

Annual Environmental Report

2022



Killarney

D0037-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 AER

- 1.1 ANNUAL STATEMENT OF MEASURES
- 1.2 TREATMENT SUMMARY
- 1.3 ELV OVERVIEW
- 1.4 LICENSE SPECIFIC REPORT INCLUDED IN AER

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

- 2.1 KILLARNEY WWTP - TREATED DISCHARGE
 - 2.1.1 INFLUENT SUMMARY - KILLARNEY WWTP
 - 2.1.2 EFFLUENT MONITORING SUMMARY - KILLARNEY WWTP -
 - 2.1.3 AMBIENT MONITORING SUMMARY FOR THE TREATMENT PLANT DISCHARGE -
 - 2.1.4 OPERATIONAL REPORTS SUMMARY FOR KILLARNEY WWTP
 - 2.1.5 SLUDGE/OTHER INPUTS TO KILLARNEY WWTP

3 COMPLAINTS AND INCIDENTS

- 3.1 COMPLAINTS SUMMARY
- 3.2 REPORTED INCIDENTS SUMMARY
 - 3.2.1 SUMMARY OF INCIDENTS
 - 3.2.2 SUMMARY OF OVERALL INCIDENTS

4 INFRASTRUCTURAL ASSESSMENT AND PROGRAMME OF IMPROVEMENTS

- 4.1 STORM WATER OVERFLOW IDENTIFICATION AND INSPECTION REPORT
 - 4.1.1 SWO IDENTIFICATION AND INSPECTION SUMMARY REPORT
- 4.2 REPORT ON PROGRESS MADE AND PROPOSALS BEING DEVELOPED TO MEET THE IMPROVEMENT PROGRAMME REQUIREMENTS
 - 4.2.1 SPECIFIED IMPROVEMENT PROGRAMME SUMMARY
 - 4.2.2 IMPROVEMENT PROGRAMME SUMMARY
 - 4.2.3 SEWER INTEGRITY RISK ASSESSMENT

5 LICENCE SPECIFIC REPORTS

- 5.1 PRIORITY SUBSTANCES ASSESSMENT

6 CERTIFICATION AND SIGN OFF

- 6.1 SUMMARY OF AER CONTENTS

7 APPENDIX

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2022 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.

Killarney DAP Stage 2 in 2022.

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
Ammonia-Total (as N) mg/l	24	26	13
Suspended Solids mg/l	24	394	191
Total Nitrogen mg/l	24	67	28
COD-Cr mg/l	24	688	334
BOD, 5 days with Inhibition (Carbonaceo mg/l	24	452	152
Total Phosphorus (as P) mg/l	24	5.78	2.95
pH pH units	24	7.60	7.32
Hydraulic Capacity	N/A	19217	10858

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)
COD-Cr mg/l	125	250	N/A	24	N/A	N/A	19	Pass
Suspended Solids mg/l	35	87.5	N/A	24	N/A	N/A	5.60	Pass
pH pH units	9	9	N/A	24	N/A	N/A	7.10	Pass
BOD, 5 days with Inhibition (Carbonaceous) mg/l	4	8	N/A	24	1	N/A	2.48	Pass
Total Phosphorus (as P) mg/l	1	1.2	N/A	24	N/A	N/A	0.083	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.1	0.2	N/A	24	1	1	0.032	Fail

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)
Ammonia-Total (as N) mg/l	0.1	0.2	N/A	24	1	N/A	0.043	Pass
Visual Inspection Descriptive	N/A	N/A	N/A	24	N/A	N/A	N/A	
Fluoride mg/l	N/A	N/A	N/A	1	N/A	N/A	0.300	
Total Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	2	N/A	N/A	5.61	
Conductivity @20°C µS/cm	N/A	N/A	N/A	24	N/A	N/A	350	
Total Nitrogen mg/l	N/A	N/A	N/A	24	N/A	N/A	6.41	

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 Incident Section of Report

Significance of Results:

The WWTP is not in compliance with the ELV,s 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. Details of the Lake monitoring is included in the Appendix.

