

Annual Environmental Report

2023



Coill Dubh

D0242-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0242-01, Coill Dubh, 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.

There were no capital works, significant changes or operational changes undertaken in 2023.

1.2 TREATMENT SUMMARY

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

- Coill Dubh WWTP with a Plant Capacity PE of 2000, the treatment type is 3P - Tertiary P removal.

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
TPEFF1400D0242SW001	Coill Dubh WWTP	Treated	Non-Compliant	Total Phosphorus (as P) mg/l

1.4 LICENCE SPECIFIC REPORTING

Assessment / Report

Small Stream Risk Score Assessment

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 COILL DUBH WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - COILL DUBH 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	12	103	52
Ammonia-Total (as N) mg/l	12	47	32
COD-Cr mg/l	12	1143	471
Total Phosphorus (as P) mg/l	12	10	5.87
ortho-Phosphate (as P) - unspecified mg/l	12	5.00	3.07
BOD, 5 days with Inhibition (Carbonaceous) mg/l	12	232	124
Suspended Solids mg/l	12	552	177
pH pH units	12	7.98	7.70
Hydraulic Capacity	N/A	1064	472

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 - TPEFF1400D0242SW001

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	12	N/A	N/A	16	Pass
Suspended Solids mg/l	10	25	N/A	12	N/A	N/A	3.46	Pass
pH pH units	6	9	N/A	12	N/A	N/A	7.63	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	8	16	N/A	12	N/A	N/A	1.72	Pass
Total Phosphorus (as P) mg/l	0.5	0.6	N/A	12	1	1	0.240	Fail
Ammonia-Total (as N) mg/l	0.5	1	N/A	12	1	N/A	0.135	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.25	0.5	N/A	12	1	N/A	0.113	Pass

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)
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	20	
Conductivity @20°C µS/cm	N/A	N/A	N/A	3	N/A	N/A	819	

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 biological sludge issue.

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 TPEFF1400D0242SW001

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	279596, 227220	RS14W140860	No	No	No	No	Poor
Downstream	278857, 226765	RS14S010020	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 for the following: Total Phosphorus (as P) 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 slight deterioration in BOD concentration 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 Barrow Catchment Report (HA 14), Agriculture and Urban Waste Water are significant pressures on the At Risk Slate_020 waterbody. Coill Dubh WWTP is listed as a significant pressure in the Cycle 3 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 - COILL DUBH WWTP

2.1.4.1 Treatment Efficiency Report - Coill Dubh 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	29727	494	98
TP	987	34	97
COD	79150	2292	97
cBOD	20877	246	99
TN	8677	2797	68

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

2.1.4.2 Treatment Capacity Report Summary - Coill Dubh 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.

Coill Dubh WWTP	
Peak Hydraulic Capacity (m ³ /day) - As Constructed	1229
DWF to the Treatment Plant (m ³ /day)	460
Current Hydraulic Loading - annual max (m ³ /day)	1064
Average Hydraulic loading to the Treatment Plant (m ³ /day)	472
Organic Capacity (PE) - As Constructed	2000
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	1453
Organic Capacity (PE) - Remaining	547
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 - COILL DUBH WWTP

'Other inputs' to the waste water treatment plant are summarised in the 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 2023.			

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	Recurring (Y/N)	Closed (Y/N)
Breach of ELV	WWTP biological sludge issue	Yes	No
Uncontrolled release	SWO exceptional rainfall and overflow expected	No	No
Uncontrolled release	SWO exceptional rainfall and overflow expected	No	Yes

Incident Type	Cause	Recurring (Y/N)	Closed (Y/N)
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	Yes
Abatement equipment off-line	Plant or equipment breakdown at WWTP	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	10
Number of Incidents reported to the EPA via EDEN in 2023	10
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 2023 (No. of events)	Total volume discharged in 2023 (m ³)	Monitoring Status
SW002	279437 227002	Yes	Low Significance	Meeting Criteria	Unknown	3928	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 wastewater discharge by metered SWOs during the year (m ³)?	3928
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?	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
There are no Specified Improvement Programmes for this Agglomeration.							

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

N/A

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	Included in this AER
Priority Substances Assessment	Yes	No
Small Stream Risk Score Assessment	Yes	Yes

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	N/A

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

Date: 28/02/2024

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

Head of Environmental Regulation.

