Annual Environmental Report

2019

Sligo

D0014-01

CONTENTS

7 APPENDIX

7.1 AMBIENT MONITORING SUMMARY

1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2019 AER

This Annual Environmental Report has been prepared for D0014-01, Sligo, in Sligo 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 was no major capital or operational changes undertaken.

1.2 TREATMENT SUMMARY

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

- SLIGO WWTP with a Plant Capacity PE of 50000, the treatment type is 3P - Tertiary 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
TPEFF2700D0014SW001	SLIGO WWTP	Treated	Compliant	N/A

1.4 LICENCE SPECIFIC REPORTING INCLUDED IN AER

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

2 TREATMENT PLANT PERFORMANCE AND IMPACT SUMMARY

2.1 SLIGO WWTP - TREATED DISCHARGE

2.1.1 INFLUENT MONITORING SUMMARY - SLIGO WWTP

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

Parameters	Number of Samples	Annual Max	Annual Mean
Total Nitrogen mg/l	14	35.6	15.29
Suspended Solids mg/l	14	163	70.22
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	14	160	50.28
Total Phosphorus (as P) mg/l	12	3.7	1.36
COD-Cr mg/l	14	383	131.79
Hydraulic Capacity	N/A	55676	19624

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 greater 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 - TPEFF2700D0014SW000

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
COD-Cr mg/l	125	250	N/A	27	0	0	26.33	Pass
Dissolved Oxygen mg/l	70	70	N/A	26	0	0	9.73	Pass
Suspended Solids mg/l	35	87.5	N/A	27	0	0	10.12	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	N/A	27	0	0	4.48	Pass
Temperature °C	25	25	N/A	27	0	0	10.91	Pass
Total Oxidised Nitrogen (as N) mg/l	15	18	N/A	26	0	0	4.51	Pass
Ammonia-Total (as N) mg/l	10	12	N/A	27	0	0	2.06	Pass
pH pH units	9	9	N/A	27	0	0	7.95	Pass
Total Phosphorus (as P) mg/l	2	2.4	N/A	26	0	0	0.5	Pass
Nitrite (as N) mg/l	N/A	N/A	N/A	25	N/A	N/A	0.5	

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Arsenic - unfiltered µg/l	N/A	N/A	N/A	2	N/A	N/A	1	
Fats, Oils & Greases mg/l	N/A	N/A	N/A	4	N/A	N/A	4	
Mercury - filtered µg/l	N/A	N/A	N/A	2	N/A	N/A	0.06	
Faecal coliforms no./100mls	N/A	N/A	N/A	5	N/A	N/A	287.14	
Lead - unfiltered µg/l	N/A	N/A	N/A	2	N/A	N/A	0.9	
Conductivity 20 C µS/cm	N/A	N/A	N/A	25	N/A	N/A	827.59	
Chromium - filtered mg/l	N/A	N/A	N/A	2	N/A	N/A	3	
Zinc - filtered µg/l	N/A	N/A	N/A	2	N/A	N/A	57.11	
Salinity ppt	N/A	N/A	N/A	13	N/A	N/A	42.19	
Total Nitrogen mg/l	N/A	N/A	N/A	1	N/A	N/A	N/A	
E. Coli MPN/100ml	N/A	N/A	N/A	3	N/A	N/A	424.7	
E. Coli no./100mls	N/A	N/A	N/A	1	N/A	N/A	1	

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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
ortho-Phosphate (as P) - unspecified mg/l	N/A	N/A	N/A	26	N/A	N/A	0.32	
Copper - unfiltered mg/l	N/A	N/A	N/A	2	N/A	N/A	0.02	
Nickel - filtered µg/l	N/A	N/A	N/A	2	N/A	N/A	3.11	
Cadmium - unfiltered µg/l	N/A	N/A	N/A	2	N/A	N/A	0.3	
Nitrate (as N) mg/l	N/A	N/A	N/A	25	N/A	N/A	4	

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

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 TPEFF2700D0014SW000

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 Status
Upstream	169485, 335974	RS35G010230	No	No	No	Yes	Poor
Upstream	170003, 335887	RS35G010180	No	No	No	Yes	Poor
Downstream	169045, 336236	TW27005308SB5008	No	No	No	Yes	Moderate
Downstream	168900, 336370	TW27005308SB5009	No	No	No	Yes	Moderate
Downstream	168053, 337162	TW27005308SB5010	No	No	No	Yes	Moderate
Downstream	166501, 339153	TW27005308SB5011	No	No	No	Yes	Moderate
Downstream	166553, 336802	TW27005308SB5012	No	No	No	Yes	Moderate
Downstream	163026, 339692	TW27005308SB5013	No	No	No	Yes	Moderate

