Annual Environmental Report

2021

Killarney

D0037-01

CONTENTS

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2021 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	Ammonia-Total (as N) mg/l BOD, 5 days with Inhibition (Carbonaceous BOD) 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
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	24	344	114
Total Phosphorus (as P) mg/l	24	5.39	2.18
Ammonia-Total (as N) mg/l	24	27	11
COD-Cr mg/l	24	1440	349
Total Nitrogen mg/l	24	67	20
pH units	24	7.60	7.32
Suspended Solids mg/l	24	376	138
Hydraulic Capacity	N/A	21542	10674

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	88	N/A	24	N/A	N/A	7.42	Pass
pH units	9.00	9.00	N/A	24	N/A	N/A	7.08	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	4.00	8.00	N/A	24	4	N/A	2.84	Fail
Total Phosphorus (as P) mg/l	1.00	1.20	N/A	24	N/A	N/A	0.062	Pass
Ammonia-Total (as N) mg/l	0.100	0.200	N/A	24	2	1	0.439	Fail
ortho-Phosphate (as P) - unspecified mg/l	0.100	0.200	N/A	24	N/A	N/A	0.020	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 Oxidised Nitrogen (as N) mg/l	N/A	N/A	N/A	1	N/A	N/A	2.28	
Fluoride mg/l	N/A	N/A	N/A	5	N/A	N/A	0.232	
Visual Inspection Descriptive	N/A	N/A	N/A	23	N/A	N/A	N/A	
Total Nitrogen mg/l	N/A	N/A	N/A	24	N/A	N/A	4.32	
Conductivity @20°C µS/cm	N/A	N/A	N/A	24	N/A	N/A	365	

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):

The discharge from the WWTP exceeded the ELV limits on two occasions. The cause of the exceedance is the WwTP requiring upgrade.

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.

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	Unassigned
Downstream	95582, 89827	RS22F100100	No	No	No	No	Unassigned

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	1.28	RS22F100100	5.92	1.50	309.4
Ammonia-Total (as N) mg/l	RS22F100080	0.035	RS22F100100	0.418	0.065	589.3
ortho-Phosphate (as P) - unspecified mg/l	RS22F100080	0.027	RS22F100100	0.109	0.035	233.1
Nitrite (as N) mg/l	RS22F100080	0.035	RS22F100100	0.048	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
Temperature °C	RS22F100080	13	RS22F100100	13	N/A	
Conductivity @20°C µS/cm	RS22F100080	396	RS22F100100	364	N/A	
pH units	RS22F100080	7.48	RS22F100100	7.27	N/A	
Suspended Solids mg/l	RS22F100080	4.72	RS22F100100	10	N/A	
Fluoride mg/l	RS22F100080	0.071	RS22F100100	0.186	N/A	
Total Oxidised Nitrogen (as N) mg/l	RS22F100080	2.41	RS22F100100	3.63	N/A	
Apparent colour Hazen	RS22F100080	22	RS22F100100	46	N/A	
Total Nitrogen mg/l	RS22F100080	2.29	RS22F100100	4.90	N/A	
Total Phosphorus (as P) mg/l	RS22F100080	0.056	RS22F100100	0.171	N/A	
Dissolved Oxygen mg/l	RS22F100080	9.22	RS22F100100	5.89	N/A	

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence for the following: BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l, Ammonia-Total (as N) mg/l.

The ambient monitoring results 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 - 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	459405	11451	98
TP	8770	248	97
TN	82241	17387	79
COD	1405053	77038	95
SS	554600	29872	95

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

KILLARNEY WWTP	
Current Hydraulic Loading - annual max (m^3/day)	21542
Average Hydraulic loading to the Treatment Plant (m^3/day)	10674
Organic Capacity (PE) - As Constructed	54000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	21504
Organic Capacity (PE) - Remaining	32496
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	3417.27	Volume (m3)		0.08	Yes	Yes	No
Industrial / Commercial Sludge	4263.64	Volume (m3)		0.12	Yes	Yes	No
Landfill Leachate (delivered by tanker)	348.86	Volume (m3)		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 2021.			

