

# Annual Environmental Report

2018



Freshford

D0526-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0526-01, Freshford, in Kilkenny 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 TREATMENT SUMMARY

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

- FRESHFORD WWTP with a Plant Capacity PE of 1100. This is a new WWTP, commissioned in 2016. Irish Water is seeking a licence review (submitted September 2017) under Regulation 15 of the Wastewater Discharge Regulations for the upward revision of the prescribed ELVs under the current licence
- There is one Secondary Discharge (SW002) serving 2no houses (1no occupied second not occupied) discharging to the old plant (septic tank). No monitoring is carried out at this discharge point. The tank has a capacity of approximately 300 PE.

The treatment process includes the following:

### 1.1.1 FRESHFORD WWTP (SW003)

Treatment type	Yes / No	Details
Preliminary Treatment	No	
Primary Treatment	No	
Secondary Treatment	Yes	standard aeration – 2 SBRs
Nutrient Removal	Yes	ferric dosing
Tertiary Treatment	No	

## 1.2 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
TPEFF1500D0526SW001	Freshford Secondary Discharge	Treated	Not monitored	Not Applicable
TPEFF1500D0526SW003	FRESHFORD WWTP	Treated	Non-Compliant	Issue with ferric dosing and MLSS

## 1.3 LICENCE SPECIFIC REPORTING INCLUDED IN AER

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

## 2 TREATMENT PLANT PERFORMAND AND IMPACT SUMMARY

### 2.1 FRESHFORD WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - FRESHFORD 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
<b>BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l</b>	6	336	79.51
<b>COD-Cr mg/l</b>	6	1001	268.81
<b>Suspended Solids mg/l</b>	6	798	177.33
<b>Total Nitrogen mg/l</b>	6	92.6	21.19
<b>Total Phosphorus (as P) mg/l</b>	6	11.4	2.92
<b>Hydraulic Capacity</b>	N/A	709	335.5

#### 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 - TPEFF1500D0526SW003 (NEW PRIMARY DISCHARGE LOCATION)

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	0	0	14.44	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	5	10	N/A	6	1	0	3.03	Pass
Suspended Solids mg/l	5	12.5	N/A	6	3	0	4.47	Fail
ortho-Phosphate (as P) - unspecified mg/l	1.5	1.8	N/A	6	1	1	0.41	Fail
Ammonia-Total (as N) mg/l	0.6	1.2	N/A	6	1	0	0.1	Pass
pH pH units	6-9	6-9	N/A	6	0	0	7.97	Pass

Notes:

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

2 - For parameters where a mean ELV applies

### Cause of Exceedance(s):

Issue with ferric dosing and MLSS

## Significance of Results:

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

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

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
<b>Upstream</b>	240981, 164776	TPEFF1500D0526SW003	No	No	No	No	Poor
<b>Downstream</b>	241313, 164648	TPEFF1500D0526SW003	No	No	No	No	Poor

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
<b>BOD - 5 days (Total) mg/l</b>	RS15N020360	1	RS15N020380	1.1	2.6	3.8
<b>Ammonia-Total (as N) mg/l</b>	RS15N020360	0.02	RS15N020380	0.03	0.14	3.6
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	RS15N020360	0.06	RS15N020380	0.06	0.08	-6.7



<b>Temperature °C</b>	RS15N020360	10	RS15N020380	13		
<b>Sulphate mg/l</b>	RS15N020360	11.9	RS15N020380	12		
<b>Chloride mg/l</b>	RS15N020360	20.35	RS15N020380	21.2		
<b>Nitrate (as N) mg/l</b>	RS15N020360	5.5	RS15N020380	5.3		
<b>pH pH units</b>	RS15N020360	8	RS15N020380	8		
<b>Nitrite (as N) mg/l</b>	RS15N020360	0.01	RS15N020380	0.01		
<b>Conductivity 20 C µS/cm</b>	RS15N020360	541	RS15N020380	533		
<b>Dissolved Oxygen % O2</b>	RS15N020360	106	RS15N020380	105.5		

### Significance of Results:

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

The discharge from the WWTP does not appear to be having an effect on water quality.

Any other know impacts: The EQS assessed relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009, as amended.

## 2.1.4 OPERATIONAL PERFORMANCE SUMMARY

### 2.1.4.1 Treatment Efficiency Report

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)	Comment
SS	21,715.49	537.83	97.52	
TN	2,596.93	932.42	64.07	
TP	357.6	56.33	84.25	
cBOD	11,683.29	364.51	96.88	
COD	32,918.13	1739.35	94.72	

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

#### 2.1.4.2 Treatment Capacity Report Summary

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.

FRESHFORD WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	643
DWF to the Treatment Plant (m3/day)	240
Current Hydraulic Loading - annual max (m3/day)	709
Average Hydraulic loading to the Treatment Plant (m3/day)	335.5
Organic Capacity (PE) - As Constructed	1100
Organic Capacity (PE) - Collected Load (peak week)	682
Organic Capacity (PE) - Remaining	418
Will the capacity be exceeded in the next three years? (Yes/No)	No

## 2.1.5 SLUDGE / OTHER INPUTS

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

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
<b>There is no Sludge and Other Input data for the Treatment Plant included in the AER.</b>							

## 2.1.6 SLUDGE REMOVAL

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
<b>FRESHFORD WWTP</b>	Liquid Sludge	292.27	Volume (m3)	1	D0018 KMD

## 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 is no Complaint data included in the AER.</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>Non-compliance</b>	Inadequate Operational Procedures	1	No	No
<b>Non-compliance</b>	WWTP biological sludge issue	2	No	No

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2018	2
Number of Incidents reported to the EPA via EDEN in 2018	2
Explanation of any discrepancies between the two numbers above	

## 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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SW2	240958, 164788	No	Low	Not 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/NAY)	Status of Works	Timeframe for Completing the Work	Comments
<b>D0526-SIP:01</b>	SW001 Primary Discharge Point to be discontinued	C	22/12/2015	Yes	The original septic tank has been retained to serve 2 households. This was the original outfall from the original WWTP and has not been allocated as a secondary discharge.		
<b>D0526-SIP:02</b>	Upgrade Freshford WWTP to provide secondary treatment with nutrient removal	C	22/12/2015	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	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?	Yes
List reason e.g. additional SWO identified	Currently under review by EPA. Irish Water seeking upward revision of ELVs.
Is there a need to request/advise the EPA of any modifications to the existing WWDL?	No
List reason e.g. changes to monitoring requirements	
Have these processes commenced?	Yes
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	No

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

Signed:    Date: 28/05/2019

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 ,

Eleanor Roche

Acting Head of Environmental Regulation.

## 7 APPENDIX

There are no Appendices included