP - WDLE 29	RS25K420930	172372	153585	20371946	14-Jul-2020	0.02	8.1	1	96.3	0.056	12.3
d/s Murroe STP - WDLE 29	RS25K420930	172372	153585	20372506	08-Sep-2020	0.02	7.3	1	101	0.049	14
d/s Murroe STP - WDLE 29	RS25K420930	172372	153585	20373320	10-Nov-2020	0.02	8	1	94.8	0.031	10.2
				EQS Std	individual value		6-9				
				EQS Std	good status mean	≤0.065	n/a	≤1.5		≤0.035	n/a
				EQS Std	good status 95%ile	≤0.14	n/a	≤2.6	>80, <120	≤0.075	n/a
					mean	0.030	7.9	1.0	97.7	0.050	10.2
					95%ile	0.065	8.3	1.0	101.0	0.080	13.6
					mean compliance	yes	yes	yes	yes	No	
					95%ile compliance	yes	yes	yes	yes	No	--

half of level of detection for statistical purposes
exceeds Surface Waters Regulations good status

Note: Individual results which exceed the good status mean are highlighted in red