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)
Breach of ELV	WWTP upgrade required to meet ELV	1	Yes	No
Other	Plant or equipment breakdown at WWTP	1	No	No

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2021	2
Number of Incidents reported to the EPA via EDEN in 2021	2
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 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
TBC	97495, 89540	No	Medium	Meeting	Unknown	Unknown	Not Monitored
SW002	95702, 89929	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW003	95735, 89978	Yes	High	Meeting	Unknown	Unknown	Not Monitored
SW004	91516, 92093	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW005	94231, 91547	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW006	97997, 89949	Yes	Medium	Meeting	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 2021 (No. of events)	Total volume discharged in 2021 (m3)	Monitoring Status
SW007	97276, 88741	Yes	Medium	Meeting	Unknown	Unknown	Not Monitored
SW008	96627, 89501	Yes	Medium	Meeting	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 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	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.
D0037-SIP:02	SW001 to be discontinued	A	01/01/2021	No	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.
D0037-SIP:03	Upgrade of treatment plant, if required	C	31/12/2020	No	Not Started		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.
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		Capital works not funded in RC3. Capital works funding post 2024 will be contingent on the project being included in the 2025-2029 investment period.

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
Has a Technical amendment/licence review application been submitted to the Agency by IW?	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: 20/04/2022

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

Kerry County Council - All Laboratory Results Report (Lab)

* *Please note that in accordance with Quality assurance procedures some of this data may be provisional and may be subject to further revision. This data is not validated until issued in report form signed by Senior Executive Chemist or another approved signatory*

