

Annual Environmental Report

2018



Killarney

D0037-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 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 are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

Assessment / Report	Included in AER
There is no Licence Specific Reports included in the AER.	

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant KILLARNEY WWTP with a Plant Capacity PE of 54000. The treatment process includes the following:

1.2.1 KILLARNEY WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Primary Inlet Screens
Primary Treatment	Yes	Diffused Air
Secondary Treatment	Yes	Final Settlement
Nutrient Removal	Yes	Ferric dosing for Phosphorus reduction.
Tertiary Treatment	No	

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 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 KILLARNEY WWTP

Compliance Status	
Were all parameters compliant for KILLARNEY WWTP treatment plant	Yes
Where noncompliant see table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
KILLARNEY WWTP	Liquid Sludge	10598.53	Volume (m3)	3	Local Agricultural Lands

Annual Statement of Measures

Full replacement of Air Diffusers was carried out in the Aeration Ditches and the deep Aeration Tanks in 2018.

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

A summary of influent monitoring for the treatment plant is presented in below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

2.1.1 Influent Monitoring Summary - KILLARNEY WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P) mg/l	24	16.5	4.4
Suspended Solids mg/l	24	452	202.72
COD-Cr mg/l	24	839	413.97
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	24	346	167.63
Total Nitrogen mg/l	24	60.67	27.6
Hydraulic Capacity	0	24932	10235

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable

Significance of Results:

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. 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.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - KILLARNEY WWTP

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedences	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Total Phosphorus (as P) mg/l	1	1.2	0	24	0	0	0.11	Pass
Visual Inspection Descriptive	0	0	0	24	0	0	0	Pass
Suspended Solids mg/l	35	87.5	0	24	0	0	3.47	Pass
pH pH units	0	0	0	24	0	0	7.4	Pass
COD-Cr mg/l	125	250	0	24	0	0	20.27	Pass
ortho-Phosphate (as P) - unspecified mg/l	0.8	0.96	0	24	0	0	0.08	Pass
Ammonia-Total (as N) mg/l	10	12	0	24	0	0	0.94	Pass
Conductivity 20 C μS/cm	0	0	0	24	0	0	389.1	Pass
Total Nitrogen mg/l	0	0	0	24	0	0	5.95	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	24	0	0	2.23	Pass

Notes:

1- This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

2 - For parameters where a mean ELV applies

Cause of Exceedance(s):

Not Applicable

Significance of Results:

The WWTP is compliant with the ELV's set in the Wastewater Discharge Licence.

2.3 Ambient monitoring summary

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.

2.3.1 Ambient Monitoring Report Summary - KILLARNEY WWTP

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	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	95701, 90046	TPEFF1300D0037SW001	No	No	No	No	Unassigned
Downstream	95582, 89827	TPEFF1300D0037SW001	No	No	No	No	Unassigned

2.3.2 Ambient Monitoring Parameter Summary - KILLARNEY WWTP

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
pH pH units	RS22F100080	7.4	RS22F100100	7.16		
Total Oxidised Nitrogen (as N) mg/l	RS22F100080	2.49	RS22F100100			
Apparent colour Hazen	RS22F100080	10	RS22F100100			
BOD - 5 days (Total) mg/l	RS22F100080	1.97	RS22F100100	8.05	2.6	233.8
Total Phosphorus (as P) mg/l	RS22F100080	0.09	RS22F100100	0.26		
ortho-Phosphate (as P) - unspecified mg/l	RS22F100080	0.05	RS22F100100	0.09	0.08	48.4
Ammonia-Total (as N) mg/l	RS22F100080	0.06	RS22F100100	1.43	0.14	981.5
Total Nitrogen mg/l	RS22F100080	2.31	RS22F100100	5.71		
Temperature °C	RS22F100080	12.46	RS22F100100	13.59		
Suspended Solids mg/l	RS22F100080	2.8	RS22F100100			
Dissolved Oxygen mg/l	RS22F100080	8.44	RS22F100100	4.65		
Conductivity 20 C µS/cm	RS22F100080	437.95	RS22F100100	423.18		

Significance of Results:

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

The discharge from the works maybe giving rise to a breach of EQS in the receiving water regardless of status.

The parameters which exceeded the EQS and may be causing an are: BOD, Ammonia and Ortho P.

Any other know impacts: The EQS assessed relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009, as amended.

