Annual Environmental Report

2021

Creeslough

D0534-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0534-01, Creeslough, 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 was no major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

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

- Creeslough WWTP with a Plant Capacity PE of 300, 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
TPEFF0600D0534SW001	Creeslough WWTP	Treated	Non-Compliant	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l COD-Cr mg/l ortho-Phosphate (as P) - unspecified mg/l

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report
There are no Licence Specific Reports included in this AER.

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 CREESLOUGH WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - CREESLOUGH 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	6	861	269
Suspended Solids mg/l	6	248	137
ortho-Phosphate (as P) - unspecified mg/l	6	9.15	2.78
pH units	6	7.90	7.42
Ammonia-Total (as N) mg/l	6	111	30
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	6	402	139
Hydraulic Capacity	N/A	469	132

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 - TPEFF0600D0534SW001

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 exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	6	1	1	64	Fail
Suspended Solids mg/l	35	88	N/A	6	1	N/A	24	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	6	1	1	19	Fail
pH units	9.00	9.00	N/A	6	N/A	N/A	7.26	Pass
Ammonia-Total (as N) mg/l	2.00	2.40	N/A	6	5	5	9.15	Fail
ortho-Phosphate (as P) - unspecified mg/l	1.00	1.20	N/A	6	5	5	2.17	Fail
Conductivity @20°C µS/cm	N/A	N/A	N/A	6	N/A	N/A	549	
E. Coli MPN/100ml	N/A	N/A	N/A	2	N/A	N/A	619809	
Enterococci (Intestinal) cfu/100ml	N/A	N/A	N/A	1	N/A	N/A	39000	

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 exceedances with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Faecal coliforms cfu/100ml	N/A	N/A	N/A	2	N/A	N/A	57526	

Notes:
1 – This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied
2 – For pH the WWDA specifies a range of pH 6 - 9

Cause of Exceedance(s):

Plant not equipped to remove Ammonia and Ortho Phosphate

Significance of Results:

The WWTW is non-compliant with the ELVs set in the Waste Water Discharge Licence. The impact on receiving waters is assessed further in Section2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF0600D0534SW001

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 Ecological Status
Upstream	205359, 431675	RS38F010190	No	No	No	No	Good

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	River Station Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Ecological Status
Downstream	205467, 431677	RS38F010300	No	No	No	No	Good

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	RS38F010190	1.12	RS38F010300	1.67	1.50	36.6
Ammonia-Total (as N) mg/l	RS38F010190	0.017	RS38F010300	0.220	0.065	312.6
ortho-Phosphate (as P) - unspecified mg/l	RS38F010190	0.030	RS38F010300	0.078	0.035	136.8
Suspended Solids mg/l	RS38F010190	4.24	RS38F010300	6.54	N/A	
Faecal coliforms cfu/100ml	RS38F010190	344	RS38F010300	3480	N/A	
Temperature °C	RS38F010190	12	RS38F010300	12	N/A	
pH units	RS38F010190	7.50	RS38F010300	7.45	N/A	
Dissolved Oxygen % Saturation	RS38F010190	94	RS38F010300	93	N/A	
Conductivity @20°C µS/cm	RS38F010190	149	RS38F010300	166	N/A	

Significance of Results:

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

The ambient monitoring results do not meet the required EQS at the downstream monitoring location. 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 Ammonia, BOD, ortho-Phosphate, concentrations downstream of the effluent discharge is noted.

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: 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 - CREESLOUGH WWTP

2.1.4.1 Treatment Efficiency Report - Creeslough 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
SS	6587	1171	82
TN	N/A	N/A	N/A
cBOD	6674	909	86
COD	12894	3094	76

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

2.1.4.2 Treatment Capacity Report Summary - Creeslough 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.

Creeslough WWTP	
Peak Hydraulic Capacity (m³/day) - As Constructed	204
DWF to the Treatment Plant (m³/day)	68
Current Hydraulic Loading - annual max (m³/day)	469
Average Hydraulic loading to the Treatment Plant (m³/day)	132
Organic Capacity (PE) - As Constructed	300
Organic Capacity (PE) - Collected Load (peak week)[Note1]	561
Organic Capacity (PE) - Remaining	0
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 - CREESLOUGH 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 related to the discharge(s) to water from the WWTP and network is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
There were no relevant environmental complaints in 2021.			

