Annual Environmental Report

2020

Coill Dubh

D0242-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2020 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 improvements undertaken in 2020.

1.2 TREATMENT SUMMARY

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

- Coill Dubh WWTP - 2020 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 - 2020	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

Assessment / Report	Included in AER
Small Stream Risk Score Assessment	Yes

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 COILL DUBH WWTP - 2020 - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - COILL DUBH WWTP - 2020

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	61	38.39
Suspended Solids mg/l	12	751	276
Chemical Oxygen Demand mg/l	12	1181	600.94
Total Phosphorus mg/l	12	6.25	3.56
BOD, 5 days with Inhibition (Carbonaceous) mg/l	12	356	193.28
Hydraulic Capacity	N/A	829	405

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’. 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 - 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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Chemical Oxygen Demand mg/l	125	250	N/A	12	N/A	N/A	23.43	Pass
Suspended Solids mg/l	10	25	N/A	12	N/A	N/A	1.76	Pass
pH pH units	6-9	6-9	N/A	12	N/A	N/A	7.23	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	8	16	N/A	12	N/A	N/A	1.36	Pass
Total Phosphorus mg/l	0.5	0.6	N/A	12	N/A	N/A	0.24	Pass
Ammonia-Total (as N) mg/l	0.5	1	N/A	12	N/A	N/A	0.18	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.25	0.5	N/A	12	N/A	N/A	0.12	Pass
Conductivity 20 C µS/cm	N/A	N/A	N/A	9	N/A	N/A	625.57	
Total Nitrogen mg/l	N/A	N/A	N/A	12	N/A	N/A	8.47	

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)
True Colour PtCo Units	N/A	N/A	N/A	3	N/A	N/A	25.21	

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):

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 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 Status
Upstream	278857, 226765	RS14S010000	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 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.

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 - COILL DUBH WWTP - 2020

2.1.4.1 Treatment Efficiency Report - Coill Dubh WWTP - 2020

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)
cBOD	22786	181	99
COD	70848	3120	96
SS	32539	234	99
TN	4525	1128	75
TP	419	32	92

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 - 2020

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 - 2020	
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)	829
Average Hydraulic loading to the Treatment Plant (m^3/day)	405
Organic Capacity (PE) - As Constructed	2000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	1385
Organic Capacity (PE) - Remaining	615
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 - 2020

'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 2020.			

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)
Spillage	Other	1	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	Yes
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	Yes

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	SWO exceptional rainfall and overflow expected	1	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2020	4
Number of Incidents reported to the EPA via EDEN in 2020	4
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 2020 (No. of events)	Total volume discharged in 2020 (m^3)	Monitoring Status
SW002	279396, 227036	No	Low	Meeting	3	1995	Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	1995
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 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 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.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2011	No	N/A
Small Stream Risk Score Assessment	Yes	2017	Yes	**Appendix 7.2**

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the AER 2011.

5.2 SMALL STREAM RISK SCORE ASSESSMENT

The Small Stream Risk Score Assessment Report is included in Appendix 7.2 - Small Stream Risk Score Assessment. A summary of the findings of this report is included below.

Parameter	Value
Condition 5 Improvement Programme Reference	Na

Parameter	Value
Does SSRS indicate discharges are posing a pollution risk?	Yes
Does improvement programme include any procedural and/or infrastructural works?	n/a
Downstream SSRS Water Quality Risk	At Risk
SSRS Required?	Yes
Upstream SSRS Water Quality Risk	At Risk
What is Downstream SSRS?	4.0
What is Upstream SSRS?	1.6

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	Yes

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

Date: 28/02/2021

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
Appendix 7.2 - Small Stream Risk Score Assessment

Coill Dubh Ambient Monitoring Summary 2020

			Receiving Waters Designation (Yes/No)					Mean (mg/l)		
Ambient Monitoring Point from WWDL (or as agreed with EPA)	**Irish National Grid Reference (Easting, Northing)**	**EPA Feature Coding Tool code**	**Bathing Water**	**Drinking Water**	**FWPM**	**Shellfish**	**Current WFD Status**	**cBOD**	**o-Phosphate (as P)**	**Ammonia (as N)**
Upstream Monitoring Point	279592, 227217	N/A	No	No	No	No	Poor	1.083	0.051	0.438
Downstream Monitoring Point	278857, 226765	RS14S010020	No	No	No	No	Poor	1.083	0.049	0.435
Difference								0.000	-0.002	-0.003
EQS								1.500	0.035	0.065
% of EQS								0.000%	-4.762%	-3.846%

