Annual Environmental Report

2024

Killarney

D0037-01

CONTENTS

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2024 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.

There were no major capital or operational changes undertaken.

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	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 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 Phosphorus (as P) mg/l	22	22	4.03
Total Nitrogen mg/l	24	52	25
Ammonia-Total (as N) mg/l	24	30	14
pH pH units	24	7.60	7.30
COD-Cr mg/l	24	1021	382
Suspended Solids mg/l	24	506	180
BOD, 5 days with Inhibition (Carbonaceo mg/l	24	666	184
ortho-Phosphate (as P) - unspecified mg/l	3	1.74	1.59
Hydraulic Capacity	N/A	27366	11902

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	16	Pass
Suspended Solids mg/l	35	87.5	N/A	24	N/A	N/A	4.82	Pass
Total Nitrogen mg/l	15	18	N/A	24	N/A	N/A	5.26	Pass
pH pH units	9	9	N/A	24	N/A	N/A	7.18	Pass
BOD, 5 days with Inhibition (Carbonaceo mg/l	4	8	N/A	24	1	N/A	2.07	Pass
Total Phosphorus (as P) mg/l	1	1.2	N/A	24	N/A	N/A	0.125	Pass
Ammonia-Total (as N) mg/l	0.1	0.2	N/A	24	1	N/A	0.048	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	N/A	N/A	0.015	Pass
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	371	

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 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
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	1.18	RS22F100100	3.59	1.50	160.9
Ammonia-Total (as N) mg/l	RS22F100080	0.037	RS22F100100	0.305	0.065	411.6
ortho-Phosphate (as P) - unspecified mg/l	RS22F100080	0.032	RS22F100100	0.063	0.035	89.9
Nitrite (as N) mg/l	RS22F100080	0.035	RS22F100100	0.107	N/A	
Apparent colour Hazen	RS22F100080	17	RS22F100100	27	N/A	
pH pH units	RS22F100080	7.52	RS22F100100	7.21	N/A	
Total Phosphorus (as P) mg/l	RS22F100080	0.063	RS22F100100	0.143	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
Total Oxidised Nitrogen (as N) mg/l	RS22F100080	2.52	RS22F100100	3.02	N/A	
Conductivity @20°C µS/cm	RS22F100080	430	RS22F100100	391	N/A	
Total Nitrogen mg/l	RS22F100080	2.63	RS22F100100	5.52	N/A	
Dissolved Oxygen mg/l	RS22F100080	8.42	RS22F100100	4.95	N/A	
Temperature °C	RS22F100080	13	RS22F100100	14	N/A	
Suspended Solids mg/l	RS22F100080	4.87	RS22F100100	6.58	N/A	

Significance of Results:

The WWTP discharge was compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results do not meet the required EQS at the downstream monitoring location. 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, Apparent Colour, BOD, Nitrite, ortho-Phosphate, Suspended Solids, Temperature, Total Nitrogen, Total Oxidised Nitrogen, Total Phosphate., 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)
cBOD	784061	8794	99
SS	764892	20509	97
TP	17074	532	97
COD	1623923	68305	96
TN	105720	22403	79

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
DWF to the Treatment Plant (m^3/day)	9450
Current Hydraulic Loading - annual max (m^3/day)	27366

Killarney WWTP	
Average Hydraulic loading to the Treatment Plant (m^3/day)	11902
Organic Capacity (PE) - As Constructed	54000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	24852
Organic Capacity (PE) - Remaining	29148
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	1795	Volume (m3)	54000	0.04	Yes	Yes	No
Other	658	Volume (m3)	54000	0.01	Yes	Yes	No
Industrial / Commercial Sludge	4361	Volume (m3)	54000	1	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 2024.			

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)
Uncontrolled release	Emergency overflow caused by power failure	No	Yes

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2024	1
Number of Incidents reported to the EPA via EDEN in 2024	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 2024 (No. of events)	Total volume discharged in 2024 (m3)	Monitoring Status
SW002	95702, 89930	Yes	Low Significance	Meeting Criteria	Unknown	Unknown	Not Monitored
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
SW006	97998, 89950	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 2024 (No. of events)	Total volume discharged in 2024 (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

The contents presented in this table include the most up to date information available at the time of writing. 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
D0037-SIP:01	Relocation of Primary Discharge, if required	C	31/12/2020	No	At Planning Stage		
D0037-SIP:02	SW001 to be discontinued	A	01/01/2021	No	At Planning Stage		
D0037-SIP:03	Upgrade of treatment plant, if required	C	31/12/2020	No	At Planning Stage		
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	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
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	Included in this AER
D0037-01-Priority Substances Assessment	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: 01/07/2025

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	LS220020702090080	LS220020702090090	LS220020702090100	EQS (Mean)
Alkalinity-total (as CaCO3)		34.000	26.250	
Ammonia-Total (as N)	0.122	0.016	0.014	0.065
BOD - 5 days (Total)	1.220			1.5
Chlorophyll		11.025	10.100	
Conductivity @20°C	142.900			
Conductivity @25°C		127.250	108.000	
Depth		0.000	0.000	
Dissolved Oxygen	10.290	54.000	53.625	
Fluoride	0.071			
ortho-Phosphate (as P) - unspecified	0.017	0.012	0.007	0.035
pH	7.440	7.350	7.425	
Silica (as SiO2)		1.203	1.135	
StationDepth		1.600	3.250	
Suspended Solids	3.536			
Temperature	15.240	15.525	15.275	
Total Nitrogen	1.061			
Total Oxidised Nitrogen (as N)		0.503	0.395	