7 APPENDIX

Appendix
Appendix 7.1 - Ambient Monitoring Summary
Appendix 7.2 - Small Stream Risk Score Assessment

Coill Dubh Ambient Monitoring Summary 2023

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)				Current WFD Status	Mean (mg/l)		
			Bathing Water	Drinking Water	FWPM	Shellfish		cBOD	o-Phosphate (as P)	Ammonia (as N)
Upstream Monitoring Point	279596, 227220	RS14W140860	No	No	No	No	Poor	1.442	0.082	0.678
Downstream Monitoring Point	278857, 226765	RS14S010020	No	No	No	No	Poor	1.508	0.075	0.671
<i>Difference</i>								0.067	-0.007	-0.007
EQS								1.500	0.035	0.065
% of EQS								4.444%	-20.000%	-10.256%

Coill Dubh Ambient Monitoring Summary 2023

Upstream										
Station Name	Sample Date	pH	BOD mg/ l	COD mg/l	Suspended solids mg/l	Total Nitrogen	Total Phosphorus	Ammonia	Ortho-Phosphate	DO mg/l
		pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Upstream	18/01/2023	7.54	3.2	62.1	3.2	3.04	0.034	0.82	0.018	10.8
Upstream	22/02/2023	7.61	1.1	43.5	2.8	2.29	0.076	0.41	0.07	9.67
Upstream	15/03/2023	7.35	1.5	61.1	3.2	3.44	0.132	0.77	0.06	10.29
Upstream	20/04/2023	7.65	0.7	27.1	2.4	2.21	0.087	0.49	0.07	9.36
Upstream	11/05/2023	7.36	0.6	49.7	0.8	2.1	0.096	0.68	0.07	8.57
Upstream	19/06/2023	7.48	1.2	17.1	6.4	9.44	0.093	0.24	0.07	8.14
Upstream	14/07/2023	7.47	1.5	36.8	6.4	1.85	0.152	0.55	0.15	8.77
Upstream	11/08/2023	7.63	0.8	86.3	1.6	2.74	0.165	1.08	0.15	7.9
Upstream	18/09/2023	7.63	2	75.3	2.4	1.83	0.11	0.76	0.1	8.21
Upstream	04/10/2023	7.95	1.4	76.3	14.4	2.96	0.096	0.9	0.09	9.17
Upstream	14/11/2023	7.34	1.5	77	2.4	2.41	0.131	0.72	0.06	8.53
Upstream	05/12/2023	7.72	1.8	53.9	3.2	2.71	0.101	0.71	0.07	10.29
	Mean	7.561	1.442	55.517	4.100	3.085	0.106	0.678	0.082	9.142
	95%ile	7.824	2.540	81.185	10.000	6.140	0.158	0.981	0.150	10.520

Downstream										
Station Name	Sample Date	pH	BOD mg/ l	COD mg/l	Suspended solids mg/l	Total Nitrogen mg/l	Total Phosphorus mg/l	Ammonia mg/l	Ortho-Phosphate mg/l	DO mg/l
		pH units	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
Downstream	18/01/2023	7.61	2.4	68.2	42.4	3.15	0.024	0.82	0.024	11.04
Downstream	22/02/2023	7.7	1.3	68.1	22.8	3.61	0.167	0.61	0.06	9.97
Downstream	15/03/2023	7.43	1.5	57	3.6	3.25	0.09	0.73	0.06	10.47
Downstream	20/04/2023	7.73	1	54.1	2.8	2.31	0.09	0.48	0.07	9.57
Downstream	11/05/2023	7.52	0.8	42.9	1.2	3.07	0.101	0.59	0.07	8.9
Downstream	19/06/2023	7.67	0.8	<15	1.6	1.99	0.083	0.24	0.07	8.56
Downstream	14/07/2023	7.22	1.6	35.5	10	1.95	0.126	0.44	0.1	7.22
Downstream	11/08/2023	7.82	1.3	77.4	4.8	2.32	0.159	1.04	0.13	8.07
Downstream	18/09/2023	7.9	2	70.9	2.8	2.12	0.081	0.72	0.07	8.51
Downstream	04/10/2023	8.16	2	100	62.4	3.89	0.257	0.89	0.09	9.36
Downstream	14/11/2023	7.53	1.6	74.2	2.8	2.32	0.084	0.83	0.08	8.78
Downstream	05/12/2023	7.91	1.8	21.3	0.8	4.41	0.073	0.66	0.07	10.39
	Mean	7.683	1.508	56.684	13.167	2.866	0.111	0.671	0.075	9.237
	95%ile	8.023	2.180	87.570	51.400	4.124	0.208	0.958	0.114	10.727

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.