Coill Dubh Ambient Monitoring Summary 2020

Station	Sample Date	Sample Type	BOD, 5 days with Inhibition (Carbonaceous) mg/l	COD Chemical Oxygen Demand mg/l	Suspended Solids mg/l	pH pH units	Colour Pt Co	Colour Descriptive	Dissolved Oxygen mg/l	Ortho-Phosphate P mg/l P	Total Phosphorus mg/l P	Total Nitrogen N mg/l N	Total Ammonia as N mg/l N
Upstream	07-Jan-20	Grab	1	65	1	7.49	194	Yellow Tint	8.87	0.06	0.15	1.00	0.70
Upstream	06-Feb-20	Grab	1	33	1	7.84	136	Yellow Tint	9.28	0.06	0.08	2.00	0.49
Upstream	26-Mar-20	Grab	1	53	1	7.41	153	Yellow Tint	8.72	0.06	0.15	2.00	0.43
Upstream	07-May-20	Grab	1	9	4	7.08	107	Yellow Tint	8.37	0.07	0.20	2.60	0.42
Upstream	21-May-20	Grab	1	26	2	7.07	49	Clear		0.05	0.13	3.40	0.23
Upstream	05-Jun-20	Grab	1	14	1	7.09	47	Clear	8.74	0.04	0.12	2.40	0.11
Upstream	07-Jul-20	Grab	2	18	1	7.01	124	Yellow Tint	8.13	0.03	0.08	2.00	0.26
Upstream	14-Aug-20	Grab	1	70	1	7.07	145	Yellow Tint	7.77	0.04	0.13	2.70	0.44
Upstream	15-Sep-20	Grab	1	57	1	7.02	144	Yellow Tint	7.33	0.04	0.06	1.00	0.33
Upstream	20-Oct-20	Grab	1	28	1	7.08	188	Yellow Tint	9.46	0.07	0.20	1.20	0.68
Upstream	03-Nov-20	Grab	1	49	1	7.08	238	Yellow Tint	10.20	0.04	0.16	1.00	0.48
Upstream	15-Dec-20	Grab	1	72	5	7.11	259	Orange	9.17	0.05	0.08	2.50	0.68
		Mean	**1.083**	**41.167**	**1.667**	**7.196**	**148.667**		**8.731**	**0.051**	**0.128**	**1.983**	**0.438**
		95%ile	**1.450**	**70.900**	**4.450**	**7.648**	**247.450**		**9.830**	**0.070**	**0.200**	**3.015**	**0.689**

Station	Sample Date	Sample Type	BOD, 5 days with Inhibition (Carbonaceous) mg/l	COD Chemical Oxygen Demand mg/l	Suspended Solids mg/l	pH pH units	Colour Pt Co	Colour Descriptive	Dissolved Oxygen mg/l	Ortho-Phosphate P mg/l P	Total Phosphorus mg/l P	Total Nitrogen N mg/l N	Total Ammonia as N mg/l N
Downstream	08-Jan-20	Grab	1	66	1	7.6	191	Yellow Tint	8.87	0.07	0.13	1	0.72
Downstream	06-Feb-20	Grab	1	50	1	7.85	154	Yellow Tint	9.53	0.07	0.08	2	0.49
Downstream	26-Mar-20	Grab	1	61	1	7.37	147	Yellow Tint	8.74	0.06	0.12	2.1	0.44
Downstream	07-May-20	Grab	1	10	1	7.1	91	Yellow Tint	8..40	0.06	0.2	2.6	0.44
Downstream	21-May-20	Grab	1	27	3	7.09	56	Clear		0.06	0.14	3.9	0.23
Downstream	05-Jun-20	Grab	1	11	1	7.11	39	Clear	8.87	0.05	0.13	2.3	0.13
Downstream	07-Jul-20	Grab	2	21	1	6.99	136	Yellow Tint	7.74	0.05	0.08	2	0.25
Downstream	14-Aug-20	Grab	1	76	1	7.02	168	Yellow Tint	7.82	0.03	0.11	2.60	0.41
Downstream	15-Sep-20	Grab	1	58	1	7.11	152	Yellow Tint	7.35	0.03	0.06	1	0.36
Downstream	20-Oct-20	Grab	1	32	1	7.06	194	Yellow Tint	9.35	0.06	0.19	1.1	0.68
Downstream	03-Nov-20	Grab	1	44	1	7.01	241	Yellow Tint	10.11	0.03	0.11	0.9	0.43
Downstream	15-Dec-20	Grab	1	76	2	7.08	248	Orange	9.59	0.02	0.07	2.4	0.64
		Mean	**1.083**	**44.333**	**1.250**	**7.199**	**151.417**		**8.797**	**0.049**	**0.118**	**1.992**	**0.435**
		95%ile	**1.450**	**76.000**	**2.500**	**7.610**	**244.500**		**9.902**	**0.065**	**0.195**	**3.250**	**0.660**

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.