Total Phosphorus (as P)	0.033	0.028	0.020	
Transparency		1.600	2.125	
True Colour		42.500	40.000	

Ambient Data Tables

			Ammonia-Total (as N)	BOD - 5 days (Total)	Conductivity @20°C	Dissolved Oxygen	Fluoride	ortho-Phosphate (as P) - unspecified	pH	Suspended Solids	Temperature	Total Nitrogen	Total Phosphorus (as P)
Monitored Entity	Station	Sample date	mg/l	mg/l	µS/cm	mg/l	mg/l	mg/l	pH units	mg/l	°C	mg/l	mg/l
Ross Bay	LS22002070209 0080	28/02/2022	0.19	1.6	205	9		0.06	7	<5	9.2	1.3	0.068
Ross Bay	LS22002070209 0080	30/03/2022	<0.05	<1.3	121	11.3		<0.005	7.5	<5	12.6	<1.03	
Ross Bay	LS22002070209 0080	28/04/2022	0.52	1.8	154	11.8	<0.1	0.01	7.5	<5	14.4	1.8	0.032
Ross Bay	LS22002070209 0080	31/05/2022	<0.05	<1.3	121	11.1		<0.005	7.5	<5	16.3	<1.03	0.02
Ross Bay	LS22002070209 0080	22/06/2022	<0.05	1.3	195	11.9		0.01	7.2	<5	19.5	1.93	0.026
Ross Bay	LS22002070209 0080	13/07/2022	<0.05	1.3	119	10.7		<0.005	8.1	<5	19.1	<1.03	0.013
Ross Bay	LS22002070209 0080	03/08/2022	<0.05	<1.3	113	10.3		0.01	8.4	<5	19.6	<1.03	
Ross Bay	LS22002070209 0080	14/09/2022	<0.05	1.6	161	9.7	<0.1	0.03	7.3	<5	17.4	1.21	0.056
Ross Bay	LS22002070209 0080	27/10/2022	<0.05	<1.3	110	8.5		0.01	6.9	<5	13.8	<1.03	0.021
Ross Bay	LS22002070209 0080	30/11/2022	0.26	<1.3	130	8.6		0.03	7	<5	10.5	<1.03	<0.040
		Mean	0.122	1.220	142.900	10.290	0.071	0.017	7.440	3.536	15.240	1.061	0.033

			Alkalinity-total (as CaCO3)	Ammonia-Total (as N)	Chlorophyll	Conductivity @25°C	Depth	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Silica (as SiO2)	Station Depth	Temperature	Total Oxidised Nitrogen (as N)	Total Phosphorus (as P)	Transparency	True Colour
Monitored Entity	Station	Sample date	mg/l	mg/l	µg/l	µS/cm	m	% Saturation	mg/l	pH units	mg/l	m	°C	mg/l	mg/l	m	mg/litre Pt Co
Ross Bay	LS22002070 2090090	05/04/2023	52	0.023	11	168	0	9.5	0.018	7.2	1.6	1.8	11.3	0.94	0.045	1.8	46
Ross Bay	LS22002070 2090080	05/07/2023	28	<0.02	8.1	117	0	100	<0.01	7.6	0.84	1.2	16.7	0.33	0.016	1.2	30
Ross Bay	LS22002070 2090080	29/08/2023	28	<0.02	19	119	0	98	<0.01	7.2	0.57	1.3	17.8	0.32	0.023	1.3	41
Ross Bay	LS22002070 2090080	09/10/2023	28	<0.02	6	105	0	8.5	0.014	7.4	1.8	2.1	16.3	0.42	0.029	2.1	53
		Mean	34.000	0.016	11.025	127.250	0.000	54.000	0.012	7.350	1.203	1.600	15.525	0.503	0.028	1.600	42.500

			Alkalinity-total (as CaCO3)	Ammonia-Total (as N)	Chlorophyll	Conductivity @25°C	Depth	Dissolved Oxygen	ortho-Phosphate (as P) - unspecified	pH	Silica (as SiO2)	Station Depth	Temperature	Total Oxidised Nitrogen (as N)	Total Phosphorus (as P)	Transparency	True Colour
Monitored Entity	Station	Sample date	mg/l	mg/l	µg/l	µS/cm	m	% Saturation	mg/l	pH units	mg/l	m	°C	mg/l	mg/l	m	mg/litre Pt Co
Ross Bay	LS22002070 2090100	05/04/ 2023	23	<0.02	5.5	98	0	10.4	<0.01	7.2	1.5	3.5	10.5	0.48	0.018	2.1	42
Ross Bay	LS22002070 2090100	05/07/ 2023	28	<0.02	12	115	0	100	<0.01	7.6	0.75	2.7	16.6	0.32	0.018	1.8	29
Ross Bay	LS22002070 2090100	29/08/ 2023	29	<0.02	17	123	0	95	<0.01	7.3	0.69	3	17.6	0.41	0.023	2.1	40
Ross Bay	LS22002070 2090100	09/10/ 2023	25	<0.02	5.9	96	0	9.1	<0.01	7.6	1.6	3.8	16.4	0.37	0.021	2.5	49
		Mean	26.250	0.014	10.100	108.000	0.000	53.625	0.007	7.425	1.135	3.250	15.275	0.395	0.020	2.125	40.000

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.