Annual Environmental Report

2019

Killea

D0537-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0537-01, Killea, in Donegal 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.

There were no major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

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

- KILLEA WWTP 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
TPEFF0600D0537SW001	KILLEA WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l COD-Cr mg/l Suspended Solids 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 KILLEA WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - KILLEA 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
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	6	208	129.12
Total Nitrogen mg/l	1	32	32
Suspended Solids mg/l	6	174	86.32
COD-Cr mg/l	6	435	312.13
Hydraulic Capacity	N/A	511	97

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 - TPEFF0600D0537SW001

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	2	N/A	124.77	Fail
Suspended Solids mg/l	35	87.5	N/A	6	2	N/A	36.1	Fail
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	6	4	2	39.98	Fail
Ammonia-Total (as N) mg/l	10	20	N/A	6	5	2	15.77	Fail
ortho-Phosphate (as P) - unspecified mg/l	9	18	N/A	6	N/A	N/A	1.75	Pass
pH pH units	9	9	N/A	6	N/A	N/A	7.21	Pass
Conductivity 20 C µS/cm	N/A	N/A	N/A	6	N/A	N/A	464.53	

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):

See Section 3.2

Significance of Results:

The WWTP is non compliant with the ELV's set out in the wastewater discharge licence. The impact on the receiving waters is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0600D0537SW001

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	238052, 415249	RS01C020350	No	No	No	No	Poor
Downstream	238196, 414770	RS01C020420	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.

Based on ambient monitoring results a deterioration in orthophosphate & ammonia 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 - KILLEA WWTP

2.1.4.1 Treatment Efficiency Report - KILLEA 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)
TP	N/A	N/A	N/A
COD	10254	4099	60
cBOD	4242	1313	69
TN	1110	N/A	N/A
SS	2835	1186	58

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

2.1.4.2 Treatment Capacity Report Summary - KILLEA 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.

KILLEA WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	597
DWF to the Treatment Plant (m^3/day)	199
Current Hydraulic Loading - annual max (m^3/day)	511
Average Hydraulic loading to the Treatment Plant (m^3/day)	97
Organic Capacity (PE) - As Constructed	800
Organic Capacity (PE) - Collected Load (peak week)[Note1]	527
Organic Capacity (PE) - Remaining	273
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 - KILLEA 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
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)
Breach of ELV	WWTP upgrade required to meet ELV	1	Yes	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	1
Number of Incidents reported to the EPA via EDEN in 2019	1
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
SW002	238041, 415251	Yes	Low	Not yet Assessed	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?	N/A
The SWO Assessment included the requirements of relevant of WWDL schedules?	N/A
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
D0537-SIP:01	Install a new coarse screen at WWTP	C	30/12/2014	Yes	Works Completed		
D0537-SIP:02	Upgrade Killea WWTP to comply with the emission limits specified in Schedule A of this licence. Alternatively, implement, in accordance with Condition 5.5.2, either (a) an alternative primary discharge point, or (b) an alternative means of managing the existing waste water discharge volume and quality during periods of low flow in the receiving water or (c) connection to another agglomeration.	C	31/12/2019	No	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

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	No

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

Signed: Date: 03/06/2020

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

Ambient Monitoring Summary: Killea

Table 1: Ambient Monitoring Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Receiving Waters Designation (Y/N)**				**WFD Status**
			Bathing Water	**Drinking Water**	**FWPM**	**Shellfish**	
Upstream Monitoring Point	238052,415249	UKGBNI1NW010103062	no	no	no	no	good
Downstream Monitoring Point	238179,414792	UKGBNI1NW010103062	no	no	no	no	Poor

Table 2: Ambient Impact Assessment Table

Parameter Name	**Upstream Monitoring Point Location**	**Upstream Monitoring Point Annual Mean**	**Downstream Monitoring Point Location**	**Downstream Monitoring Point Annual Mean**	**EQS (mean)**	**%EQS**
cBOD mg/l	238052,415249	1.667	238179,414792	1.50	1.5	-11.13%
Ortho-Phosphate (as P) mg/l	238052,415249	0.23	238179,414792	0.624	.035	1,125.7%
Ammonia (as N) mg/l	238052,415249	0.054	238179,414792	1.233	.065	1,813.85%

Entity Name	Month	Location	Lab Ref	Date	pH	Temperature	Conductivity @ 20°C	DO	BOD	COD	Suspended Solids	Ammonia (as N)	Orthophosphate	E coli	Faecal Coliforms (E. coli)	Enterococci
Liberty Burn Strean	January	Killea - Upstream	192500255	24-Jan-19	7.5	5.7	295	93.2	5	NT	15	0.93	0.17	10112	361	24196
Liberty Burn Strean	January	Killea - Downstream	192500258	24-Jan-19	7.6	5.2	278	97.2	1	<20	13	0.07	<0.05	1331	128	695
Liberty Burn Strean	March	Killea - Upstream	192501119	20-Mar-19	6.7	9.7	392	95.7	<1	NT	<6	<0.015	<0.05	NT	NT	NT
Liberty Burn Strean	March	Killea - Downstream	192501122	20-Mar-19	7	9.7	209	95.1	1	NT	<6	0.233	<0.05	NT	NT	NT
Liberty Burn Strean	May	Killea - Upstream	192501840	10-May-19	7.2	10	211	94.7	1	NT	20	0.056	<0.05	NT	NT	NT
Liberty Burn Strean	May	Killea - Downstream	192501843	10-May-19	7.3	9.8	229	88.3	2	NT	6	0.561	0.085	NT	NT	NT
Liberty Burn Strean	July	Killea - Upstream	192502907	16-Jul-19	7.6	15.7	241	92.9	1	NT	<6	0.061	<0.05	NT	NT	NT
Liberty Burn Strean	July	Killea - Downstream	192502910	16-Jul-19	7.3	16.5	283	49.7	2	NT	<6	2.88	0.31	NT	NT	NT
Liberty Burn Strean	September	Killea - Upstream	192504088	26-Sep-19	7	11.9	238	99.5	1	NT	<6	0.017	0.03	NT	NT	NT
Liberty Burn Strean	September	Killea - Downstream	192504091	26-Sep-19	7.2	12	260	92.7	2	NT	<6	0.913	0.12	NT	NT	NT
Liberty Burn Strean	November	Killea - Upstream	192504862	19-Nov-19	7.1	7.2	202	90.2	1	NT	<6	0.083	<0.05	NT	NT	NT
Liberty Burn Strean	November	Killea - Downstream	192504865	19-Nov-19	7.2	7.4	217	84.2	1	NT	<6	0.578	0.059	NT	NT	NT

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