Small Stream Risk Score (SSRS) Assessment

COILL DUBH WASTEWATER AGGLOMERATION

Co. Kildare

October 2020

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Document Control:

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1	04/11/2020	L. Williams	

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1 INTRODUCTION

This report sets out findings of Small Stream Risk Score (SSRS) assessments at sites upstream and downstream of Coill Dubh Waste Water Treatment Plant (WWTP), Co. Kildare. The discharge is to the West Cooleragh Stream. Assessments were carried out on October 14th 2020, in clear weather conditions during average flow conditions.

SSRS is a biological risk assessment system for detecting potential sources of diffuse pollution in 1st and 2nd order streams that may be causing main channel sites to fail in reaching Good Ecological Status (Anon., 2009). Sites are evaluated based on their macroinvertebrate assemblage and are assigned to one of 3 risk categories: "At risk", "May be at risk" and "Probably not at risk". "Risk" refers to the risk of the watercourse causing water quality problems in larger waterbodies downstream as a result of being polluted.

2 METHODOLOGY

2.1 SSRS

Samples were collected according to the EPA Standard Operating Procedure for River Monitoring adhering to ISO Standard for kick sampling. Under this system, standard 2-minute, travelling, kick-samples are taken in the fast flowing (riffle) areas of the rivers using a long-handled sampling net (250 mm width, mesh size 0.25mm). Riffle areas of streams receive preference in sampling, as the fauna of riffles tends to be more sensitive to pollution impacts. Stone washing is employed to ensure that "clinging" species, e.g. leeches and gastropods, are adequately collected.

Samples were washed and placed in a large, white plastic tray on the bankside and covered in stream water. Samples were then carefully examined and identified in the field, recording absolute abundance of faunal groups for SSRS assessment purposes. Where necessary, and for quality control purposes, same samples were preserved in situ with 70% IMS alcohol; placed in labelled plastic bags and brought back to the laboratory to check identification.

Scores are calculated by examining the relative abundance of faunal groups and through use of the standard SSRS score calculator (Anon., 2009). Scores can range between 0 (lowest; poor water quality) and 11.2 (highest; good water quality). Risk category is assigned based on the individual site score as follows: >7.25 = Probably not at risk; >6.5 – 7.25 = Indeterminate, stream may be at risk; <6.5 = Stream at risk.

3 RESULTS

3.1 SSRS Summary

Appendix 1 contains SSRS field sheets with score calculations included. **Table 1** summarises the location, SSRS and risk category for upstream and downstream sites. Sampling occurred on October 14th 2020.

Table 1: SSRS summary 2020 - Coill Dubh WWTP

Site	Location (X, Y)	SSRS	SSRS Risk Category
Upstream	279534 227143	1.6	At Risk
Downstream	278841 226739	4.0	At Risk

3.2 Water Quality

SSRS places both upstream and downstream sites "At Risk" in 2020. Low SSRS totals indicate poor water quality at both sites; the upstream site poorer than downstream. Macroinvertebrate assemblages at both sites lacked sensitive fauna and were dominated by forms that are tolerant of organic pollution.

3.3 Site Photographs

Plate 1: Coill Dubh WWTP - upstream SSRS site. (14/10/20)

Plate 2: Coill Dubh WWTP - downstream SSRS site (14/10/20)

3.4 SSRS Comparison 2015 - 2020

Table 2 compares SSRS results for sampling covering the years 2015 to 2020. **Figure 1** illustrates the trends over time. The upstream site was poorer compared to downstream in 2020. Overall, there has been improvement downstream over the last 4 years compared to earlier years. There appears to be a correlation between improved SSRS and operation of the new WWTP. The new treatment plant had been in operation for approximately 42 months prior to SSRS sampling in 2020.

