Annual Environmental Report

2019

Kilmeague

D0233-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0233-01, Kilmeague, 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.

The following upgrade works which commenced in September 2018 were completed in 2019:

- The provision of storm tank, storm return pumping system and storm overflow, SBR upgrades replace pneumatic decant arms with electrical automated decant system.
- New duty/standby VSD controlled blower arrangement controlled by DO levels.
- Upgrade of sludge treatment by provision of a sludge thickening and new thickened sludge tank with automated sludge wasting.

1.2 TREATMENT SUMMARY

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

- Kilmeague WWTP with a Plant Capacity PE of 1400, 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
TPEFF1400D0233SW001	Kilmeague WWTP	Treated	Compliant	N/A

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 KILMEAGUE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - KILMEAGUE 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 Nitrogen mg/l	8	121.5	76.3
Suspended Solids mg/l	9	5900	1573.32
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	9	1280	492.24
COD-Cr mg/l	8	7605	2796.39
Total Phosphorus (as P) mg/l	5	108.51	56.17
Hydraulic Capacity	N/A	403	149

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 - TPEFF1400D0233SW001

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)
pH pH units	6-9	6-9	N/A	15	0	0	7.21	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	10	20	N/A	15	2	0	5.25	Pass
Suspended Solids mg/l	20	50	N/A	15	0	0	7.43	Pass
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	15	N/A	N/A	0.37	
Ammonia-Total (as N) mg/l	N/A	N/A	N/A	10	N/A	N/A	8.03	
COD-Cr mg/l	N/A	N/A	N/A	10	N/A	N/A	22.6	

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):

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 TPEFF1400D0233SW001

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
Downstream	284236, 219445	RS09L011050	No	No	No	No	Good

There is no upstream ambient monitoring for Kilmeague as the effluent discharges to a drainage ditch which has limited inflow upstream of the discharge point.

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 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 the effluent results, the discharge from the WWTP may be having an observable impact on the water quality in terms of Ortho-P and Ammonia.

Other potential causes of deterioration in water quality relevant to this 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 - KILMEAGUE WWTP

2.1.4.1 Treatment Efficiency Report - Kilmeague 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)
TN	3627	600	83
TP	2263	38	98
COD	136006	1183	99
cBOD	23836	278	99
SS	76186	381	100

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

2.1.4.2 Treatment Capacity Report Summary - Kilmeague 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.

Kilmeague WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	483
DWF to the Treatment Plant (m^3/day)	161
Current Hydraulic Loading - annual max (m^3/day)	403

Kilmeague WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	149
Organic Capacity (PE) - As Constructed	1400
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1310
Organic Capacity (PE) - Remaining	90
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 - KILMEAGUE 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
1	Blocked Sewer	0	1

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)
Uncontrolled release	Plant or equipment maintenance at WWTP	1	No	Yes
Abatement Equipment offline	Plant or equipment breakdown at WWTP	1	No	Yes
Spillage	Blocked Sewer	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 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
TBC	TBC	No	Unknown	Meeting	Unknown	Unknown	Unknown
SW001	277514, 222247	Yes	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?	No
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	Yes

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
D0233-SIP:01	Manhole at entrance to WWTP to be discontinued or converted to SWO	A	30/06/2019	Yes	Works Completed	08/01/2020	.
D0233-SIP:02	Relocate the primary discharge point as agreed in Condition 4.18	C	31/12/2014	Yes	Not started		A licence review application has been submitted to the EPA for the relocation of the primary discharge outfall to 70 meters downstream of the existing discharge point.

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
D0233-SIP:03	The Primary Discharge Point (SW1-P)	A	31/12/2014	Yes	Not started		A licence review application has been submitted to the EPA for the relocation of the primary discharge outfall to 70 meters downstream of the existing discharge point.
D0233-SIP:04	Upgrade the WWTP to provide adequate hydraulic and biological treatment capacity as agreed in Condition 4.18	C	31/12/2014	Yes	Works Completed	08/01/2020	
D0233-SIP:05	Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"	C	31/12/2013	Yes	Works on- going on site		SWO Assessment Programme to assess performance against DoECLG criteria.