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 2021	1
Number of Incidents reported to the EPA via EDEN in 2021	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 (chamber) where applicable	Irish Grid Ref. (outfall)	Included in Schedule of the WWDL	Significance of the overflow (High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
SW002	205388, 431660	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

Any TBC SWO(s) were identified as part of the on-going National SWO programme and will be updated in subsequent AER(s) once the information is confirmed.

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?	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 a 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
D0534-SIP:01	Improvement works including nutrient reduction to ensure compliance with the ELVs as set out in Schedule A: Discharges and Discharge Monitoring of this licence.	C	31/12/2019	Yes	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.
D0534-SIP:02	Improvement works to ensure compliance with Condition 1.7	C	31/12/2019	Yes	Not Started		

A summary of the status of any other improvements identified by under Condition 5 assessments- is included below.

4.2.2 IMPROVEMENT PROGRAMME SUMMARY

Improvement Identifier	Improvement Description / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
No additional improvements planned at this time.				

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 Tables 4.2.1 and 4.2.2.

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 a 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
Priority Substances Assessment	Yes	2015	No

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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	N/A
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	N/A
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	N/A

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

Signed: Date: 13/04/2022

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

Municipal	Month	Category	Entity Name	Station	Lab Ref	Date	pH	Temperature	Conductivity @ 20°C	DO	BOD	COD	Suspended Solids	Ammonia (as N)	Nitrate (as N)	Nitrite (as N)	Orthophosphate	Total Nitrogen	TON	Dissolved Inorganic Nitrogen DIN	Total Phosphorus	E coli	Enterococci	Faecal Coliforms	Chlorophyll	Salinity	SSRS
District							pH units	°C	us/cm	% Sat	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)	MPN/100mls	cfu/100mls	cfu/100mls	ug/l	PSU	Rating
Dungloe	March	River Quality	Faymore	Creeslough - Upstream	212500822	30-Mar-21	7.5	9.8	129	95.9	1	NT	<6	<0.015	NT	NT	<0.05	NT	NT	NT	NT	146	20	95	NT	NT	NT
Dungloe	March	River Quality	Faymore	Creeslough - Downstream	212500825	30-Mar-21	7.4	9.8	134	94.5	1	NT	<6	0.022	NT	NT	<0.05	NT	NT	NT	NT	1529	60	473	NT	NT	NT
Letterkenny	April	River Quality	Faymore	Creeslough - Upstream	212501210	22-Apr-21	7.6	12.7	157	91.4	1	NT	<6	<0.015	NT	NT	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Stranorlar	April	River Quality	Faymore	Creeslough - Downstream	212501239	22-Apr-21	7.6	10.9	160	90.8	2	NT	<6	0.038	NT	NT	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Letterkenny	May	River Quality	Faymore	Creeslough - Upstream	212501708	25-May-21	7.5	10	163	91.7	2	NT	<6	0.025	NT	NT	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Letterkenny	May	River Quality	Faymore	Creeslough - Downstream	212501711	25-May-21	7.4	10	182	90.9	2	NT	<6	0.266	NT	NT	0.06	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dungloe	July	River Quality	Faymore	Creeslough - Upstream	212502328	08-Jul-21	7.5	16.1	147	101.1	1	NT	<6	0.023	NT	NT	<0.05	NT	NT	NT	NT	798	NT	594	NT	NT	NT
Dungloe	July	River Quality	Faymore	Creeslough - Downstream	212502331	08-Jul-21	7.6	16.3	155	98.6	1	NT	<6	0.176	NT	NT	<0.05	NT	NT	NT	NT	10462	NT	6488	NT	NT	NT
Letterkenny	September	River Quality	Faymore	Creeslough - Upstream	212503365	16-Sep-21	7.4	12.7	154	92.3	<1	NT	<6	<0.015	NT	NT	<0.05	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Letterkenny	September	River Quality	Faymore	Creeslough - Downstream	212503368	16-Sep-21	7.2	12.7	217	92	3	NT	18	0.775	NT	NT	0.296	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dungloe	November	River Quality	Faymore	Creeslough - Upstream	212504152	16-Nov-21	7.5	11.1	143	91.8	1	NT	<6	0.021	NT	NT	0.001	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Dungloe	November	River Quality	Faymore	Creeslough - Downstream	212504155	16-Nov-21	7.5	11.2	150	91.7	1	NT	<6	0.043	NT	NT	0.003	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Karen Mc Bride
Central Laboratory

"Orignal Test Report"