Table 2: Coill Dubh WWTP - SSRS Comparison 2015 - 2020

Site	SSRS						SSRS Risk Category					
	2015	2016	2017	2018	2019	2020	2015	2016	2017	2018	2019	2020
U/S	2.4	3.2	3.2	3.2	1.6	1.6	AR	AR	AR	AR	AR	AR
D/S	0.0	0.0	2.4	2.4	2.4	4.0	AR	AR	AR	AR	AR	AR

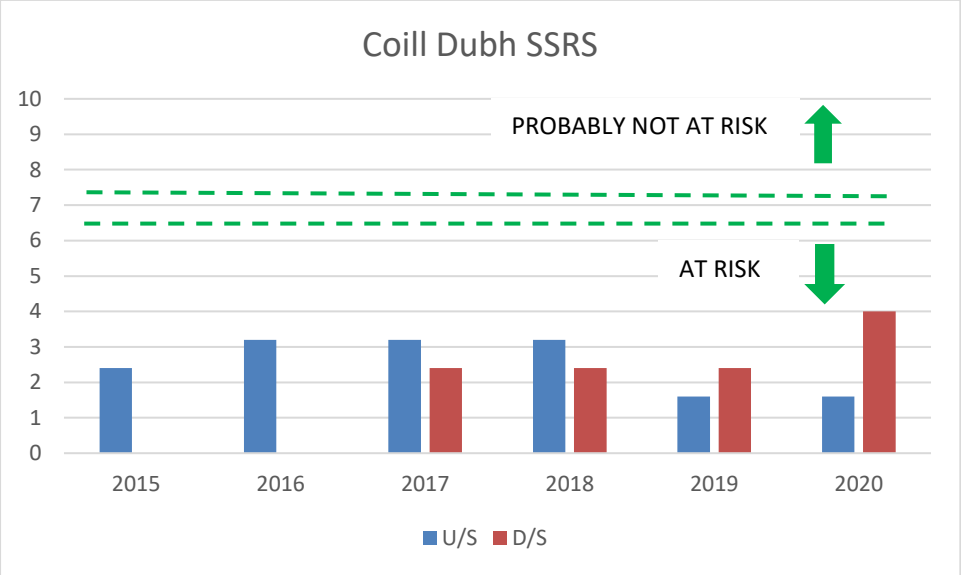

Figure 1 – Coill Dubh WWTP - SSRS Comparison 2015 - 2020

4 REFERENCES

Anon. (2009) Small Streams Risk Score (SSRS) Training Manual. A pollution investigation tool for use in the field. White Young Green, Apex Business Centre, Blackthorn Road, Sandyford, Dublin.

APPENDIX 1 SSRS Sheets

River	West Cooleragh	**SITE**:	UPSTREAM	Date:	14/10/2020
WWTP Code:		Agglomeration name:	Coill Dubh	Location	Upstream
SSRS Score:		**Stream Assessment:**	**AT RISK**		
DO (%):	-	Bedrock:	-	Stream Flow:	Run / Glide
DO (mg/l):	-	Boulder (>128mm):	+	Clarity:	Good
Temp (°C):	-	Cobble (32-128mm):	++	Colour:	High
Conductivity (µS/cm):	-	Gravel (8-32mm):	+	Discharge:	Average
pH:	-	Fine Gravel (2-8mm):	-	Slope:	Low-Mod
Bank width (cm):	300cm	Sand (0.25-2mm):	+	Sewage Fungus:	0
Wet width (cm):	280cm	Silt (<0.25mm):	+	Filamentous Algae:	0
Avg depth (cm):	40cm	Main land use US:	Pasture	Shading:	Low
Depth mud (cm):	-	Cattle Access US/DS:	No		
Comments:	Deepened farm drain. Historically drained (channelised). Not ideal riffle section. High water levels				

Invertebrate Groups	**Number of specimens**	**Relative Abundance**
Group 1: Ephemeroptera	1-5	1
Group 2: Plecoptera	6-20	2
Group 3: Trichoptera	21-50	3
Group 4: G.OL.D (Gastropoda, Oligochaeta and Diptera)	51-100	4
Group 5: Asellus	>100	5

