Annual Environmental Report

2018

Clifden

D0198-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0198-01, Clifden, in Galway 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
No licence specific reporting are included in AER	NA

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant Clifden WWTP with a Plant Capacity PE of 6000. The treatment process includes the following:

1.2.1 Clifden WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	screening and grit removal
Primary Treatment	No	
Secondary Treatment	Yes	SBR
Nutrient Removal	Yes	chemical dosing for phosphorus removal
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 Clifden WWTP

Compliance Status	
Were all parameters compliant for Clifden 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
Clifden WWTP	Cake Sludge	55.4	Weight (Tonnes)	16	Enva Depot ,Middleton,Cork
Clifden WWTP	Cake Sludge	176.1	Weight (Tonnes)	18	Carrillstown, Co Meath

Annual Statement of Measures

SBR no 3 was put in operation.

The network was assessed in Q4, 2018, to identify sewer rehab works needed to reduce volumes arriving at the WWTP during heavy rainfall events.

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 - Clifden WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Nitrogen mg/l	12	69.8	33.45
Suspended Solids mg/l	12	266	84.25
Total Phosphorus (as P) mg/l	12	5.5	2.92
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	211	88.69
COD-Cr mg/l	12	598	235.62
Hydraulic Capacity	0	2999	1265

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 - Clifden 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 exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Total Phosphorus (as P) mg/l	2	2.4	0	12	1	0	0.66	Pass
Enterococci (Intestinal) cfu/100ml	0	0	0	3	0	0	77.32	Pass
Faecal coliforms no./100mls	0	0	0	3	0	0	261.86	Pass
E. Coli cfu/100ml	0	0	0	1	0	0	330	Pass
pH pH units	0	0	0	12	0	0	7	Pass
Suspended Solids mg/l	35	87.5	0	12	0	0	3.55	Pass
COD-Cr mg/l	125	250	0	12	0	0	19.56	Pass
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	12	0	0	1.48	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 with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
E. Coli MPN/100ml	0	0	0	2	0	0	168.96	Pass
Faecal coliforms MPN/100ml	0	0	0	1	0	0	330	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 - Clifden 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	65251, 250155	TPEFF1200D0198SW001	Yes	No	No	Yes	Unassigned

2.3.2 Ambient Monitoring Parameter Summary - Clifden WWTP

Included in Appendix.

Significance of Results:

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

The ambient monitoring results did not meet the required EQS.

The parameters which exceeded the EQS and may be causing an impact are: cBOD, Ammonia and E coli.

Deterioration in water quality has been identified, however it is not known if it is caused by the WWTP.

The discharge from the wastewater treatment plant does not have an observable negative impact on the Water Framework Directive status.

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 - Clifden WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)	Comment
COD	108856.69	8765.96	91.95	
cBOD	40973.68	661.65	98.39	
TP	1350.64	297.74	77.96	
TN	15455.44	Unknown	Unknown	
SS	38925.52	1592.16	95.91	

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.

Clifden WWTP	
Peak Hydraulic Capacity (m3/day) - As Constructed	4050
DWF to the Treatment Plant (m3/day)	1350
Current Hydraulic Loading - annual max (m3/day)	2999
Average Hydraulic loading to the Treatment Plant (m3/day)	1265
Organic Capacity (PE) - As Constructed	6000
Organic Capacity (PE) - Collected Load (peak week)	2650
Organic Capacity (PE) - Remaining	3350
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
There is no Complaint data included in the AER.			

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)
There is no Incident data included in the AER.				