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

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:

3.1.1 Treatment Efficiency Report Summary - KILLARNEY WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
TP	16113.97	548.38	96.6	
TN	101118.85	21817.21	78.42	
cBOD	614231.96	9332.94	98.48	
SS	742792.61	13272.72	98.21	
COD	1516876.81	74276.74	95.1	

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

3.2 Treatment Capacity Report Summary

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 (m3/day) - As Constructed	28350

KILLARNEY WWTP	
DWF to the Treatment Plant (m3/day)	9450
Current Hydraulic Loading - annual max (m3/day)	24932
Average Hydraulic loading to the Treatment Plant (m3/day)	10235
Organic Capacity (PE) - As Constructed	54000
Organic Capacity (PE) - Collected Load (peak week)	23313
Organic Capacity (PE) - Remaining	30687
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 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
14	Blocked Sewer	0	14

3.4 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.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Uncontrolled release	Other	1	No	Yes

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	1
Number of Incidents reported to the EPA via EDEN in 2018	1
Explanation of any discrepancies between the two numbers above	

3.5 Sludge / Other inputs to the 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)? ³	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? ² (Y/N)
Domestic /Septic Tank Sludge	2989.77	Volume (m3)		0.08	Yes	Yes	No
Industrial / Commercial Sludge	3916.36	Volume (m3)		0.1	Yes	Yes	No

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:

No Appendix Included

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 2018 (No. of events)	Total volume discharged in 2018 (m3)	Monitoring Status
SWO02	95704, 89938	No	Low	Meeting			Not Monitored
SWO03	95734, 89975	No	Low	Meeting			Not Monitored
SWO04	91582, 91622	No	Low	Not yet Assessed			Not Monitored
SWO05	94231, 91546	No	Low	Not yet Assessed			Not Monitored
SWO06	97995, 89949	No	Low	Not yet Assessed			Not Monitored
SWO07	97275, 88738	No	Low	Not yet Assessed			Not Monitored
SWO08	96693, 89468	No	Low	Not yet Assessed			Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m3)?	
Is each SWO identified as non meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	No
Have the EPA been advised of any additional SWOs / charges 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 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)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Relocation of Primary Discharge, if required	C	31/12/2020	No	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
SW001 to be discontinued	A	01/01/2021	No	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Upgrade of treatment plant, if required	C	31/12/2020	No	Not Started		The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis
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		

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	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.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER (e.g. Appendix X).
There is no Licence Specific Report Required in this AER Annual Review.				

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	
Is there a need to request/advise the EPA of any modifications to the existing WWDL?	No
List reason e.g. changes to monitoring requirements	
Have these processes commenced?	No
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: 26/03/2019

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 ,

Eleanor Roche

Acting Head of Environmental Regulation.