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 with Inhibition (Carbonaceous BOD) mg/l	RS35G010230	1	TW27005308SB5008	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010180	1	TW27005308SB5013	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010180	1	TW27005308SB5011	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010180	1	TW27005308SB5008	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010230	1	TW27005308SB5011	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010230	1	TW27005308SB5012	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010180	1	TW27005308SB5009	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010230	1	TW27005308SB5009	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010180	1	TW27005308SB5010	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010180	1	TW27005308SB5012	1	1.5	0

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 with Inhibition (Carbonaceous BOD) mg/l	RS35G010230	1	TW27005308SB5013	1	1.5	0
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	RS35G010230	1	TW27005308SB5010	1	1.5	0
Ammonia-Total (as N) mg/l	RS35G010180	0.054	TW27005308SB5013	0.232	0.065	273.8
Ammonia-Total (as N) mg/l	RS35G010230	0.06	TW27005308SB5012	0.243	0.065	281.5
Ammonia-Total (as N) mg/l	RS35G010180	0.054	TW27005308SB5011	0.244	0.065	292.3
Ammonia-Total (as N) mg/l	RS35G010230	0.06	TW27005308SB5013	0.232	0.065	264.6
Ammonia-Total (as N) mg/l	RS35G010230	0.06	TW27005308SB5011	0.244	0.065	283.1
Ammonia-Total (as N) mg/l	RS35G010230	0.06	TW27005308SB5010	0.117	0.065	87.7
Ammonia-Total (as N) mg/l	RS35G010230	0.06	TW27005308SB5009	0.024	0.065	-55.4
Ammonia-Total (as N) mg/l	RS35G010180	0.054	TW27005308SB5009	0.024	0.065	-46.2
Ammonia-Total (as N) mg/l	RS35G010180	0.054	TW27005308SB5012	0.243	0.065	290.8
Ammonia-Total (as N) mg/l	RS35G010180	0.054	TW27005308SB5008	0.019	0.065	-54.6
Ammonia-Total (as N) mg/l	RS35G010230	0.06	TW27005308SB5008	0.019	0.065	-63.8
Ammonia-Total (as N) mg/l	RS35G010180	0.054	TW27005308SB5010	0.117	0.065	96.9
ortho-Phosphate (as P) - unspecified mg/l	RS35G010180	0.01	TW27005308SB5010	0.012	0.035	4.3

ortho-Phosphate (as P) - unspecified mg/l	RS35G010180	0.01	TW27005308SB5008	0.012	0.035	4.3
ortho-Phosphate (as P) - unspecified mg/l	RS35G010230	0.01	TW27005308SB5012	0.008	0.035	-7.1
ortho-Phosphate (as P) - unspecified mg/l	RS35G010180	0.01	TW27005308SB5011	0.01	0.035	0
ortho-Phosphate (as P) - unspecified mg/l	RS35G010180	0.01	TW27005308SB5013	0.008	0.035	-5.7
ortho-Phosphate (as P) - unspecified mg/l	RS35G010180	0.01	TW27005308SB5012	0.008	0.035	-7.1
ortho-Phosphate (as P) - unspecified mg/l	RS35G010230	0.01	TW27005308SB5013	0.008	0.035	-5.7
ortho-Phosphate (as P) - unspecified mg/l	RS35G010230	0.01	TW27005308SB5010	0.012	0.035	4.3
ortho-Phosphate (as P) - unspecified mg/l	RS35G010180	0.01	TW27005308SB5009	0.012	0.035	4.3
ortho-Phosphate (as P) - unspecified mg/l	RS35G010230	0.01	TW27005308SB5011	0.01	0.035	0
ortho-Phosphate (as P) - unspecified mg/l	RS35G010230	0.01	TW27005308SB5009	0.012	0.035	4.3
ortho-Phosphate (as P) - unspecified mg/l	RS35G010230	0.01	TW27005308SB5008	0.012	0.035	4.3
Coliform Bacteria (Total) MPN/100ml	RS35G010180	150	TW27005308SB5010	11249.75		