Coill Dubh Small Stream Risk Score 2023

Produced by

AQUAFACT International Services Ltd

For

Kildare County Council

November 2023

**AQUAFACT INTERNATIONAL SERVICES Ltd.,
12 KILKERRIN PARK,
GALWAY.**

www.aquafact.ie

info@aquafact.ie

tel +353 (0) 91 756812

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Appendices

Appendix 1: Photo log

1. Introduction

AQUAFACT was contracted by Kildare County Council to carry out an SSRS assessment of the discharge belonging to Coill Dubh wastewater treatment plants. A sample was taken upstream and downstream of the discharge point. The sampling was carried out on the 12th of October 2023.

2. Methodology

2.1. Sampling

Two kick samples were taken (See Figure 2.1 and Table 2.1). The two-minute kick and one minute stone wash sampling method was employed to collect samples of macroinvertebrates for analysis. This involved placing a standard hand net of pore size 500µm in the river, facing upstream and disturbing the riverbed in front of the net mouth. The surveyor then moved in a diagonal direction upstream to ensure that different micro-habitats were included in the sample. The kick method dislodges macroinvertebrates from the substrates and submerged plant material. This was continued for approximately two minutes and followed by one minute of stone washing (Lucey *et al.*, 1999).

The macroinvertebrate assemblages of each sample were identified and counted on the riverbank. The details of the macroinvertebrate assemblages were recorded on data sheets. The resulting species list was then used to assign the SSRS score to the sampled streams.

The IFI's 2010 Biosecurity Protocol for Field Survey Work document was followed during sampling. Nets and all other equipment were thoroughly disinfected between stations.



Figure 2.1: Coill Dubh SSRS sampling sites.

Table 2.1: Coill Dubh SSRS station coordinates.

Station	Latitude	Longitude
Coill Dubh Upstream	53.2892355	-6.8078691
Coill Dubh Downstream	53.2854253	-6.8185926

2.2. *Small Stream Risk Score*

The Small Streams Risk Score (SSRS) is a biological risk assessment system for identifying rivers that are 'at risk' of failing to achieve the 'good' water quality status goals of the Water Framework Directive (WFD). It was developed by the Environmental Protection Agency (EPA) in association with the Western River Basin District (WRBD) in 2006 and revised in 2009.

The SSRS method is a rapid field methodology for risk assessment that is based solely on macroinvertebrate indicators of water quality and their well-understood response to pollution. Importantly, the SSRS score indicates whether or not the stream is at risk from pollution and not the ecological health of the stream. The SSRS score ranges from 0-11.2.

Table 2.2: SSRS Categories.

SSRS range	Category
<6.5	Stream at Risk
>6.5-7.25	Indeterminate stream may be at risk
>7.25	Probably not at risk

3. Results

Based on the SSRS score both the upstream and downstream stations were categorised as 'Stream at risk' of not meeting Good status (See Table 3.2). Both stations received the same score of 1.6. The morphological characteristics of both stations were the same. The substrate was a mixture of cobbles and gravels with moderate levels of silt. The dominant land use in the area is pasture and there was cattle access to the downstream station. Macrofaunal assemblages were similar at both stations.

Table 3.1: Species list

Taxa	Upstream	Downstream
Trichoptera		
Limnephilidae	2	2
Polycentropodidae	1	
Sericostomatidae	1	2
Glossomatidae	2	1
Gastropods, Oligochaetes and Diptera (G.OI.D)		
<i>Potamopyrgus</i>	2	1
<i>Planorbis</i>	1	
Tubificidae	3	2
Ceratopogonidae	1	
<i>Dicranota</i>		1
Simuliidae		1
Chironomidae	2	2
Other GOLD		1
Asellus	Numerous	Numerous

Table 3.2: Biological sampling results.