7 APPENDIX

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix

Appendix 7.1 - Ambient monitoring summary

Sampling Point	SP EPA Code	Sample No.	Sampled Date	Sampled Time	Sampled By	Comments	Sample Status	Temperature	pH		Conductivity	B.O.D.		Ammonia		Phosphorus (MRP)		Phosphorus (Total) SUB	Dissolved Oxygen	Total Nitrogen	Total Nitrogen SU	Visual Inspection
								DEG_C	PH	4.5 9.0 PH	USCM	BOD	0 5 BOD	MGLN	0 0.1 MGLN	MGL	0 0.05 MGL	MGLP	MGL	MGLN	MGLN	NONE
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/0093	10-Jan-18	9:00	EX_SD		Authorised	11.1	7.5		438	<1.3		<0.05		0.03			9.3	2.06		Clear
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/0340	07-Feb-18	14:50	EX_SD		Authorised	11.3	7.5		451	1.6		0.06		0.05		0.080	9.1	2.55		Clear
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/0658	07-Mar-18	9:00	EX_SD		Authorised		7.4		449	<1.3		<0.05		0.04		0.040		2.68		Not recorded
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/0957	04-Apr-18	9:12	EX_SD		Authorised	11.3	7.5		445	<1.3		<0.05		0.05			9.3		2.43	clear
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/1246	02-May-18	9:15	EX_SD		Authorised	12.4	7.6		444	<1.3		<0.05		0.03		0.040	9.3	2.25		Clear
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/1548	06-Jun-18	8:40	EX_SD		Authorised		7.6		443	<1.3		0.06		0.16		<0.040		2.60		not recorded
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/1922	04-Jul-18	9:55	EX_SD		Authorised		7.6		448	<1.3		<0.05		0.05		0.050		2.59		not recorded
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/2247	01-Aug-18	9:15	EX_SD		Authorised	15.2	7.4		403	2.2		0.06		0.05		<0.040	6.8	1.83		not recorded
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/2700	05-Sep-18	9:05	EX_SD	DO 8.29mg/l, Temp 14.9 OC,	Authorised	14.9		7.5	448		<1.3		<0.05		0.04	<0.040	8.3	<1.03		clear
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/2971	02-Oct-18	8:45	EX_SD		Authorised	14.2	7.6		446	<1.3		<0.05		0.04		<0.040	8.6	1.88		clear
Folles_str_l_Lein At Fo1_Killarney US_DISC_PT	RS22F100080	2018/3363	07-Nov-18	14:00	EX_SD		Authorised	12.5		7.3	403		2.1		<0.05		0.06	0.060	7.9	2.25		clear
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/0094	10-Jan-18	9:20	EX_SD		Authorised	9.9	7.2		381	10		1.28		0.02			4.8	2.15		Clear
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/0341	07-Feb-18	15:00	EX_SD		Authorised	9.8	7.2		417	13		3.01		0.03		0.090	4.7	5.15		Clear
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/0659	07-Mar-18	9:15	EX_SD		Authorised		7.2		440	7.3		2.77		0.06		0.060		5.66		not recorded
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/0958	04-Apr-18	9:30	EX_SD		Authorised	11.0	7.1		423	23		3.40		0.12			5.2		7.51	clear
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/1247	02-May-18	9:30	EX_SD		Authorised	12.6	7.3		407	6.0		2.78		0.04		0.100	4.6	5.72		Clear
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/1549	06-Jun-18	9:10	EX_SD		Authorised		7.2		452	2.9		0.56		0.17		0.250		7.67		not recorded
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/1923	04-Jul-18	9:55	EX_SD		Authorised		7.3		478	2.1		1.57		0.16		0.210		8.18		not recorded
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/2248	01-Aug-18	9:45	EX_SD		Authorised	18.5	7.2		451	6.9		0.80		0.08		0.600	4.0	8.65		not recorded
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/2701	05-Sep-18	9:45	EX_SD	DO 4.6mg/l, Temp 18.1 OC,	Authorised	18.1		7.0	452		3.8		0.13		0.14	0.260	4.6	7.74		clear
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/2972	02-Oct-18	9:00	EX_SD		Authorised	16.4	7.2		455	4.0		0.24		0.06		0.480	4.7	2.01		clear
Folles Stream_Killarney_DS_DISC_PT	RS22F100100	2018/3364	07-Nov-18	14:20	EX_SD		Authorised	12.4		6.8	299		9.5		0.43		0.10	0.260	4.6	2.35		clear