Chlorophyll µg/l	RS35G010180	2.77	TW27005308SB5009	2.795		
Chlorophyll µg/l	RS35G010230	2.61	TW27005308SB5011	1.445		
Coliform Bacteria (Total) MPN/100ml	RS35G010180	150	TW27005308SB5009	6552.75		
Chlorophyll µg/l	RS35G010180	2.77	TW27005308SB5008	3.175		
Chlorophyll µg/l	RS35G010230	2.61	TW27005308SB5009	2.795		
Chlorophyll µg/l	RS35G010180	2.77	TW27005308SB5013	1.035		
Coliform Bacteria (Total) MPN/100ml	RS35G010180	150	TW27005308SB5011	6763		
Chlorophyll µg/l	RS35G010230	2.61	TW27005308SB5013	1.035		
Coliform Bacteria (Total) MPN/100ml	RS35G010180	150	TW27005308SB5008	6505		
Coliform Bacteria (Total) MPN/100ml	RS35G010230	236	TW27005308SB5011	6763		
Coliform Bacteria (Total) MPN/100ml	RS35G010230	236	TW27005308SB5012	1535		
Conductivity 20 C µS/cm	RS35G010230	0	TW27005308SB5012	17.25		
Conductivity 20 C µS/cm	RS35G010180	0	TW27005308SB5008	2		
Conductivity 20 C µS/cm	RS35G010180	0	TW27005308SB5011	30.5		
Conductivity 20 C µS/cm	RS35G010180	0	TW27005308SB5012	17.25		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Coliform Bacteria (Total) MPN/100ml	RS35G010230	236	TW27005308SB5010	11249.75		
Conductivity 20 C µS/cm	RS35G010230	0	TW27005308SB5011	30.5		
Coliform Bacteria (Total) MPN/100ml	RS35G010230	236	TW27005308SB5008	6505		
Conductivity 20 C µS/cm	RS35G010230	0	TW27005308SB5009	2		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010180	0.3	TW27005308SB5009	0.05		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010230	0.2	TW27005308SB5011	0.65		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010230	0.2	TW27005308SB5010	0.3		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010180	0.3	TW27005308SB5008	0.05		
Dissolved Oxygen mg/l	RS35G010180	10.29	TW27005308SB5010	9.973		
E. Coli no./100mls	RS35G010230	17.5	TW27005308SB5011	837.75		
E. Coli no./100mls	RS35G010180	16	TW27005308SB5009	6155.75		
E. Coli no./100mls	RS35G010180	16	TW27005308SB5011	837.75		
Enterococci (Intestinal) cfu/100ml	RS35G010180	2	TW27005308SB5011	236.5		

Enterococci (Intestinal) cfu/100ml	RS35G010180	2	TW27005308SB5009	273.75		
Dissolved Oxygen mg/l	RS35G010230	10.29	TW27005308SB5013	8.628		
E. Coli no./100mls	RS35G010180	16	TW27005308SB5010	2206.25		
Dissolved Oxygen mg/l	RS35G010230	10.29	TW27005308SB5011	9.708		
E. Coli no./100mls	RS35G010180	16	TW27005308SB5008	6116.75		
Dissolved Oxygen mg/l	RS35G010230	10.29	TW27005308SB5010	9.973		
Enterococci (Intestinal) cfu/100ml	RS35G010180	2	TW27005308SB5008	284.75		
E. Coli no./100mls	RS35G010230	17.5	TW27005308SB5013	140		
E. Coli no./100mls	RS35G010230	17.5	TW27005308SB5012	172.5		
Enterococci (Intestinal) cfu/100ml	RS35G010230	40	TW27005308SB5011	236.5		
Enterococci (Intestinal) cfu/100ml	RS35G010230	40	TW27005308SB5012	27.5		
Enterococci (Intestinal) cfu/100ml	RS35G010180	2	TW27005308SB5013	35.25		
pH pH units	RS35G010230	8.4	TW27005308SB5010	7.905		
Salinity ppt	RS35G010230	0	TW27005308SB5008	1.045		
pH pH units	RS35G010180	8.31	TW27005308SB5010	7.905		
pH pH units	RS35G010180	8.31	TW27005308SB5011	8.055		

