

# Annual Environmental Report

2023



Killarney

D0037-01

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## 7.1 AMBIENT MONITORING SUMMARY

# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2023 AER

This Annual Environmental Report has been prepared for D0037-01, Killarney, in Kerry 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.

## 1.2 TREATMENT SUMMARY

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

- Killarney WWTP with a Plant Capacity PE of 54000, the treatment type is 3NP - Tertiary N&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
TPEFF1300D0037SW001	Killarney WWTP	Treated	Non-Compliant	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 KILLARNEY WWTP - TREATED DISCHARGE

#### 2.1.1 INFLUENT MONITORING SUMMARY - KILLARNEY 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	24	84	27
COD-Cr mg/l	24	857	346
pH pH units	24	7.60	7.29
Suspended Solids mg/l	24	980	205
Ammonia-Total (as N) mg/l	23	31	11
BOD, 5 days with Inhibition (Carbonaceo mg/l	24	482	152
Total Phosphorus (as P) mg/l	24	5.56	2.67
Hydraulic Capacity	N/A	22491	11914

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 - TPEFF1300D0037SW001

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)
<b>COD-Cr mg/l</b>	125	250	N/A	24	N/A	N/A	16	Pass
<b>Suspended Solids mg/l</b>	35	87.5	N/A	24	N/A	N/A	4.75	Pass
<b>Total Nitrogen mg/l</b>	15	18	N/A	24	N/A	N/A	5.12	Pass
<b>pH pH units</b>	9	9	N/A	24	N/A	N/A	7.14	Pass
<b>BOD, 5 days with Inhibition (Carbonaceous) mg/l</b>	4	8	N/A	24	N/A	N/A	1.63	Pass
<b>Total Phosphorus (as P) mg/l</b>	1	1.2	N/A	24	N/A	N/A	0.068	Pass
<b>Ammonia-Total (as N) mg/l</b>	0.1	0.2	N/A	24	N/A	N/A	0.038	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)
ortho-Phosphate (as P) - unspecified mg/l	0.1	0.2	N/A	24	1	1	0.034	Fail
Visual Inspection Descriptive	N/A	N/A	N/A	24	N/A	N/A	N/A	
Conductivity @20°C µS/cm	N/A	N/A	N/A	24	N/A	N/A	362	

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):

Refer to incidence section of this report

### Significance of Results:

The WWTP is not in compliance with the ELV, as set out in the WWDL. The impact on receiving waters is assessed further in section 2.

## 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE TPEFF1300D0037SW001

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
<b>Upstream</b>	95701, 90046	RS22F100080	No	No	No	No	Poor
<b>Downstream</b>	95582, 89827	RS22F100100	No	No	No	No	Poor

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
<b>BOD - 5 days (Total) mg/l</b>	RS22F100080	2.31	RS22F100100	8.31	1.50	400.1
<b>Ammonia-Total (as N) mg/l</b>	RS22F100080	0.118	RS22F100100	0.735	0.065	948.1
<b>ortho-Phosphate (as P) - unspecified mg/l</b>	RS22F100080	0.036	RS22F100100	0.108	0.035	206.8
<b>Temperature °C</b>	RS22F100080	14	RS22F100100	15	N/A	
<b>Total Nitrogen mg/l</b>	RS22F100080	2.79	RS22F100100	5.51	N/A	
<b>Suspended Solids mg/l</b>	RS22F100080	19	RS22F100100	9.44	N/A	
<b>Dissolved Oxygen mg/l</b>	RS22F100080	8.10	RS22F100100	4.94	N/A	
<b>Conductivity @20°C µS/cm</b>	RS22F100080	455	RS22F100100	397	N/A	

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
pH pH units	RS22F100080	7.35	RS22F100100	7.24	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS22F100080	2.22	RS22F100100	4.62	N/A	
Nitrite (as N) mg/l	RS22F100080	0.035	RS22F100100	0.157	N/A	
Apparent colour Hazen	RS22F100080	46	RS22F100100	36	N/A	
Total Phosphorus (as P) mg/l	RS22F100080	0.059	RS22F100100	0.157	N/A	
COD-Cr mg/l	RS22F100080	17	RS22F100100	25	N/A	

### Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: 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 Ammonia, Ortho Phosphate & BOD, 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 - KILLARNEY WWTP

### 2.1.4.1 Treatment Efficiency Report - Killarney 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	11344	290	97
SS	870530	20204	98
COD	1472764	68687	95
TN	115515	21760	81
cBOD	647459	6932	99

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

### 2.1.4.2 Treatment Capacity Report Summary - Killarney 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.

Killarney WWTP	
Peak Hydraulic Capacity (m <sup>3</sup> /day) - As Constructed	28350
DWF to the Treatment Plant (m <sup>3</sup> /day)	9450
Current Hydraulic Loading - annual max (m <sup>3</sup> /day)	22491

Killarney WWTP	
Average Hydraulic loading to the Treatment Plant (m <sup>3</sup> /day)	11914
Organic Capacity (PE) - As Constructed	54000
Organic Capacity (PE) - Collected Load (peak week) <sup>Note1</sup>	22369
Organic Capacity (PE) - Remaining	31631
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 - KILLARNEY 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)
Domestic /Septic Tank Sludge	2040	Volume (m3)	54000	0.05	Yes	Yes	No
Other	305	Volume (m3)	54000	0.01	Yes	Yes	No
Industrial / Commercial Sludge	4686	Volume (m3)	54000	0.11	Yes	Yes	No

## 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
<b>There were no relevant environmental complaints in 2023.</b>			

### 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)
<b>Breach of ELV</b>	WWTP upgrade required to meet ELV	Yes	No

### 3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2023	1
Number of Incidents reported to the EPA via EDEN in 2023	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 2023 (No. of events)	Total volume discharged in 2023 (m3)	Monitoring Status
<b>SW006</b>	97998,89950	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW002</b>	95702,89930	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	TBC
<b>SW003</b>	95735,89979	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW004</b>	91517,92094	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW005</b>	94231,91547	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
<b>SW007</b>	97277,88741	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored

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 (m3)	Monitoring Status
SW008	96627,89502	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	97496,89541	Yes	Low Significance	Meeting Criteria	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 wastewater discharge by metered SWOs during the year (m3)?	Unknown
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
<b>D0037-SIP:01</b>	Relocation of Primary Discharge, if required	C	31/12/2020	No	At Planning Stage		
<b>D0037-SIP:02</b>	SW001 to be discontinued	A	01/01/2021	No	At Planning Stage		
<b>D0037-SIP:03</b>	Upgrade of treatment plant, if required	C	31/12/2020	No	At Planning Stage		
<b>D0037-SIP:04</b>	Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"	C	31/12/2020	No	Not Started	2034	DAP completed 2023.

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
<b>No additional improvements planned at this time.</b>				

### **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	Included in this AER
<b>D0037-01-Priority Substances Assessment</b>	Yes	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?	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	No

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

Signed:    Date: 23/04/2024

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

Ambient Points

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	Receiving Waters Designation (Y/N)				WFD Status
		Bathing Water	Drinking Water	FWPM	Shellfish	
LS220020702090080	94885, 89355	No	No	No	No	Good
LS220020702090090	94538, 89309	No	No	No	No	Good
LS220020702090100	94374, 89048	No	No	No	No	Good

Ambient Impact Assessment Table

Parameter Name (annual average)	LS220020702090080	LS220020702090090	LS220020702090100
cBOD mg/l	1.52	1.47	1.55
Ortho-Phosphate (as P) mg/l	0.023	0.02	0.01
Ammonia (as N) mg/l	0.32	0.143	0.05
pH pH units	7.44	7.41	7.63
Dissolved Oxygen mg/l	10.29	9.89	10.12
Suspended Solids mg/l	<5	8	6
Total Nitrogen (as N) mg/l	1.56	<1.03	<1.03
Total Phosphorus (as P) mg/l	0.034	0.028	0.014