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	0
Number of Incidents reported to the EPA via EDEN in 2018	0
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)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

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 (m^3)	Monitoring Status
SW001	065282, 250136	Yes	High	Not Meeting	62	29,739	Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (%)?	6.10
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
Construction of new WWTP and ancillary works with organic and hydraulic treatment capacities capable of treating all wastewater arising from the agglomeration including peak summer loads	C	15/02/2013	Yes	Works Completed		
Elimination of existing combined stormwater overflows	C	15/02/2013	Yes	Works Completed		Completed in 2014
Provide tertiary treatment of phosphorous removal in the new WWTP	C	15/02/2013	Yes	Works Completed		
Provision of stormwater sewers	C	15/02/2013	Yes	Works Completed		
SW000, SW002, SW003, SW004 to be discontinued	A	15/02/2013	Yes	Works Completed		
Upgrading/rehabilitation of the existing collection network	C	15/02/2013	Yes	Works Completed		

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 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.

5.1.1 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).
Priority Substances Assessment	Yes	2015	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?	Yes
List reason e.g. additional SWO identified	SW005 to receive authorisation.
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?	Yes
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	NA

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed: Date: 07/03/2019

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

There is an Ambient Monitoring Summary report relevant to Section 2.3.

Laboratory Analysis Report

Sample Location : Public WWTP
Clifden Wwtp, Clifden Wwtp - Clifden Bay
Grid Coordinates : X: 65251 Y: 250155

Sample Details : Reference : 143670/001
Template : Downstream
Sampled by : ELS Ltd
Sample Date: 06/12/2018 Time: 09:30 Method: Grab

Laboratory : ELS
Analyst : ELS

Sample Notes : ---- ----

Sample Parameters		Parameter Standards		Results		
Parameter	Unit	Max. Limit	Min. Limit	Date	Time	Result
Ammonia N	mg/l	--	--	06/12/18		0.065
Biological Oxygen Demand	mg/l	--	--	06/12/18		1.2
pH	pH units	--	--	06/12/18		3.5
Temperature	Degrees C	--	--	06/12/18		12.1
Total Phosphorus P	mg/l	--	--	06/12/18		< 0.01
Total Nitrogen N	mg/l	--	--	06/12/18		3.6
E Coli	MPN/100mls	--	--	06/12/18		292
Enterococci	cfu/100mls	--	--	06/12/18		4
Dissolved Oxygen	mg/l	--	--	06/12/18		11
Faecal Coliforms	no./100mls	--	--	06/12/18		310

Approved..... : Date..... : Signed ..... David O'Connell, Executive Technician

Queries in relation to this report should be addressed to environ@galwaycoco.ie

Laboratory Analysis Report

Sample Location : Public WWTP
Clifden Wwtp, Clifden Wwtp - Clifden Bay
Grid Coordinates : X: 65251 Y: 250155

Sample Details : Reference : 136544/001
Template : Downstream
Sampled by : Stephen
Sample Date: 06/09/2018 Time: 10:30 Method: Grab

Laboratory : ELS Ltd
Analyst : ELS Ltd

Sample Notes : ---- ----

Sample Parameters		Parameter Standards		Results		
Parameter	Unit	Max. Limit	Min. Limit	Date	Time	Result
Ammonia N	mg/l	--	--	06/09/18		0.017
Biological Oxygen Demand	mg/l	--	--	06/09/18		4
pH	pH units	--	--	06/09/18		6.9
Temperature	Degrees C	--	--	06/09/18		13.3
Total Phosphorus P	mg/l	--	--	06/09/18		0.02
Total Nitrogen N	mg/l	--	--	06/09/18		< 1
E Coli	MPN/100mls	--	--	06/09/18		4884
Enterococci	cfu/100mls	--	--	06/09/18		86
Dissolved Oxygen	mg/l	--	--	06/09/18		11
Faecal Coliforms	no./100mls	--	--	06/09/18		5400

Approved..... : Date..... : Signed ..... David O'Connell, Executive Technician

Queries in relation to this report should be addressed to environ@galwaycoco.ie

Laboratory Analysis Report

Sample Location : Public WWTP
Clifden Wwtp, Clifden Wwtp - Clifden Bay
Grid Coordinates : X: 65251 Y: 250155

