Annual Environmental Report

2021

Ardmore

D0162-01

CONTENTS

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 AER

This Annual Environmental Report has been prepared for D0162-01, Ardmore, in Waterford 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.

No Capital or Improvement works have been identified

1.2 TREATMENT SUMMARY

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

- ARDMORE INTERIM WWTP with a Plant Capacity PE of 2934, 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
TPEFF3100D0162SW001	ARDMORE INTERIM WWTP	Treated	Compliant	N/A

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 ARDMORE INTERIM WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - ARDMORE INTERIM 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 Phosphorus (as P) mg/l	10	2.10	1.73
Ammonia-Total (as N) mg/l	15	94	19
COD-Cr mg/l	14	2930	545
Suspended Solids mg/l	14	1700	358
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	14	929	188
Total Nitrogen mg/l	11	79	24
pH units	14	7.56	7.24
ortho-Phosphate (as P) - unspecified mg/l	10	2.07	1.51
Hydraulic Capacity	N/A	2538	770

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'. 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 - TPEFF3100D0162SW000

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	16	N/A	N/A	15	Pass
Suspended Solids mg/l	35	87.5	N/A	16	N/A	N/A	9.57	Pass
Ammonia-Total (as N) mg/l	25	30	N/A	16	N/A	N/A	0.075	Pass
Total Oxidised Nitrogen (as N) mg/l	25	30	N/A	16	N/A	N/A	4.45	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	16	N/A	N/A	2.20	Pass
pH units	10	10	N/A	16	N/A	N/A	7.83	Pass
Total Phosphorus (as P) mg/l	N/A	N/A	N/A	11	N/A	N/A	0.983	

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)
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	11	N/A	N/A	0.838	
Total Nitrogen mg/l	N/A	N/A	N/A	6	N/A	N/A	4.71	
Enterococci (Intestinal) MPN/100ml	N/A	N/A	N/A	2	N/A	N/A	1800	
E. Coli no./100mls	N/A	N/A	N/A	2	N/A	N/A	10430	

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):

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 TPEFF3100D0162SW000

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
There is no Ambient data included in the AER.							

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 meet the required EQS. The EQS relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The discharge from the wastewater treatment plant does not have an observable impact on the water quality.

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 - ARDMORE INTERIM WWTP

2.1.4.1 Treatment Efficiency Report - ARDMORE INTERIM 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	93548	2515	97
TN	6714	2067	69
TP	433	256	41
COD	142230	3939	97
cBOD	49201	577	99

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

2.1.4.2 Treatment Capacity Report Summary - ARDMORE INTERIM 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.

ARDMORE INTERIM WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	1931
DWF to the Treatment Plant (m^3/day)	643
Current Hydraulic Loading - annual max (m^3/day)	2538
Average Hydraulic loading to the Treatment Plant (m^3/day)	770
Organic Capacity (PE) - As Constructed	2934
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1329
Organic Capacity (PE) - Remaining	1605
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 - ARDMORE INTERIM 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)
Abatement Equipment offline	Adverse Weather	1	No	No
Trigger Level Reached	SWO exceptional rainfall and overflow expected	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	2
Number of Incidents reported to the EPA via EDEN in 2021	2
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
TBC	219452, 78618	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW004	219901, 78076	Yes	Medium	Meeting	55	3565	Monitored
SW005	219901, 78076	Yes	Medium	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)?	3565
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

SWO Summary	
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 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
D0162-SIP:01	Ardmore interim preliminary treatment and storm detention tank	C	15/05/2010	Yes	Works Completed		
D0162-SIP:02	Ardmore waste water collection system	C	31/12/2011	Yes	Works Completed		
D0162-SIP:03	SW004 (storm tank at WWTP) - Upgrade, as required, to ensure Storm Water Overflows comply with DoE criteria	C	31/03/2013	Yes	Works Completed		

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
D0162-SIP:04	SW000 to cease as primary discharge and revert to SWO	A	31/03/2013	Yes	Works Completed		
D0162-SIP:05	SW005 (Church PS) - Upgrade, as required, to ensure Storm Water Overflows comply with DoE criteria	C	31/03/2013	Yes	Works Completed		
D0162-SIP:06	Waste water treatment plant, ancillary works and outfall (DBO contract)	C	31/03/2013	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
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?	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	Yes
List reason e.g. changes to monitoring requirements	Ambient monitoring location change
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:

Date: 07/04/2022

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

Ambient Monitoring

D0162 – Ardmore

The Licence requires Ambient Monitoring at two locations in Ardmore, SW1d and SW1u.

The EPA do not carry out any monitoring at the above locations as part of their Transitional and Coastal Monitoring Programme and so EPA data was not available for review.

SW1d is located at Ardmore Beach at E219274, N770990 and is carried out on behalf of Irish Water by the Health Services Executive (HSE) as part of Bathing Water Monitoring. The Licence requires 4 samples be taken between mid-May and the end of August. The following are the results of the Bathing Water Monitoring for 2021.

Bathing Season Water Quality

Excellent

Waterford City & County Council
Sampled on 01/09/2021

Results - 22 May to 15 September annually

The water quality of each sample is assessed as either 'Excellent', 'Good', 'Sufficient' or 'Poor'. When a local authority takes a water sample to check the bathing water quality, it takes at least 2-3 days to analyse the sample and publish the results below.

Sample Date	E. coli	Intestinal Enterococci	Water Quality
01/09/2021	10	4	Excellent
16/08/2021	10	4	Excellent
03/08/2021	271	22	Good
19/07/2021	10	1	Excellent
05/07/2021	<10	<1	Excellent
21/06/2021	75	26	Excellent

The latest Water Quality information [including historical] relating to Ardmore Beach can be found on this website: https://www.beaches.ie/find-a-beach/#/beach/IESEBWC050_0000_0100

Bathing water quality was in compliance with National & European requirements.

Ardmore Beach retained its Blue Flag Status in 2021.

Table 7.2.1 **Ambient Monitoring SWd 2020 Results**	**Faecal Coliforms** **(assume same count as E coli)**	**E-Coli**	**Intestinal Enterococci**
Date	**No./ 100 ml**	**No./ 100 ml**	**No./ 100 ml**
08/06/2021	10	10	1
21/06/2021	75	75	26
05/07/2021	<10	<10	<1
19/07/2021	10	10	1
03/08/2021	271	271	22
16/08/2021	10	10	4
01/09/2021	10	10	4

The second ambient monitoring point is SW1u at the Ardmore Pier (E219572, N774910) and the Licence requires 1 sample to be taken annually. The results of this monitoring are outlined below.

Table 7.2.2 Ambient Monitoring SW1u Result:			
Parameter	**SW1u**	**Units**	**EQS (Coastal Water Body)**
Date	21/12/2021	-	-
pH	7.99	Scale	Not specified
DO	103.7	%	120% < 95%ile > 80%
BOD	*0.5*	mg/l	Not specified
Ammonia	*0.05*	mg/l	Not Specified
DIN	*0.05*	mg/l	≤2.6mg/l Good Status
MRP	*0.04* [O-P]	mg P/l	(Molybdate Reactive Phosphorus) Not Specified

Note: DIN is achieved by the sum of Ammonia and TON. TON value was <1mg/l