Station	SSRS score	SSRS category
Coill Dubh Upstream	1.6	Stream at risk
Coill Dubh Downstream	1.6	Stream at risk

4. Coill Dubh WWTP comparison 2016 to 2023

Table 4.1 compares the SSRS results from 2016 to 2023. Figure 4.1 displays the trend over time (scores <6.5 are deemed At Risk). Both upstream and downstream sites have been 'at risk' since 2016. The highest SSRS score in that period was 3.2 for upstream and 4.8 for downstream. Both the upstream and downstream station have steadily decreased in score since 2021, which suggests that water quality in the stream may be degrading.

Table 4.1: Coill Dubh WWTP- SSRS Comparison 2015 -2023 (AR: At Risk)

Site	SSRS							
	2016	2017	2018	2019	2020	2021	2022	2023
Upstream	3.2	3.2	3.2	1.6	1.6	3.2	2.4	1.6
Downstream	0.0	2.4	2.4	2.4	4.0	4.8	2.4	1.6
Site	SSRS Risk Category							
Upstream	AR	AR	AR	AR	AR	AR	AR	AR
Downstream	AR	AR	AR	AR	AR	AR	AR	AR

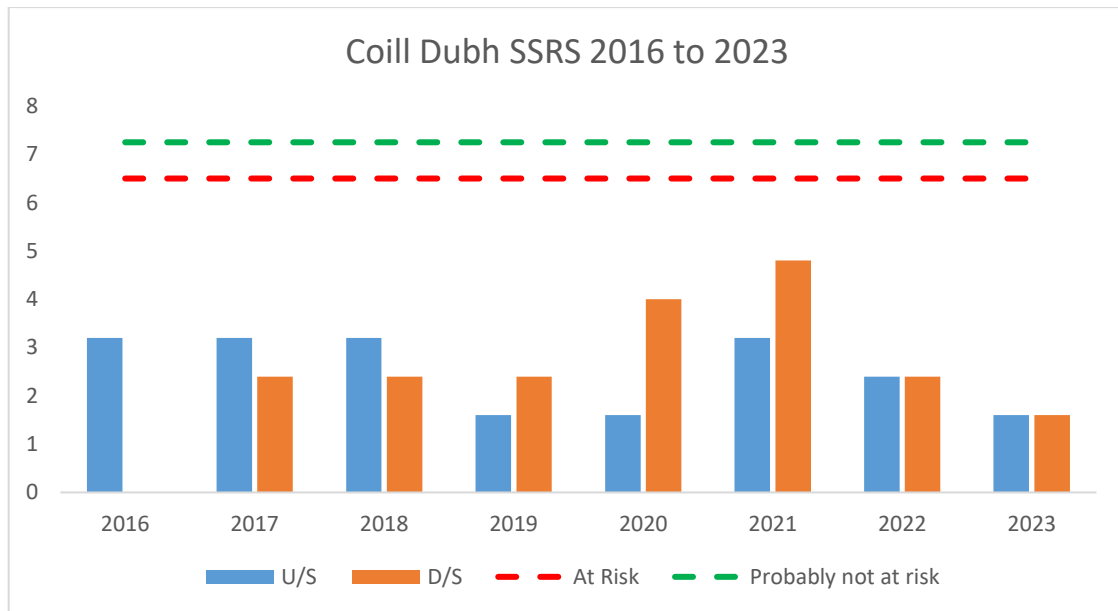


Figure 4.1: Coill Dubh WWTP SSRS scores 2016 to 2023

5. References

EPA. 2015. Guidance on Application and Use of the SSRS in Enforcement of Urban Waste Water Discharge Authorisations in Ireland.

<https://www.epa.ie/publications/compliance--enforcement/waste-water/SSRS-in-Enforcement-of-UWWDAs.pdf> Accessed September 2021.

Lucey, J., Bowman, J.J., Klabby, K.J., Cunningham, P., Lehane, M., MacCarthaigh, M., McGarrigle, M.L. and Toner, P.F. 1999. Water Quality in Ireland, 1995 – 1997. EPA.

Appendix 1

Photo log



Coill Dubh upstream 1



Coill Dubh upstream 2



Coill Dubh downstream 1



Coill Dubh downstream 2