pH pH units	RS35G010180	8.31	TW27005308SB5009	8.168		
Salinity ppt	RS35G010180	0	TW27005308SB5008	1.045		
pH pH units	RS35G010230	8.4	TW27005308SB5011	8.055		
Salinity ppt	RS35G010180	0	TW27005308SB5012	9.95		
pH pH units	RS35G010230	8.4	TW27005308SB5013	8.038		
pH pH units	RS35G010180	8.31	TW27005308SB5008	8.125		
pH pH units	RS35G010180	8.31	TW27005308SB5012	8.09		
Salinity ppt	RS35G010180	0	TW27005308SB5011	18.785		
Temperature °C	RS35G010180	12.555	TW27005308SB5012	12.303		
Temperature °C	RS35G010230	12.285	TW27005308SB5008	12.2		
Salinity ppt	RS35G010230	0	TW27005308SB5010	7.465		
Temperature °C	RS35G010180	12.555	TW27005308SB5011	12.125		
Temperature °C	RS35G010180	12.555	TW27005308SB5013	11.895		
Temperature °C	RS35G010230	12.285	TW27005308SB5011	12.125		
Temperature °C	RS35G010230	12.285	TW27005308SB5009	11.968		
Temperature °C	RS35G010180	12.555	TW27005308SB5009	11.968		
Temperature °C	RS35G010180	12.555	TW27005308SB5010	12.253		
Salinity ppt	RS35G010230	0	TW27005308SB5012	9.95		

Temperature °C	RS35G010230	12.285	TW27005308SB5013	11.895		
Total Oxidised Nitrogen (as N) mg/l	RS35G010180	0.263	TW27005308SB5008	0.115		
Total Oxidised Nitrogen (as N) mg/l	RS35G010230	0.152	TW27005308SB5012	0.1		
Total Oxidised Nitrogen (as N) mg/l	RS35G010180	0.263	TW27005308SB5012	0.1		
Total Oxidised Nitrogen (as N) mg/l	RS35G010180	0.263	TW27005308SB5009	0.108		
Total Oxidised Nitrogen (as N) mg/l	RS35G010230	0.152	TW27005308SB5010	0.2		
Total Nitrogen mg/l	RS35G010230	0.5	TW27005308SB5010	0.628		
Total Nitrogen mg/l	RS35G010230	0.5	TW27005308SB5008	0.518		
Total Oxidised Nitrogen (as N) mg/l	RS35G010230	0.152	TW27005308SB5009	0.108		
Turbidity (at tap) NTU's	RS35G010230	1.15	TW27005308SB5012	65.75		
Total Oxidised Nitrogen (as N) mg/l	RS35G010230	0.152	TW27005308SB5008	0.115		
Turbidity (at tap) NTU's	RS35G010230	1.15	TW27005308SB5009	0.55		
Turbidity (at tap) NTU's	RS35G010180	0.85	TW27005308SB5009	0.55		
Turbidity (at tap) NTU's	RS35G010180	0.85	TW27005308SB5011	10.9		
Chlorophyll µg/l	RS35G010230	2.61	TW27005308SB5008	3.175		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Chlorophyll µg/l	RS35G010180	2.77	TW27005308SB5011	1.445		
Chlorophyll µg/l	RS35G010180	2.77	TW27005308SB5010	3.57		
Chlorophyll µg/l	RS35G010180	2.77	TW27005308SB5012	1.57		
Chlorophyll µg/l	RS35G010230	2.61	TW27005308SB5010	3.57		
Chlorophyll µg/l	RS35G010230	2.61	TW27005308SB5012	1.57		
Conductivity 20 C µS/cm	RS35G010180	0	TW27005308SB5010	13		
Coliform Bacteria (Total) MPN/100ml	RS35G010230	236	TW27005308SB5009	6552.75		
Conductivity 20 C µS/cm	RS35G010180	0	TW27005308SB5013	47.75		
Coliform Bacteria (Total) MPN/100ml	RS35G010180	150	TW27005308SB5013	517.75		
Coliform Bacteria (Total) MPN/100ml	RS35G010230	236	TW27005308SB5013	517.75		
Conductivity 20 C µS/cm	RS35G010180	0	TW27005308SB5009	2		
Conductivity 20 C µS/cm	RS35G010230	0	TW27005308SB5013	47.75		
Conductivity 20 C µS/cm	RS35G010230	0	TW27005308SB5010	13		
Coliform Bacteria (Total) MPN/100ml	RS35G010180	150	TW27005308SB5012	1535		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Conductivity 20 C µS/cm	RS35G010230	0	TW27005308SB5008	2		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010180	0.3	TW27005308SB5011	0.65		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010180	0.3	TW27005308SB5013	0.35		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010230	0.2	TW27005308SB5012	0.3		
Dissolved Oxygen mg/l	RS35G010230	10.29	TW27005308SB5008	10.725		
Dissolved Oxygen mg/l	RS35G010230	10.29	TW27005308SB5009	10.498		
Dissolved Oxygen mg/l	RS35G010180	10.29	TW27005308SB5009	10.498		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010230	0.2	TW27005308SB5013	0.35		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010230	0.2	TW27005308SB5008	0.05		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010230	0.2	TW27005308SB5009	0.05		
Dissolved Oxygen mg/l	RS35G010180	10.29	TW27005308SB5008	10.725		
Dissolved Oxygen mg/l	RS35G010180	10.29	TW27005308SB5013	8.628		
Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010180	0.3	TW27005308SB5012	0.3		

