

# Annual Environmental Report

2019



Bruff

D0313-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0313-01, Bruff, 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.

New ferric dosing system.

## 1.2 TREATMENT SUMMARY

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

- BRUFF WWTP with a Plant Capacity PE of 2140, 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
TPEFF1900D0313SW001	BRUFF WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l ortho-Phosphate (as P) - unspecified mg/l

## 1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

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

## 2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

### 2.1 BRUFF WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - BRUFF 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
Suspended Solids mg/l	12	3220	258.64
Total Phosphorus (as P) mg/l	12	55.7	6.18
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	2489	238.84
Total Nitrogen mg/l	12	210	42.12
COD-Cr mg/l	12	6080	686.16
Hydraulic Capacity	N/A	1396	522

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 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 - TPEFF1900D0313SW001

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)
<b>COD-Cr mg/l</b>	125	250	N/A	12	N/A	N/A	16.85	Pass
<b>Suspended Solids mg/l</b>	35	87.5	N/A	12	N/A	N/A	4.86	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	20	40	N/A	12	N/A	N/A	2.6	Pass
<b>pH pH units</b>	9	9	N/A	12	N/A	N/A	7.57	Pass
<b>Ammonia-Total (as N) mg/l</b>	5	6	N/A	12	1	1	1.03	Fail
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	1	1.2	N/A	12	1	1	0.48	Fail
<b>Total Nitrogen mg/l</b>	N/A	N/A	N/A	2	N/A	N/A	7.78	
<b>Total Phosphorus (as P) mg/l</b>	N/A	N/A	N/A	12	N/A	N/A	0.65	

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):

Mechanical failure on winch chain caused ammonia fail. Under dosing of ferric caused phosphate failure.

### Significance of Results:

The WWTP is non compliant with the ELVs set in the WWDL. 2 parameters exceeded the ELV's.

## 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1900D0313SW001

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	162770, 135945	RS24M020560	No	No	No	No	Poor
Downstream	161481, 136656	RS24M020600	No	No	No	No	Poor

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 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.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

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: Morningstar river is a high nutrient river passing through intensive agriculture. 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 - BRUFF WWTP

### 2.1.4.1 Treatment Efficiency Report - BRUFF 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)
SS	39917	548	99
TN	6500	959	85
TP	954	74	92
COD	105897	1900	98
cBOD	36862	293	99

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

### 2.1.4.2 Treatment Capacity Report Summary - BRUFF 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.

BRUFF WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	1382



BRUFF WWTP	
DWF to the Treatment Plant (m <sup>3</sup> /day)	524
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	1396
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	522
Organic Capacity (PE) - As Constructed	2140
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	987
Organic Capacity (PE) - Remaining	1153
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 - BRUFF 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)
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
<b>There were no relevant environmental complaints in 2019.</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 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)
<b>Breach of ELV</b>	Shock load to the WWTP	1	No	Yes
<b>Spillage</b>	Blocked Sewer	1	No	Yes
<b>Breach of ELV</b>	Dosing pump failure or maintenance at WWTP	1	No	No

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Spillage	Blocked Sewer	1	No	Yes

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	4
Number of Incidents reported to the EPA via EDEN in 2019	4
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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
SW3	162505, 136091	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW4	162706, 135974	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW2	162319, 136261	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	162335, 136245	No	Low	Meeting	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	37821
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	Yes

SWO Summary	
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 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
<b>D0313-SIP:03</b>	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis	C	01/01/2014	Yes	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
<b>D0313-SIP:04</b>	The improvement programme will be reviewed by Irish Water to	C	01/01/2014	Yes	Not Started		The improvement programme will be reviewed by Irish Water to

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
	assess the works required to comply with the licence condition on a prioritised basis						assess the works required to comply with the licence condition on a prioritised basis
<b>D0313-SIP:01</b>	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis	A	01/01/2014	Yes	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
<b>D0313-SIP:02</b>		C	01/01/2014	Yes	Works Completed		

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
<b>There are no Improvements Programme for this Agglomeration.</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 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
<b>There is no Licence Specific Report Required in this AER Annual Review.</b>				



## 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: 08/04/2020

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

Morningstar River Upstream of Bruff outfall.

