Annual Environmental Report

2019

Bandon

D0136-01

CONTENTS

7 APPENDIX

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0136-01, Bandon, in Cork 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.

WWTP and sewer network are being upgraded.

1.2 TREATMENT SUMMARY

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

- BANDON WWTP with a Plant Capacity PE of 20000, 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
TPEFF0500D0136SW001	BANDON WWTP	Treated	Non-Compliant	Ammonia-Total (as N) 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 BANDON WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - BANDON 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
COD-Cr mg/l	12	694	391.39
Suspended Solids mg/l	12	326	160.51
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	305	147.77
Hydraulic Capacity	N/A	7277	2977

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’.

2.1.2 EFFLUENT MONITORING SUMMARY - TPEFF0500D0136SW001

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	12	N/A	N/A	34.16	Pass
Suspended Solids mg/l	35	87.5	N/A	12	N/A	N/A	11.06	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	12	N/A	N/A	5.37	Pass
pH pH units	9	9	N/A	12	N/A	N/A	6.95	Pass
ortho-Phosphate (as P) - unspecified mg/l	3	3.6	N/A	12	N/A	N/A	1.4	Pass
Ammonia-Total (as N) mg/l	3	3.6	N/A	12	1	1	1.58	Fail
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	20.4	
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	12	N/A	N/A	1.78	

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):

Ammonia exceeded ELV with condition II

Significance of Results:

The WWTP is not compliant with the ELVs set in the WWDL.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0500D0136SW001

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	150362, 55674	RS20B020800	No	No	No	No	Moderate
Downstream	151648, 56935	RS20B020850	No	No	No	No	Moderate

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	RS20B020800		RS20B020850	1.633	1.5	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Ammonia-Total (as N) mg/l	RS20B020800	0.045	RS20B020850	0.022	0.065	-35.6
ortho-Phosphate (as P) - unspecified mg/l	RS20B020800	0.04	RS20B020850	0.031	0.035	-27.2
Chloride mg/l	RS20B020800	29.46	RS20B020850			
Dissolved Oxygen mg/l	RS20B020800	10.62	RS20B020850			
Total Hardness (as CaCO3) mg/l	RS20B020800	65.4	RS20B020850			
pH pH units	RS20B020800	7.46	RS20B020850	7.7		
Alkalinity-total (as CaCO3) mg/l	RS20B020800	52.8	RS20B020850			
Dissolved Oxygen % Saturation	RS20B020800	103.2	RS20B020850	100.167		
True Colour mg/litre Pt Co	RS20B020800	14.4	RS20B020850			
Nitrate (as N) mg/l	RS20B020800	3.36	RS20B020850			
Temperature °C	RS20B020800	14.18	RS20B020850	11.617		
Conductivity @25°C µS/cm	RS20B020800	257.4	RS20B020850			

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Total Oxidised Nitrogen (as N) mg/l	RS20B020800	3.38	RS20B020850			
Nitrite (as N) µg/l	RS20B020800	9.168	RS20B020850			

Significance of Results:

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

The ambient monitoring results 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.

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 - BANDON WWTP

2.1.4.1 Treatment Efficiency Report - BANDON 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	165442	12222	93
TN	N/A	22545	N/A

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
cBOD	152311	5938	96
TP	N/A	1969	N/A
COD	403426	37752	91

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

2.1.4.2 Treatment Capacity Report Summary - BANDON 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.

BANDON WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	13500
DWF to the Treatment Plant (m^3/day)	4500
Current Hydraulic Loading - annual max (m^3/day)	7277
Average Hydraulic loading to the Treatment Plant (m^3/day)	2977
Organic Capacity (PE) - As Constructed	20000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	8877
Organic Capacity (PE) - Remaining	11123
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 - BANDON 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)
Landfill Leachate (delivered by tanker)	1500	Volume (m3)		100	Yes	Yes	No

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 2019.			

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)
Other	Broken Sewer Pipe	1	No	Yes
Spillage	Inadequate Operational Procedures / Training	1	No	Yes
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Blocked Sewer	1	No	Yes
Uncontrolled release	Inadequate Infrastructure	1	No	Yes
Uncontrolled release	Other	1	No	Yes
Uncontrolled release	Network Infrastructure	1	No	Yes
Spillage	EO caused by ragging or blocking	1	No	Yes
Uncontrolled release	Other	1	No	No
Uncontrolled release	Inadequate Infrastructure	1	Yes	No
Breach of ELV	Inadequate Infrastructure	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	11
Number of Incidents reported to the EPA via EDEN in 2019	11
Explanation of any discrepancies between the two numbers above	None

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
SW003	150074, 55292	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW005	149265, 54933	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW006	149542, 55150	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW009	149281, 55040	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW011	TBC	Yes	Unknown	Not yet Assessed	Unknown	Unknown	Unknown
SW014	148819, 54459	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored

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
SW015	148552, 54267	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW002	150368, 55690	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW004	149316, 55106	Yes	Low	Not Meeting	Unknown	Unknown	Not Monitored
SW007	149145, 55055	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW008	149732, 55124	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW010	149244, 55045	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW012	149293, 54948	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW013	149116, 54830	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
TBC	145178, 54653	No	Unknown	Meeting	Unknown	Unknown	Not 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
D0136-SIP:01	Provide nutrient removal to meet ELVs specified in Schedule A	C	31/12/2015	Yes	Work ongoing on-site	31/12/2020	
D0136-SIP:02	Upgrade the WWTP to comply with ELVs specified in Schedule A	C	31/12/2015	Yes	Work ongoing on-site	31/12/2020	

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
Drinking Water Abstraction Point Risk Assessment	Yes	2015	No	
Priority Substances Assessment	Yes	2015	No	

5.1 DRINKING WATER ABSTRACTION POINT RISK ASSESSMENT

The Drinking Water Abstraction Point Risk Assessment Report has been included in the AER 2015

5.2 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?	Yes
List reason e.g. additional SWO identified	SWO's to be removed.
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: 14/04/2020

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

There are no Appendices included