Dissolved Inorganic Nitrogen (as N) mg/l	RS35G010180	0.3	TW27005308SB5010	0.3		
Dissolved Oxygen mg/l	RS35G010180	10.29	TW27005308SB5012	9.865		
Dissolved Oxygen mg/l	RS35G010180	10.29	TW27005308SB5011	9.708		
E. Coli no./100mls	RS35G010230	17.5	TW27005308SB5008	6116.75		
E. Coli no./100mls	RS35G010180	16	TW27005308SB5013	140		
Enterococci (Intestinal) cfu/100ml	RS35G010180	2	TW27005308SB5010	199.25		
E. Coli no./100mls	RS35G010180	16	TW27005308SB5012	172.5		
E. Coli no./100mls	RS35G010230	17.5	TW27005308SB5009	6155.75		
E. Coli no./100mls	RS35G010230	17.5	TW27005308SB5010	2206.25		
Dissolved Oxygen mg/l	RS35G010230	10.29	TW27005308SB5012	9.865		
Enterococci (Intestinal) cfu/100ml	RS35G010230	40	TW27005308SB5013	35.25		
Enterococci (Intestinal) cfu/100ml	RS35G010230	40	TW27005308SB5009	273.75		
Enterococci (Intestinal) cfu/100ml	RS35G010230	40	TW27005308SB5010	199.25		
Enterococci (Intestinal) cfu/100ml	RS35G010230	40	TW27005308SB5008	284.75		
Enterococci (Intestinal) cfu/100ml	RS35G010180	2	TW27005308SB5012	27.5		

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	RS35G010230	8.4	TW27005308SB5012	8.09		
Salinity ppt	RS35G010230	0	TW27005308SB5009	1.433		
pH pH units	RS35G010180	8.31	TW27005308SB5013	8.038		
Salinity ppt	RS35G010180	0	TW27005308SB5009	1.433		
pH pH units	RS35G010230	8.4	TW27005308SB5009	8.168		
pH pH units	RS35G010230	8.4	TW27005308SB5008	8.125		
Salinity ppt	RS35G010180	0	TW27005308SB5013	31.253		
Total Nitrogen mg/l	RS35G010180	0.5	TW27005308SB5010	0.628		
Salinity ppt	RS35G010180	0	TW27005308SB5010	7.465		
Salinity ppt	RS35G010230	0	TW27005308SB5013	31.253		
Temperature °C	RS35G010230	12.285	TW27005308SB5010	12.253		
Total Nitrogen mg/l	RS35G010180	0.5	TW27005308SB5011	0.592		
Salinity ppt	RS35G010230	0	TW27005308SB5011	18.785		
Total Nitrogen mg/l	RS35G010180	0.5	TW27005308SB5008	0.518		
Total Nitrogen mg/l	RS35G010180	0.5	TW27005308SB5009	0.528		
Temperature °C	RS35G010180	12.555	TW27005308SB5008	12.2		