										005A_TEMP_FIELD	006_PH	007A_CONDUCTIVITY20C		013C_BOD	016_FLUORIDE_ISE	021K_NITRITE	022K_AMMONIA	025_PHOSPHATE_SRP	026D_TOTALP	026D_TOTALP_SUB	026D_TOTALP_WW	033K_TON	035_DO_PCT_SAT	036_DO_MG_L	037_SUSPENDED_SOLIDS	041_CHLOROPHYLL_A	052_TOTAL_NITROGEN	065_ALKANITY_TOTAL	079_LAKE_DEPTH	082_VIS_INSPECTION
										Temperature	pH	Conductivity	Conductivity@ 20C	B.O.D.	Fluoride	Nitrite	Ammonia	Phosphorus (MRP)	Phosphorus (Total)	Phosphorus (Total)_SUB	Phosphorus (Total)	TON	Dissolved Oxygen	Dissolved Oxygen	Suspended Solids	chlorophyll a	Total Nitrogen	Alkalinity	Depth	Visual Inspection
											6.0	0						0	0	0	0		0	80	7.0		0			
											9.0	0						0.10	0.015	0.020	0.020		0	120	12.0		10			
Sampling Point	SP EPA Code	Sample No.	COA Link	Sampled Date	Sampled Time	Sampled By	Sample Type	Test List	Sample Status	DEG_C	PH	USCM	USCM	BOD	MGL_F	MGLN	MGLN	MGL	MGLP	MGLP	MGLP	MGLN	PERCENT_SA	MGL	MGL	MGM3	MGLN	MGCACO3L	M	NONE
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/0156	\\doc_server\coa\KCC_WATERS	28-Jan-21	10:21	AS	LAKE	186_AMBIENT_KILLARNY	Authorised	7.4	7.3	111		1.4			<0.05	0.01	0.029					10.7	<5		<1.03			Clear
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/0419	\\doc_server\coa\KCC_WATERS	25-Feb-21	12:22	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	8.6	6.9	84		1.3			<0.05	0.01	0.025					10.7	<5		<1.03			Murky
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/0708	\\doc_server\coa\KCC_WATERS	30-Mar-21	12:20	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	12.3	7.5	85		1.8	<0.1		<0.05	<0.005	0.012					11.3			<1.03			cloudy
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/0803	\\doc_server\coa\KCC_WATERS	07-Apr-21	12:27	AS	LAKE	186_AMBIENT_KILLARNY	Authorised	10.1	7.3	166		1.3	<0.1		<0.05	<0.005	0.025					11.2	<5		<1.03			Cloudy
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/1121	\\doc_server\coa\KCC_WATERS	10-May-21	12:41	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	14.2	7.4		158	1.5	<0.1		<0.05							10.3	8		<1.03			Murky
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/1493	\\doc_server\coa\KCC_WATERS	16-Jun-21	12:07	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	18.2	7.6		126	<1.3	<0.1		<0.05	<0.005	0.022					10.4			<1.03			Murky
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/1734		07-Jul-21	13:27	AS	LAKE	186_FINAL_KILLARNEY	Not Authorised		7.5		106	1.8			<0.05	0.01			<0.050	<0.5			<5		<1.03			Cloudy
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/2260	\\doc_server\coa\KCC_WATERS	24-Aug-21	12:34	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	20.9	7.6		124	<1.3			<0.05	0.01		0.027				10.8			<1.03			murky
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/2591	\\doc_server\coa\KCC_WATERS	15-Sep-21	12:41	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	17.9	7.1		126	1.7			<0.05	0.02	0.052					10.0			<1.03			Murky
Ross Bay 1_Killarney _DS_DISCH_PT_LAKE_1	LS220020702090080	2021/2929	\\doc_server\coa\KCC_WATERS	14-Oct-21	12:34	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	14.7	6.7		103	1.3	<0.1		<0.05	0.02	0.038					8.7			<1.03			slightly murky
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/0157	\\doc_server\coa\KCC_WATERS	28-Jan-21	10:16	AS	LAKE	186_AMBIENT_KILLARNY	Authorised	7.5	7.3	109		1.4			<0.05	<0.005	0.030					10.7	<5		<1.03			Cloudy
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/0420	\\doc_server\coa\KCC_WATERS	25-Feb-21	12:12	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	8.8	6.8	93		<1.3			<0.05	0.02	0.040					9.6	<5		<1.03			Murky
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/0709	\\doc_server\coa\KCC_WATERS	30-Mar-21	12:09	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	12.8	7.4	117		1.5	<0.1		<0.05	<0.005	0.026					10.7			<1.03			cloudy
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/0804	\\doc_server\coa\KCC_WATERS	07-Apr-21	12:20	AS	LAKE	186_AMBIENT_KILLARNY	Authorised	10.0	7.4	104		1.4	<0.1		<0.05	<0.005	0.012					11.9	<5		<1.03			Cloudy
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/1122	\\doc_server\coa\KCC_WATERS	10-May-21	12:34	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	14.7	7.2		203	1.5	<0.1		<0.05							9.2	<5		1.51			Murky
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/1494	\\doc_server\coa\KCC_WATERS	16-Jun-21	12:00	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	18.1	7.6		135	<1.3	<0.1		0.05	<0.005	0.022					9.7			<1.03			Murky
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/1735		07-Jul-21	13:21	AS	LAKE	186_FINAL_KILLARNEY	Not Authorised		7.7		109	1.5			<0.05	<0.005			<0.050	<0.5			5		<1.03			Cloudy
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/2261	\\doc_server\coa\KCC_WATERS	24-Aug-21	12:28	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	20.9	7.9		140	<1.3			<0.05	0.01		0.031				10.2			1.10			murky
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/2592	\\doc_server\coa\KCC_WATERS	15-Sep-21	12:35	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	17.9	7.2		104	<1.3			<0.05	0.01	0.045					10.4			<1.03			Murky
Ross Bay 2_Killarney _DS_DISCH_PT_LAKE_2	LS220020702090090	2021/2930	\\doc_server\coa\KCC_WATERS	14-Oct-21	12:27	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	14.9	6.9		106	1.6	<0.1		<0.05	0.02	0.032					9.3			<1.03			Slightly murky
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/0158	\\doc_server\coa\KCC_WATERS	28-Jan-21	10:00	AS	LAKE	186_AMBIENT_KILLARNY	Authorised	7.2	7.3	95		1.4			<0.05	<0.005	0.025					10.3	<5		<1.03			Clear
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/0421	\\doc_server\coa\KCC_WATERS	25-Feb-21	12:00	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	8.6	6.9	83		1.3			<0.05	0.01						10.7	<5		<1.03			Murky
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/0425	\\doc_server\coa\KCC_ENVIRO	25-Feb-21	12:00	IMCG	LAKE	116_LAKES	Authorised	8.6	6.8	82				<0.05	<0.05	0.01	0.024			<0.5	91.4	10.7		0.2		23	4.9	
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/0427	\\doc_server\coa\KCC_ENVIRO	25-Feb-21	12:09	IMCG	LAKE	116_LAKE_ALGAL_TRAWL	Authorised																					
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/0710	\\doc_server\coa\KCC_WATERS	30-Mar-21	11:59	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	11.8	7.5	91		1.4	<0.1		<0.05	<0.005	0.013					11.5			<1.03			cloudy
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/0805	\\doc_server\coa\KCC_WATERS	07-Apr-21	12:13	AS	LAKE	186_AMBIENT_KILLARNY	Authorised	9.7	7.4	98		1.5	<0.1		<0.05	<0.005	0.011					11.8	<5		<1.03			Cloudy
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/1123	\\doc_server\coa\KCC_WATERS	10-May-21	12:23	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	13.2	7.4		93	<1.3	<0.1		<0.05							10.7	<5		<1.03			Sl. Murky
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/1125	\\doc_server\coa\KCC_ENVIRO	10-May-21	12:23	IMCG	LAKE	116_CHLORO_ONLY	Authorised									0.01	0.012							2.0				
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/1127	\\doc_server\coa\KCC_ENVIRO	10-May-21	12:28	IMCG	LAKE	116_LAKE_ALGAL_TRAWL	Authorised																					
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/1495	\\doc_server\coa\KCC_WATERS	16-Jun-21	11:50	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	17.8	7.7		91	<1.3	<0.1		<0.05	<0.005	0.013					10.2			<1.03			Murky
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/1736		07-Jul-21	13:12	AS	LAKE	186_FINAL_KILLARNEY	Not Authorised		7.5		106	1.5			<0.05	0.01			<0.050	<0.5			<5		<1.03			Cloudy
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/2262		24-Aug-21	12:18	IMCG	LAKE	186_AMBIENT_KILLARNY	Not Authorised	20.3	7.5		97	<1.3			<0.05	0.01		0.018				9.9			<1.03			murky
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/2574		15-Sep-21	12:25	IMCG	LAKE	116_LAKES	Not Authorised	18.0	7.0		99		<0.1	<0.05	<0.05	<0.005	0.012			<0.5	102.9	9.7		7.8		29	2.6	
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/2579		15-Sep-21	12:29	IMCG	LAKE	116_LAKE_ALGAL_TRAWL	Not Authorised																					
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/2593	\\doc_server\coa\KCC_WATERS	15-Sep-21	12:25	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	18.1	7.2		99	<1.3			<0.05	0.01	0.025					9.7			<1.03			A bit murky
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2021/2931	\\doc_server\coa\KCC_WATERS	14-Oct-21	12:13	IMCG	LAKE	186_AMBIENT_KILLARNY	Authorised	14.9	6.9		113	1.5	<0.1		<0.05	0.01	0.022					9.2			<1.03			Slightly murky