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	95701, 90046	RS22F100080	No	No	No	No	Poor
Downstream	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
BOD - 5 days (Total) mg/l	RS22F100080	2.27	RS22F100100	5.42	1.50	210
Ammonia-Total (as N) mg/l	RS22F100080	0.046	RS22F100100	0.880	0.065	1283
ortho-Phosphate (as P) - unspecified mg/l	RS22F100080	0.032	RS22F100100	0.063	0.035	90.2
Total Phosphorus (as P) mg/l	RS22F100080	0.058	RS22F100100	0.111	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	7.29	RS22F100100	7.22	N/A	
Dissolved Oxygen mg/l	RS22F100080	8.14	RS22F100100	4.64	N/A	
Conductivity @20°C µS/cm	RS22F100080	412	RS22F100100	406	N/A	
Temperature °C	RS22F100080	13	RS22F100100	14	N/A	
Total Nitrogen mg/l	RS22F100080	2.64	RS22F100100	7.23	N/A	
Apparent colour Hazen	RS22F100080	18	RS22F100100	N/A	N/A	
Fluoride mg/l	RS22F100080	0.071	RS22F100100	0.300	N/A	
Nitrite (as N) mg/l	RS22F100080	0.035	RS22F100100	N/A	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS22F100080	2.30	RS22F100100	N/A	N/A	
Suspended Solids mg/l	RS22F100080	8.86	RS22F100100	7.97	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, BOD and Ortho-Phosphate, 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.

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	11690	329	97
COD	1325475	76331	94
TN	112854	25484	77
SS	756350	22267	97
cBOD	602203	9851	98

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 ³ /day) - As Constructed	28350

Killarney WWTP	
DWF to the Treatment Plant (m ³ /day)	9450
Current Hydraulic Loading - annual max (m ³ /day)	19217
Average Hydraulic loading to the Treatment Plant (m ³ /day)	10858
Organic Capacity (PE) - As Constructed	54000
Organic Capacity (PE) - Collected Load (peak week) ^{Note1}	21861
Organic Capacity (PE) - Remaining	32139
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	2203	Volume (m3)	54000	0.06	Yes	Yes	No
Industrial / Commercial Sludge	5798	Volume (m3)	54000	0	Yes	Yes	No

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	345	Volume (m3)	54000	0	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
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 upgrade required to meet ELV	1	Yes	No
Uncontrolled release	EO caused by pump failure	1	No	No
Uncontrolled release	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 (m3)	Monitoring Status
SW006	97998,89950	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW002	95702,89930	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	TBC
SW003	95735,89979	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW004	91517,92094	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW005	94231,91547	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
SW007	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 2022 (No. of events)	Total volume discharged in 2022 (m3)	Monitoring Status
SW008	96627,89502	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
TBC	97496,89541	No	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 sewage was discharged via monitored SWOs in the agglomeration in 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?	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
D0037-SIP:01	Relocation of Primary Discharge, if required	C	31/12/2020	No	At Planning Stage		Expected Completion date : TBC
D0037-SIP:02	SW001 to be discontinued	A	01/01/2021	No	At Planning Stage		Expected Completion date : TBC
D0037-SIP:03	Upgrade of treatment plant, if required	C	31/12/2020	No	At Planning Stage		Expected Completion date : TBC
D0037-SIP:04	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		Dap to be completed 2023. Expected completion date 2031

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	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?	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:

Signed: Date: 23/05/2023

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

Lough Leane 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	1.08	0.89	1.01
Ortho-Phosphate (as P) mg/l	0.016	0.013	0.005
Ammonia (as N) mg/l	0.11	0.06	0.03
pH pH units	7.44	7.41	7.35
Dissolved Oxygen mg/l	10.29	9.89	10.25
Suspended Solids mg/l	<5	3.05	3
Total Nitrogen (as N) mg/l	0.92	<1	<1
Total Phosphorus (as P) mg/l	0.032	0.028	0.013