Annual Environmental Report

2022

Ardee

D0117-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

This Annual Environmental Report has been prepared for D0117-01, Ardee, in Louth 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 capital works, significant changes or operational changes undertaken in 2022.

1.2 TREATMENT SUMMARY

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

- Ardee WWTP with a Plant Capacity PE of 8000, 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
TPEFF2100D0117SW001	Ardee WWTP	Treated	Non-Compliant	Ammonia-Total (as N) 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 ARDEE WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - ARDEE 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
Suspended Solids mg/l	12	257	138
COD-Cr mg/l	12	1499	432
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	1084	197
Hydraulic Capacity	N/A	5272	2646

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 - TPEFF2100D0117SW001

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	13	N/A	N/A	30	Pass
Suspended Solids mg/l	25	62.5	N/A	13	N/A	N/A	10	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	15	30	N/A	13	N/A	N/A	2.89	Pass
pH pH units	6.00	9.00	N/A	13	N/A	N/A	7.59	Pass
Ammonia-Total (as N) mg/l	0.600	1.20	N/A	13	1	1	0.338	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.500	0.600	N/A	13	13	13	1.76	Fail

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):

WWTP not designed for P removal (INCI017943), Plant or equipment breakdown at WWTP (INCI022479), & Inadequate Operational Procedures/Training (INCI024457) cited as the cause of the ammonia ELV breach (Ortho-P exceedance due to WWTP not designed for P removal).

Significance of Results:

The WWTP is non compliant with the ELV's set in the Wastewater Discharge Licence. The impact on receiving waters is assessed further in Section 2.

2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF2100D0117SW001

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	296897, 290789	RS06D010690	No	No	No	No	Good
Downstream	297318, 290991	RS06D010710	No	Yes	No	No	Good

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 for the following: Ammonia-Total (as N) mg/l, ortho-Phosphate (as P) - unspecified mg/l.

The ambient monitoring results do not meet the required EQS at the upstream and the downstream monitoring locations. 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 Ortho-P concentrations downstream of the effluent discharge is noted.

A deterioration in water quality has been identified, however it is not known if it is or is not caused by the WWTP.

As per the 3rd Cycle Draft Newry, Fane, Glyde, and Dee Catchment Report (HA 06), the significant pressures on the At Risk Dee_070 waterbody are Hydromorphology and Urban Waste Water. The Ardee agglomeration is identified as a significant pressure in the Dee_070 waterbody in the Cycle 3 Catchment Report.

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 - ARDEE WWTP

2.1.4.1 Treatment Efficiency Report - Ardee 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	134449	10171	92
cBOD	191727	2892	98
COD	419683	29642	93

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

2.1.4.2 Treatment Capacity Report Summary - Ardee 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.

Ardee WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	4395
DWF to the Treatment Plant (m^3/day)	1465
Current Hydraulic Loading - annual max (m^3/day)	5272
Average Hydraulic loading to the Treatment Plant (m^3/day)	2645.6
Organic Capacity (PE) - As Constructed	8000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	6442
Organic Capacity (PE) - Remaining	1558
Will the capacity be exceeded in the next three years? (Yes/No)	No

Note 1: 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 - ARDEE 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 2022.			

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 Uisce Éireann 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 not designed for P removal	1	Yes	No
Breach of ELV	Plant or equipment breakdown at WWTP	1	No	Yes
Breach of ELV	Inadequate Operational Procedures / Training	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2022	3
Number of Incidents reported to the EPA via EDEN in 2022	3
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 2022 (No. of events)	Total volume discharged in 2022 (m^3)	Monitoring Status
SW005	296256 290342	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	297295 290912	No	Low Significance	Meeting Criteria	Unknown	34410	Monitored
SW004	296321 290400	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW003	296432 291035	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW002	296105 289744	Yes	Low Significance	Not yet Assessed	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 monitored SWOs in the agglomeration in the year (m^3)?	34410
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?	Yes
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 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
D0117-SIP:01	improvement works including nutrient reduction to ensure compliance with the ELVs as set out in Schedule A: Discharges and Discharge Monitoring	C	31/12/2019	Yes	At Planning Stage		Works upgraded for ammonia compliance; P compliance not started.

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
D0117-SIP:02	Improvement works to ensure compliance with Condition 1.7	C	31/12/2019	Yes	Works Completed		

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
Drinking Water Abstraction Point Risk Assessment	Yes	2016	No
Priority Substances Assessment	Yes	2016	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
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	To include additional SWO identified
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	N/A
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: 31/05/2023

This AER has been produced by Uisce Éireann'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

Appendix
Appendix 7.1 - Ambient Monitoring Summary

2022 Ardee Ambient Monitoring Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish National Grid Reference (Easting, Northing)	EPA Feature Coding Tool code	Receiving Waters Designation (Yes/No)			
			Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	296897, 290789	RS06D010690	No	No	No	No
Downstream Monitoring Point	297318, 290991	RS06D010710	No	Yes	No	No

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	Mean (mg/l)		
		cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	Good	1.53	0.045	0.541
Downstream Monitoring Point	Good	1.53	0.148	0.515
Difference		*0.000*	*0.103*	*-0.026*
EQS		1.500	0.035	0.065
% of EQS		0.00%	292.86%	-40.38%

Ardee Ambient Monitoring Data 2022

		Ammonia N	Ortho-Phosphate P	Total Suspended Solids	pH	Temp	Biological Oxygen Demand
Station	**Sample Date**	**mg/l**	**mg/l**	**mg/l**	**pH units**	**Degrees C**	**mg/l**
Upstream	02.03.22	0.05	0.030	7	7.99	6	0.80
Upstream	01.06.22	0.005	0.010	9	8.03	12	1.20
Upstream	06.07.22	0.04	0.050	5	7.85	15.3	1.10
Upstream	05.10.22	2.07	0.090	15	8	14.6	3.00
	Mean	**0.541**	**0.045**	**9.0**	**7.97**	**11.98**	**1.53**
	95%ile	**1.767**	**0.084**	**14.1**	**8.03**	**15.20**	**2.73**
		Ammonia N	**Ortho-Phosphate P**	**Total Suspended Solids**	**pH**	**Temp**	**Biological Oxygen Demand**
Station	**Sample Date**	**mg/l**	**mg/l**	**mg/l**	**pH units**	**Degrees C**	**mg/l**
Downstream	02.03.22	0.06	0.100	15	7.96	5.8	0.80
Downstream	01.06.22	0.02	0.010	3	7.96	12.2	1.00
Downstream	06.07.22	0.06	0.250	15	7.37	14.8	1.30
Downstream	05.10.22	1.92	0.230	6	7.96	14.4	3.00
	Mean	**0.515**	**0.148**	**9.75**	**7.81**	**11.80**	**1.53**
	95%ile	**1.641**	**0.247**	**15.00**	**7.96**	**14.74**	**2.75**

Note: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was used in calculating the mean and 95%ile concentrations.