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.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
There is no Licence Specific Report Required in this AER Annual Review.				

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	Relocation of primary discharge.
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	Relocation of SW1-P and SW002 monitoring location. Inclusion of new emergency overflow discharge point SW003.
Have these processes commenced?	Yes
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: 06/03/2020

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

Kilmeague Ambient Monitoring Summary 2019

			Receiving Waters Designation (Yes/No)					Mean (mg/l)		
Ambient Monitoring Point from WWDL (or as agreed with EPA)	**Irish National Grid Reference (Easting, Northing)**	**EPA Feature Coding Tool code**	**Bathing Water**	**Drinking Water**	**FWPM**	**Shellfish**	**Current WFD Status**	**cBOD**	**o-Phosphate (as P)**	**Ammonia (as N)**
Upstream Monitoring Point	N/A	N/A					N/A	N/A	N/A	N/A
Downstream Monitoring Point	284236, 219445	RS09L011050	No	No	No	No	Good	6.433	0.576	7.688
EQS								1.5	0.035	0.065

Note: There is no upstream ambient monitoring for Kilmeague as the effluent discharges to a drainage ditch which has limited inflow upstream of the discharge point.

Kilmeague Ambient Monitoring Summary 2019

Downstream Results					
Date		Ammonia (mg/l) *	Ortho P (mg/l) *	BOD (mg/l) *	pH (mg/l)
09/01/2019	D/S	1.62	0.26		7.49
12/02/2019	D/S	1.95	0.59		7.2
07/03/2019	D/S	0.32	0.07		7
03/04/2019	D/S	3.95	0.27		7.49
08/04/2019	D/S	1.86	0.06		7.5
11/09/2019	D/S	1.49	0.14	6	7.74
16/10/2019	D/S	4.7	0.64	8	7.42
22/11/2019	D/S	36.8	2.4		7.59
06/12/2019	D/S	16.5	0.75	5.3	7.44
Mean		**7.688**	**0.576**	**6.433**	**7.430**
95%ile		**28.680**	**1.740**	**7.800**	**7.680**

* Where the concentration in the result is less than the limit of detection (LOD), a value of 50% of the LOD was used in calculating the mean and 95%ile concentrations.

Kilmeague Ambient Monitoring Summary 2019

			Receiving Waters Designation (Yes/No)					Mean (mg/l)		
Ambient Monitoring Point from WWDL (or as agreed with EPA)	**Irish National Grid Reference (Easting, Northing)**	**EPA Feature Coding Tool code**	**Bathing Water**	**Drinking Water**	**FWPM**	**Shellfish**	**Current WFD Status**	**cBOD**	**o-Phosphate (as P)**	**Ammonia (as N)**
Upstream Monitoring Point	N/A	N/A					N/A	N/A	N/A	N/A
Downstream Monitoring Point	284236, 219445	RS09L011050	No	No	No	No	Good	6.433	0.576	7.688
EQS								1.5	0.035	0.065

Note: There is no upstream ambient monitoring for Kilmeague as the effluent discharges to a drainage ditch which has limited inflow upstream of the discharge point.

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09/01/2019	D/S	1.62	0.26		7.49
12/02/2019	D/S	1.95	0.59		7.2
07/03/2019	D/S	0.32	0.07		7
03/04/2019	D/S	3.95	0.27		7.49
08/04/2019	D/S	1.86	0.06		7.5
11/09/2019	D/S	1.49	0.14	6	7.74
16/10/2019	D/S	4.7	0.64	8	7.42
22/11/2019	D/S	36.8	2.4		7.59
06/12/2019	D/S	16.5	0.75	5.3	7.44
Mean		**7.688**	**0.576**	**6.433**	**7.430**
95%ile		**28.680**	**1.740**	**7.800**	**7.680**

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