Sample Details : Reference : 130629/001
Template : Downstream
Sampled by : Stephen
Sample Date: 14/06/2018 Time: 12:00 Method: Grab

Laboratory : ELS Ltd
Analyst : ELS Ltd

Sample Notes : ---- ----

Sample Parameters		Parameter Standards		Results		
Parameter	Unit	Max. Limit	Min. Limit	Date	Time	Result
Ammonia N	mg/l	--	--	14/06/18		0.448
Biological Oxygen Demand	mg/l	--	--	14/06/18		3.7
pH	pH units	--	--	14/06/18		8.2
Temperature	Degrees C	--	--	14/06/18		14.9
Total Phosphorus P	mg/l	--	--	14/06/18		0.03
Total Nitrogen N	mg/l	--	--	14/06/18		< 1
E Coli	MPN/100mls	--	--	14/06/18		5290
Enterococci	cfu/100mls	--	--	14/06/18		160
Dissolved Oxygen	mg/l	--	--	14/06/18		9
Faecal Coliforms	no./100mls	--	--	14/06/18		8000

Approved..... : Date..... : Signed ..... David O'Connell, Executive Technician

Queries in relation to this report should be addressed to environ@galwaycoco.ie

ENVIRONMENTAL LABORATORY SERVICES
EXCELLENCE THROUGH ACCREDITATION

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ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 111T

Contact Name	Emma Nicholl	**Report Number**	**125991 - 1**
Address	Irish Water C/O Galway County Council Prospect Hill,	**Sample Number**	125991/001
		Date of Receipt	27/03/2018
		Date Started	27/03/2018
Tel No	091 476477	**Received or Collected**	ELS-Sampled
Customer PO	IW PO NEEDED	**Date of Report**	03/05/2018
Quotation No	QN007632	**Sample Type**	Surface Waters
Customer Ref	Clifden - WWTP Downstream		

LRN W-Gal-236 **Category** Public WWTP **Entity** Clifden
Station WWTP Downstream **Template** Clifden Downstream
Laboratory ELS **Analyst** ELS **SampleDate** 26/03/2018 **SampleTime** 08:30 **SampleMethod** Grab
SampleReason Compliance **SampleNotes**

CERTIFICATE OF ANALYSIS

TEST / ANALYTE	SUB	METHOD	LOQ	SPEC	RESULT	UNITS	ACCRED.	OOS
BOD								
BOD		EW001	1.0		5.2	mg/L	INAB	
Dissolved Oxygen (Site Test)								
Dissolved Oxygen (Site Test)		EW043S	0		11	mg/L		
Gallery Plus-Suite A								
Ammonia as N		EW175	0.005		0.455	mg/l N	INAB	
Micro-Coliforms (Sub 6)								
E. Coli	*	Default	0		131	MPN/100ml	YES	
Micro-Enterococci (Sub 6)								
Enterococci	*	Default	0		167	cfu/100ml	YES	
Micro-Faecal Coliforms (Sub 6)								
Faecal Coliforms	*	Default	1		177	cfu/100ml	YES	
Temperature (Site)								
Temperature (Site)		Default	0.0		8.8	Deg C		
Titralab								
pH		EW153	0.0		7.9	pH Units	INAB	
Total Nitrogen								
Total Nitrogen		EW140	1.0		2.6	mg/L	INAB	
Total Phosphorus-TP								
Total Phosphorus-TP		EW146	0.01		0.02	mg/l P	INAB	

Signed : _____ 03/05/2018

Domenico Giliberti-Technical Manager

NOTES
1.This Report shall not be Reproduced except in full, without the permission of the laboratory and only relates to the items tested.
2.SPEC= Allowable limit or parametric value
3.OOS=Result which is outside specification highlighted as OOS-A
4.LOQ=Limit of Quantification or lowest value that can be reported
5.ACCRED=Indicates matrix accreditation for the test,a blank field indicates not accredited
6."*" Indicates sub-contract test