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	RS35G010180	0.263	TW27005308SB5010	0.2		
Temperature °C	RS35G010230	12.285	TW27005308SB5012	12.303		
Total Nitrogen mg/l	RS35G010230	0.5	TW27005308SB5013	0.5		
Total Nitrogen mg/l	RS35G010180	0.5	TW27005308SB5012	1.055		
Total Nitrogen mg/l	RS35G010230	0.5	TW27005308SB5009	0.528		
Total Oxidised Nitrogen (as N) mg/l	RS35G010230	0.152	TW27005308SB5013	0.386		
Total Oxidised Nitrogen (as N) mg/l	RS35G010180	0.263	TW27005308SB5013	0.386		
Total Nitrogen mg/l	RS35G010180	0.5	TW27005308SB5013	0.5		
Total Nitrogen mg/l	RS35G010230	0.5	TW27005308SB5012	1.055		
Total Oxidised Nitrogen (as N) mg/l	RS35G010180	0.263	TW27005308SB5011	0.37		
Total Nitrogen mg/l	RS35G010230	0.5	TW27005308SB5011	0.592		
Total Oxidised Nitrogen (as N) mg/l	RS35G010230	0.152	TW27005308SB5011	0.37		
Turbidity (at tap) NTU's	RS35G010230	1.15	TW27005308SB5010	49.7		
Turbidity (at tap) NTU's	RS35G010180	0.85	TW27005308SB5008	0.3		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Turbidity (at tap) NTU's	RS35G010230	1.15	TW27005308SB5011	10.9		
Turbidity (at tap) NTU's	RS35G010230	1.15	TW27005308SB5008	0.3		
Turbidity (at tap) NTU's	RS35G010180	0.85	TW27005308SB5012	65.75		
Turbidity (at tap) NTU's	RS35G010180	0.85	TW27005308SB5013	4.75		
Turbidity (at tap) NTU's	RS35G010230	1.15	TW27005308SB5013	4.75		
Turbidity (at tap) NTU's	RS35G010180	0.85	TW27005308SB5010	49.7		

Significance of Results:

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

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 negative impact on the receiving waterbody.

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 - SLIGO WWTP

2.1.4.1 Treatment Efficiency Report - SLIGO 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)
COD	947428	165035	83
cBOD	361444	28100	92
SS	504841	63440	87
TP	10412	3110	70
TN	109936	N/A	N/A

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

2.1.4.2 Treatment Capacity Report Summary - SLIGO 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.

SLIGO WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	37500
DWF to the Treatment Plant (m^3/day)	12500

SLIGO WWTP	
Current Hydraulic Loading - annual max (m^3/day)	55676
Average Hydraulic loading to the Treatment Plant (m^3/day)	19624
Organic Capacity (PE) - As Constructed	50000
Organic Capacity (PE) - Collected Load (peak week)[Note1]	26048
Organic Capacity (PE) - Remaining	23952
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 - SLIGO 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)
Industrial / Commercial Sludge	167.6	Weight (Tonnes)	--	--	No	No	No
Domestic /Septic Tank Sludge	24.04	Weight (Tonnes)	--	--	No	No	No

3 COMPLAINTS AND INCIDENTS

3.1 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
There were no relevant environmental complaints in 2019.			

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)
There were no reportable incidents in 2019.				

3.2.2 SUMMARY OF OVERALL INCIDENTS

Question	Answer
Number of Incidents in 2019	0
Number of Incidents reported to the EPA via EDEN in 2019	0
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	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 2019 (No. of events)	Total volume discharged in 2019 (m3)	Monitoring Status
(P)SW1	168437, 336785	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW6	TBC	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	169157, 336063	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW2	168467, 336877	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
SW3	168981, 336273	Yes	Low	Meeting	Unknown	Unknown	Not Monitored

SW4	169678, 335970	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SW5	169351, 335978	Yes	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
SWA	167889, 337373	Yes	Low	Meeting	Unknown	Unknown	Not Monitored
TBC	169329, 335973	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored
TBC	TBC	No	Low	Not yet Assessed	Unknown	Unknown	Not Monitored

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	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 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
There are no Specified Improvement Programmes for this Agglomeration.							

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 / or any Operational Improvements	Improvement Source	Expected Completion Date	Comments
There are no Improvement Programmes 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.

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Priority Substances Assessment	Yes	2014	No	
Shellfish Impact Assessment	Yes		No	
Toxicity of Final Effluent	Yes	2012	No	

5.1 PRIORITY SUBSTANCES ASSESSMENT

The Priority Substances Assessment Report has been included in the 2014 AER.