Parameter Name	U/S Location	U/S Annual Mean	D/S Location	D/S Annual Mean	Difference	EQS	% of EQS
Ammonia-Total (as N) mg/l	RS22F100080	0.050	RS22F100100	0.050	0.383	0.065	0.0
BOD - 5 days (Total) mg/l	RS22F100080	1.470	RS22F100100	1.380	4.640	1.500	-6.0
Conductivity @20°C µS/cm	RS22F100080	119.000	RS22F100100	95.800	-32.056		
Dissolved Oxygen mg/l	RS22F100080	10.400	RS22F100100	9.550	-3.324		
Fluoride mg/l	RS22F100080	0.100	RS22F100100	0.100	0.115		
Nitrite (as N) mg/l	RS22F100080		RS22F100100	0.050	0.013		
ortho-Phosphate (as P) - unspecified mg/l	RS22F100080	0.029	RS22F100100	0.015	0.082	0.035	-40.0
pH units	RS22F100080	7.300	RS22F100100		-0.210		
Suspended Solids mg/l	RS22F100080	5.600	RS22F100100		5.415		
Temperature °C	RS22F100080	14.000	RS22F100100		0.747		
Total Nitrogen mg/l	RS22F100080	1.030	RS22F100100		2.609		
Ammonia-Total (as N) mg/l	RS22F100090	0.050	RS22F100100	0.050	0.383	0.065	0.0
BOD - 5 days (Total) mg/l	RS22F100090	1.450	RS22F100100	1.380	4.640	1.500	-4.7
Conductivity @20°C µS/cm	RS22F100090	122.000	RS22F100100	95.800	-32.056		
Dissolved Oxygen mg/l	RS22F100090	10.200	RS22F100100	9.550	-3.324		
Fluoride mg/l	RS22F100090	0.100	RS22F100100	0.100	0.115		
Nitrite (as N) mg/l	RS22F100090		RS22F100100	0.050	0.013		
ortho-Phosphate (as P) - unspecified mg/l	RS22F100090	0.029	RS22F100100	0.015	0.082	0.035	-40.0
pH units	RS22F100090	7.340	RS22F100100	7.250	-0.210		
Suspended Solids mg/l	RS22F100090	5.000	RS22F100100	5.000	5.415		
Temperature °C	RS22F100090	14.000	RS22F100100	13.480	0.747		
Total Nitrogen mg/l	RS22F100090	1.460	RS22F100100	1.030	2.609		