Location						Parameter						
Station	Station Reference	Station Easting	Station Northing	Sample Reference	Sample Date	Ammonia NH3-N	Biological Oxygen Demand	Dissolved Oxygen % Saturation	Ortho-Phosphate PO4-P	pH	Temperature	Total Nitrogen N
						mg/l	mg/l	% O2	mg/l	pH units	Degrees C	mg/l
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19370126	15-Jan-2019	0.02	1	99	0.052	8.2	8	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19370514	12-Feb-2019	0.02	1	93	0.04	8.1	8.6	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19370941	12-Mar-2019	0.02	1	94	0.074	7.9	7.4	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19371343	9-Apr-2019	0.02	1	101	0.011	8.2	9.4	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19371706	14-May-2019	0.02	1	108	0.006	8.4	11.9	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19372077	11-June-2019	0.07	1	106	0.0025	8.3	11.7	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19372323	9-July-2019	0.02	1	114	0.067	8.4	17.1	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19372727	13-Aug-2019	0.02	1	90.4	0.133	8.1	13.7	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19373014	3-Sep-2019	0.02	1	98.7	0.083	8.2	14	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19373503	8-Oct-2019	0.02	1	97.6	0.084	8.1	11.4	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19373963	12-Nov-2019	0.02	1	91.5	0.087	7.9	6.7	
WDLM 20 Br in Bruff u/s Bruff STP	RS24M020560	162692	135947	19374360	10-Dec-2019	0.02	1	97.1	0.054	8.1	8.6	
				EQS Std	individual value					6-9	n/a	n/a
				EQS Std	good status mean	≤0.065	≤1.5		≤0.035	n/a	n/a	n/a
				EQS Std	good status 95%ile mean	≤0.14	≤2.6	>80, <120	≤0.075	n/a	n/a	n/a
					95%ile	0.024	1.000	99.192	0.058	8.158	10.708	#DIV/0!
					mean compliance	0.043	1.000	110.700	0.108	8.400	15.395	#NUM!
					95%ile compliance	yes	yes		no	yes	--	--
						yes	yes	yes	no	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

Morningstar River Downstream of Bruff Outfall.

Location						Parameter						
Station	Station Reference	Station Easting	Station Northing	Sample Reference	Sample Date	Ammonia NH3-N	Biological Oxygen Demand	Dissolved Oxygen % Saturation	Ortho-Phosphate PO4-P	pH	Temperature	Total Nitrogen N
						mg/l	mg/l	% O2	mg/l	pH units	Degrees C	mg/l
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19370127	15-Jan-2019	0.02	1	97.9	0.054	8.2	7.9	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19370515	12-Feb-2019	0.02	1	86	0.041	8.1	8.8	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19370942	12-Mar-2019	0.02	1	86	0.067	8	8.8	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19371344	9-Apr-2019	0.09	1	91.5	0.02	8.1	9.3	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19371707	14-May-2019	0.02	1	99.5	0.009	8.2	11.9	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19372078	11-June-2019	0.07	1	98.4	0.0025	8.2	11.6	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19372324	9-July-2019	0.02	1	92.2	0.069	8.2	16.8	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19372728	13-Aug-2019	0.02	1	88.3	0.113	8.1	13.6	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19373015	3-Sep-2019	0.02	1	101	0.079	8.2	14.1	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19373504	8-Oct-2019	0.02	1	98.2	0.099	8.1	11.3	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19373964	12-Nov-2019	0.02	1	91.2	0.086	7.9	6.6	
d/s Bruff STP WDLM23	RS24M020640	160551	136798	19374361	10-Dec-2019	0.05	1	95.2	0.123	8.2	8.7	
				EQS Std	individual value					6-9	n/a	n/a
				EQS Std	good status mean	≤0.065	≤1.5		≤0.035	n/a	n/a	n/a
				EQS Std	good status 95%ile	≤0.14	≤2.6	>80, <120	≤0.075	n/a	n/a	n/a
					mean	0.033	1.000	93.783	0.064	8.125	--	#DIV/0!
					95%ile	0.079	1.000	100.175	0.118	8.200	--	#NUM!
					mean compliance	yes	yes	yes	no	yes	--	--
					95%ile compliance	yes	yes	yes	no	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

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	162692, 135947	RS24M020560					Moderate	1.000	0.058	0.024
Downstream Monitoring Point	160551, 136798	RS24M020640	No	No	No	No	Moderate	1.000	0.064	0.033
<i>Difference</i>								<i>0.000</i>	<i>0.006</i>	<i>0.009</i>
EQS								1.500	0.035	0.065
% of EQS								0.000%	17.143%	13.846%