Ephemeroptera	**Ab**	**Plecoptera**	**Ab**	**Trichoptera**	**Ab**
Ecdyonurus:		Leuctra:		Hydropscyche:	1
Rhithrogena:		Isoperla:		Polycentropus:	
Heptagenia:		Protonemura:		Rhyacophila:	
Ephemerella:		Amphinemura:		Philopotamus:	
Caenis:		Perla:		Limnephilidae:	
Paraleptophlebia:		Dinocras:		Sericostomatidae:	
Emphemera danica:		Other Plecoptera:		Glossosomatidae:	
Other Ephemeroptera:				Leptostomatidae:	
				Other Trichoptera:	
Total No. of Taxa	0	**Total No. of Taxa**	0	**Total No. of Taxa**	1
Total Relative Abundance	0	**Total Relative Abundance**	0	**Total Relative Abundance**	1

GOLD (Gastropoda; Oligochaeta and Diptera)					
Lymnaea:		Lumbriculus:		Simulium:	3
Potamopyrgus:	4	Eiseniella:		Dicronata:	
Planorbis:		Tubificidae:	3	Tipula:	
Ancylus:		Chironomidae:	1	Ceratopogonidae:	
Physa:		Chironomus:		Other GOLD	
Total No. of Taxa	4				
Total Relative Abundance	11				

Asellus					
Absent:		**Few (1-20):**	Yes	**Common (>20):**	

SSRS Calculation			
Group 1	0		
Group 2	0		
Group 3	2	**Total Index Score**	4
Group 4	0	**Average Index Score**	0.8
Group 5	2	**SSRS**	1.6

River	West Cooleragh	**SITE:**	DOWNSTREAM	Date:	14/10/2020
WWTP Code:	-	Agglomeration name:	Coill Dubh	Location	Downstream
SSRS Score:	**4.0**	**Stream Assessment:**	**AT RISK**		
DO (%):	-	Bedrock:	-	Stream Flow:	Run / Glide
DO (mg/l):	-	Boulder (>128mm):	-	Clarity:	Good
Temp (°C):	-	Cobble (32-128mm):	++	Colour:	High
Conductivity (µS/cm):	-	Gravel (8-32mm):	+++	Discharge:	Above Average
pH:	-	Fine Gravel (2-8mm):	+	Slope:	Low-Mod
Bank width (cm):	300cm	Sand (0.25-2mm):	+	Sewage Fungus:	0
Wet width (cm):	300cm	Silt (<0.25mm):	++	Filamentous Algae:	0
Avg depth (cm):	18cm	Main land use US:	Pasture/urban	Shading:	Low
Depth mud (cm):	-	Cattle Access US/DS:	Horses accessing d/s		
Comments:	Not ideal substrates for kick-sample, but better than u/s.				

Invertebrate Groups	**Number of specimens**	**Relative Abundance**
Group 1: Ephemeroptera	1-5	1
Group 2: Plecoptera	6-20	2
Group 3: Trichoptera	21-50	3
Group 4: G.OL.D (Gastropoda, Oligochaeta and Diptera)	51-100	4
Group 5: Asellus	>100	5

Ephemeroptera	**Ab**	**Plecoptera**	**Ab**	**Trichoptera**	**Ab**
Ecdyonurus:		Leuctra:		Hydropscyche:	
Rhitrogena:		Isoperla:		Polycentropus:	
Heptagenia:		Protonemura:		Rhyacophila:	
Ephemerella:		Amphinemura:		Philopotamus:	
Caenis:		Perla:		Limnephilidae:	1
Paraleptophlebia:		Dinocras:		Sericostomatidae:	
Emphemera danica:		Other Plecoptera:		Glossosomatidae:	
Other Ephemeroptera:				Leptostomatidae:	
				Other Trichoptera:	
Total No. of Taxa	0	**Total No. of Taxa**	0	**Total No. of Taxa**	1
Total Relative Abundance	0	**Total Relative Abundance**	0	**Total Relative Abundance**	1

GOLD (Gastropoda; Oligochaeta and Diptera)					
Lymnaea:		Lumbriculus:		Simulium:	
Potamopyrgus:		Eiseniella:		Dicronata:	1
Planorbis:		Tubificidae:	1	Tipula:	
Ancylus:		Chironomidae:		Ceratopogonidae:	
Physa:		Chironomus:		Other GOLD	
Total No. of Taxa	2				
Total Relative Abundance	2				

Asellus					
Absent:	Yes	**Few (1-20):**		**Common (>20):**	

SSRS Calculation				
Group 1	0	AT RISK		
Group 2	0			
Group 3	2		**Total Index Score**	10
Group 4	4		**Average Index Score**	2.0
Group 5	4		**SSRS**	4.0