Sampling Point	SP EPA Code	Sample No.	Sampled Date	Sampled Time	Sampled By	Comments	Sample Status	005A_TEMP_FIELD	006_PH	007A_CONDUCTIVITY20C	013C_BOD	021K_NITRITE	021K_NITRITE SUB	022K_AMMONIA	025_PHOSPHATE_SRP	026D_TOTAL_P	026D_TOTALP_SUB	033K_TON	036_DO_MG_L	052_TOTAL_NITROGEN	082_VIS_INSPECTION	
								Temperature	pH	Conductivity	B.O.D.	Nitrite	Nitrite SUB	Ammonia	Phosphorus (MRP)	Phosphorus (Total)	Phosphorus (Total)_SUB	TON	Dissolved Oxygen	Total Nitroen	Visual Inspection	
									6.0 9.0						0 0.10	0 0.015	0 0.020	0 0.020		7.0 12.0		
								DEG_C	PH	USCM	BOD	MGLN	MGLN	MGLN	MGLN	MGL	MGL	MGLP	MGLP	MGLN	MGL	MGL
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/0220	29-Jan-18	12:23	IMCG		Authorised	9.6	6.9	174	2.4		0.62	0.03		0.050		10.5	1.51	Slightly coloured		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/0348	08-Feb-18	12:45	IMCG		Authorised	6.9	7.1	188	1.6		0.72	0.02		0.050		9.4	1.47	slightly murky		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/1085	19-Apr-18	12:27	IMCG		Authorised	12.5	6.6	106	2.0	<0.05	0.14	0.01		0.040	<0.5	9.3	<1.03	murky		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/1406	17-May-18	13:02	IMCG		Authorised	16.0	7.5	125	2.1		0.88	0.04		0.050		7.8	2.47	Clear		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/1754	20-Jun-18	12:30	IMCG		Authorised	17.8	8.2	105	1.4		<0.05	<0.005		<0.040		9.8	<1.03	Murky		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/2138	25-Jul-18	11:50	AS	Murky Algae Visible	Authorised	20.5	9.8	157	4.3		<0.05	0.01			<0.5	14.4	<1.03	Murky Algae Visible		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/2282	07-Aug-18	12:48	IMCG		Authorised	18.8	9.4	128	1.9		<0.05	0.01		<0.040		11.1	<1.03	murky		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/2915	27-Sep-18	11:33	AS		Authorised	14.7	7.0	113	2.4		<0.05	<0.005		0.080		10.0	<1.03	Clear		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/3212	30-Oct-18	13:43	AS		Not Authorised	10.6	7.7	136			<0.05	0.01		<0.040		12.1	<1.03	Cloudy		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/3520	22-Nov-18	13:30	AS		Not Authorised	8.6	6.7	137	1.7		0.27	0.05	0.072			7.4	<1.03	Cloudy		
Ross Bay 1_Killarney_DS_DISCH_PT_LAKE_1	LS220020702090080	2018/3722	12-Dec-18	11:20	IMCG		Not Authorised	8.6	7.2	102	<1.3		0.21	0.01				8.1	<1.03	clear		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/0221	29-Jan-18	12:28	IMCG		Authorised	9.4	7.0	121	<1.3		0.14	0.01		0.030		10.6	<1.03	Slightly coloured		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/0349	08-Feb-18	12:39	IMCG		Authorised	6.8	7.2	151	1.4		0.41	0.02		0.040		10.7	1.48	slightly murky		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/1086	19-Apr-18	12:22	IMCG		Authorised	12.1	6.8	88	1.3	0.004	<0.05	<0.005		0.020	<0.5	10.7	<1.03	murky		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/1407	17-May-18	12:57	IMCG		Authorised	15.5	7.6	125	1.6		0.06	<0.005		0.060		10.5	<1.03	Clear		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/1755	20-Jun-18	12:21	IMCG		Authorised	18.0	8.0	110	1.6		<0.05	<0.005		<0.040		10.6	<1.03	murky		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/2139	25-Jul-18	11:42	AS	Murky Algae Visible	Authorised	20.0	9.7	164	4.5		<0.05	0.01			0.58	13.4	<1.03	Murky Algae Visible		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/2283	07-Aug-18	12:41	IMCG		Authorised	18.7	9.0	121	2.3		0.08	0.02		<0.040		11.5	<1.03	murky		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/2916	27-Sep-18	11:26	AS		Authorised	14.8	7.1	108	2.3		<0.05	<0.005		0.050		10.8	<1.03	Clear		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/3213	30-Oct-18	13:38	AS		Not Authorised	10.3	7.5	150			0.05	0.01		<0.040		11.2	<1.03	Clear		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/3521	22-Nov-18	13:24	AS		Not Authorised	8.6	6.8	119	<1.3		0.16	0.03	0.052			7.7	<1.03	Clear		
Ross Bay 2_Killarney_DS_DISCH_PT_LAKE_2	LS220020702090090	2018/3723	12-Dec-18	11:10	IMCG		Not Authorised	8.4	7.2	107	<1.3		0.17	0.01				10.2	<1.03	clear		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/0222	29-Jan-18	12:35	IMCG		Authorised	9.0	7.1	96	<1.3		0.05	<0.005		0.010		11.4	<1.03	Slightly coloured		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/0350	08-Feb-18	13:06	IMCG		Authorised	6.3	7.3	112	<1.3		0.14	0.01		0.020		11.5	<1.03	slightly murky		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/1087	19-Apr-18	12:35	IMCG		Authorised	11.3	6.8	84	<1.3	<0.05	<0.05	0.01		<0.010	<0.5	10.9	<1.03	murky		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/1408	17-May-18	12:51	IMCG		Authorised	14.4	7.5	101	1.4		<0.05	<0.005		<0.040		10.5	<1.03	Clear		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/1756	20-Jun-18	12:30	IMCG		Authorised	17.9	7.4	109	1.7		<0.05	<0.005		<0.040		11.0	<1.03	murky		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/2140	25-Jul-18	11:58	AS	Murky Algae Visible	Authorised	20.0	9.4	130	3.5		10.55	0.02			<0.5	11.5	<1.03	Murky Algae Visible		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/2284	07-Aug-18	12:28	IMCG	Murky Algae Visible	Authorised	18.6	8.8	115	2.4		<0.05	0.01		<0.040		10.3	<1.03	murky		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/2917	27-Sep-18	11:48	AS		Authorised	15.2	7.1	108	2.1		<0.05	0.01		0.060		10.9	<1.03	Cloudy		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/3214	30-Oct-18	13:20	AS		Not Authorised	11.6	7.5	102			<0.05	0.01		<0.040		10.4	<1.03	Clear		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/3522	22-Nov-18	13:15	AS		Not Authorised	9.1	6.9	105	<1.3		0.09	0.01	0.033			9.5	<1.03	Clear		
Ross Bay 3_Killarney_DS_DISCH_PT_LAKE_3	LS220020702090100	2018/3724	12-Dec-18	11:00	IMCG		Not Authorised	8.6	7.2	151	<1.3		0.65	0.03				10.4	1.26	clear		