5.2 SHELLFISH IMPACT ASSESSMENT

The Shellfish Impact Assessment Report has not been included in the AER

5.3 TOXICITY OF FINAL EFFLUENT

The Toxicity of Final Effluent Report has been included in the 2012 AER.

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?	Yes
List reason e.g. additional SWO identified	pH range clerical error
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?	Yes
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: 16/04/2020

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

Ambient Points:

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Receiving Waters Designation (Y/N)**				**WFD Status**
			Bathing Water	**Drinking Water**	**FWPM**	**Shellfish**	
	170003 E 335887 N	RS35G010180	N	N	N	N	Garavogue-POOR
	169485 E 335974 N	RS35G010230	N	N	N	N	Garavogue - POOR
	169800 E 336000 N	RS35G010200	N	N	N	N	Garavogue - POOR
	171300 E 334000 N	RS35G010100	N	N	N	N	Garavogue - POOR
	168053 E 337162 N	TW2700538SB5010	N	N	N	N	Garavogue Estuary-Moderate
	166501 E 339153 N	TW2700538SB5011	N	N	N	N	Garavogue Estuary-Moderate
	169045 E 336236 N	TW2700538SB5008	N	N	N	N	Garavogue Estuary-Moderate
	168900 E 336370 N	TW2700538SB5009	N	N	N	Y	Garavogue Estuary-Moderate
	163026 E 339692 N	TW2700538SB5013	N	N	N	N	Garavogue Estuary-Moderate
	166553 E 336802 N	TW2700538SB5012	N	N	N	N	Garavogue Estuary-Moderate

					Ammonia N	BOD, 5 days w	Chlorophyll	Coliform Bact	Conductivity (	Dissolved Inor	Dissolved Oxy	E Coli	Enterococci	Ortho-Phosph	pH	Salinity	Temperature	Total Nitroger	Total Oxidised	Turbidity
Entity	Entity Code	Station	Station Code	Sample Date	mg/l	mg/l	µg/l	MPN/100mls	µS/cm	mg/l	mg/l	no./100mls	cfu/100mls	mg/l	pH units	ppt	Degrees C	mg/l	mg/l	NTU
Garavogue Estuary	5308	Custom House Quay #3	TW27005308SB5008	06/03/2019				24200	0		11	24200	1000		8.38	0	7.19			0.5
Garavogue Estuary	5308	Hughes Bridge #4	TW27005308SB5009	06/03/2019				24200	1		10.99	24200	1000		8.33	0.7	7.26			0.7
Garavogue Estuary	5308	Beyond Deep Water Quay #5	TW27005308SB5010	06/03/2019				24200	4		10.47	7701	550		7.68	2.1	7.48			191.1
Garavogue Estuary	5308	Cregg Out #6	TW27005308SB5011	06/03/2019				24200	18		10.49	2909	850		7.95	10.47	7.03			33.1
Garavogue Estuary	5308	Knappagh Out #7	TW27005308SB5012	06/03/2019				3654	4		10.63	331	12		7.99	2.04	7.6			246
Garavogue Estuary	5308	Rosses Point Slipway #8	TW27005308SB5013	06/03/2019				866	42		9.24	107	80		8.04	27.29	7.58			10.7
Garavogue Estuary	5308	Custom House Quay #3	TW27005308SB5008	25/06/2019	0.02	1	3.2	771	2	0.1	10.45	175	80	0.01	8.35	1.03	18.1	0.5	0.129	0
Garavogue Estuary	5308	Hughes Bridge #4	TW27005308SB5009	25/06/2019	0.032	1	2.34	404	2	0.1	10.25	41	14	0.01	8.36	1.17	17.49	0.5	0.115	0
Garavogue Estuary	5308	Beyond Deep Water Quay #5	TW27005308SB5010	25/06/2019	0.191	1	3.75	17329	8	0.3	9.11	860	160	0.01	8.31	4.32	18.38	0.716	0.1	0.7
Garavogue Estuary	5308	Cregg Out #6	TW27005308SB5011	25/06/2019	0.457	1	1.57	262	43	0.6	8.88	31	10	0.01	8.08	27.62	17.24	0.5	0.1	0.3
Garavogue Estuary	5308	Knappagh Out #7	TW27005308SB5012	25/06/2019	0.079	1	1.14	1198	10	0.2	8.52	132	22	0.01	8.17	5.48	18.38	1.59	0.1	0.1
Garavogue Estuary	5308	Rosses Point Slipway #8	TW27005308SB5013	25/06/2019	0.41	1	1.46	384	50	0.5	9.01	98	25	0.01	8.13	32.71	14.99	0.5	0.1	3.7
Garavogue Estuary	5308	Custom House Quay #3	TW27005308SB5008	16/09/2019				279	0		10.75	10	31		8.48	0	16.39			0.7
Garavogue Estuary	5308	Hughes Bridge #4	TW27005308SB5009	16/09/2019				880	0		10.11	364	72		8.32	0.98	16.02			1.5
Garavogue Estuary	5308	Beyond Deep Water Quay #5	TW27005308SB5010	16/09/2019				1050	21		10.14	213	64		8.09	12.33	15.75			5.9
Garavogue Estuary	5308	Cregg Out #6	TW27005308SB5011	16/09/2019				857	28		9.78	173	42		8.12	16.13	15.81			5.8
Garavogue Estuary	5308	Knappagh Out #7	TW27005308SB5012	16/09/2019				901	20		10.28	215	55		8.26	10.2	15.78			7.8
Garavogue Estuary	5308	Rosses Point Slipway #8	TW27005308SB5013	16/09/2019				798	48		7.67	355	34		7.98	31.27	15.56			0.3
Garavogue Estuary	5308	Custom House Quay #3	TW27005308SB5008	04/12/2019	0.017	1	3.15	770	6	0	10.7	82	28	0.013	7.29	3.15	7.12	0.535	0.1	0
Garavogue Estuary	5308	Hughes Bridge #4	TW27005308SB5009	04/12/2019	0.016	1	3.25	727	5	0	10.64	18	9	0.013	7.66	2.88	7.1	0.556	0.1	0
Garavogue Estuary	5308	Beyond Deep Water Quay #5	TW27005308SB5010	04/12/2019	0.043	1	3.39	2420	19	0.3	10.17	51	23	0.013	7.54	11.11	7.4	0.539	0.3	1.1
Garavogue Estuary	5308	Cregg Out #6	TW27005308SB5011	04/12/2019	0.031	1	1.32	1733	33	0.7	9.68	238	44	0.01	8.07	20.92	8.42	0.684	0.64	4.4
Garavogue Estuary	5308	Knappagh Out #7	TW27005308SB5012	04/12/2019	0.407	1	2	387	35	0.4	10.03	12	21	0.005	7.94	22.08	7.45	0.519	0.1	9.1
Garavogue Estuary	5308	Rosses Point Slipway #8	TW27005308SB5013	04/12/2019	0.054	1	0.61	23	51	0.2	8.59	0	2	0.006	8	33.74	9.45	0.5	0.671	4.3
Garavogue	35G01	Crozon Promenade #1	RS35G010180	06/03/2019				41	0		10.89	12	3		8.19	0	7.21			1.7
Garavogue	35G01	Kempton Promenade #2	RS35G010230	06/03/2019				131	0		11.1	5	3		8.46	0	7.2			1.1
Garavogue	35G01	Crozon Promenade #1	RS35G010180	25/06/2019	0.054	1	2.77	259	0	0.3	9.69	20	1	0.01	8.43	0	17.9	0.5	0.263	0
Garavogue	35G01	Kempton Promenade #2	RS35G010230	25/06/2019	0.06	1	2.61	341	0	0.2	9.48	30	77	0.01	8.34	0	17.37	0.5	0.152	1.2
Garavogue	35G01	Crozon Promenade #1	RS35G010180	16/09/2019				213	0		9.44	10	5		8.28	0	16.27			0
Garavogue	35G01	Kempton Promenade #2	RS35G010230	16/09/2019				816	0		10.01	10	6		8.42	0	16.11			0
Garavogue	35G01	Crozon Promenade #1	RS35G010180	04/12/2019	< 0.01	1	3.03	65	0	0.4	12.96	4	2	0.014	7.26	0.17	7.15	0.6	0.354	0.4
Garavogue	35G01	Kempton Promenade #2	RS35G010230	04/12/2019	0.011	1	3.32	58	0	0.3	10.68	7	6	0.013	7.76	0.1	7	0.589	0.317	0.3