

SOUTH TIPPERARY COUNTY COUNCIL



CLOGHEEN

WASTEWATER DISCHARGE LICENCE

REGISTER NUMBER D0453-01

ANNUAL ENVIRONMENTAL REPORT

1st JANUARY 2013 to DECEMBER 31ST 2013

TABLE OF CONTENTS	Page
1.0 INTRODUCTION and EXECUTIVE SUMMARY	4
1.1 Introduction	4
1.2 Executive Summary	4
2.0 MONITORING REPORTS SUMMARY	6
2.1 Summary report on Monthly Influent Monitoring	6
2.2 Discharges from the Agglomeration	8
2.3 Ambient Monitoring Summary	11
2.4 Data Collection and Reporting Requirements under the UWWT Directive	12
2.5 Pollutant Release and Transfer Register	12
3.0 OPERATIONAL REPORTS SUMMARY	13
3.1 Treatment Efficiency Report	13
3.2 Treatment Capacity Report	13
3.3 Complaints Summary	14
3.4 Reported Incidents Summary	14
4.0 INFRASTRUCTURAL ASSESSMENT & PROGRAMME OF IMPROVEMENTS	15
4.1 Storm Water Overflow Identification and Inspection Report	15
4.2 Report on progress and proposals to meet the Improvement Programme requirements	16
4.3 Sewer Integrity Risk Assessment	16
5.0 LICENCE SPECIFIC REPORTS	17
5.1 Habitats Impact Assessment	17
5.2 Drinking Water Abstraction Point Risk Assessment	17
5.3 Outstanding Reporting Requirements (Previous AER's)	17
6.0 CERTIFICATION & SIGN OFF	18

List of Tables	Page
Table 1 Wastewater treatment plant influent monitoring results.	6
Table 2 Flow weighted average Influent BOD calculation sheet.	7
Table 3 Effluent monitoring results	8
Table 4 Summary of the effluent monitoring and compliance	8
Table 5 Primary discharge point daily flow recordings	9
Table 6 Ambient monitoring results – Upstream	11
Table 7 Ambient monitoring results – Downstream	11
Table 8 Ambient monitoring summary table	12
Table 9 Treatment efficiency report summary table	13
Table 10 Treatment capacity report summary table	13
Table 11 Complaints summary	14
Table 12 Incidents summary	14
Table 13 Incident detail summary per EPA guidelines	14
Table 14 SWO Identification and inspection summary table	15
Table 15 Summary of Sewer Integrity Risk Assessment	16

1. INTRODUCTION AND EXECUTIVE SUMMARY

1.1 Introduction

The Environmental Protection Agency on 10th October 2011 granted South Tipperary County Council a Wastewater Discharge Licence (Register No D0453-01) in respect of the agglomeration named Clogheen. One of the provisions of the licence (Condition 6.10) is that the Council submit to the Agency on an annual basis an 'Annual Environmental Report' (AER) to provide a summary of activities relevant to the discharges for that year. This is the third Annual Environmental Report (AER) for the Clogheen Agglomeration and includes the information specified in Schedule D of the licence.

This AER has been prepared in accordance with the Environmental Protection Agency (EPA) document: - "Guidance on the Preparation & Submission of the Annual Environmental report (AER) for Waste Water Discharge Licence for 2013".

The Clogheen Wastewater Treatment Plant is located in the village of Clogheen, Co. Tipperary. The agglomeration is served by a predominantly combined sewer network, and a waste water treatment plant located north of Clogheen bridge and discharging to the River Tar. The plant commenced operation in 2006 under a Design Build Operate Contract (DBO). It is designed for a biological capacity of 1,000 pe. There is no significant industrial source in the agglomeration.

The plant operates to a 20:30:5:1 (BOD: SS: Ammonia: Ortho Phosphate) treatment specification using a diffused air activated sludge process followed by clarification and includes screening, grit removal, phosphorus removal and sludge thickening.

The Primary discharge point (SW1) is via an outfall pipe to the River Tar. There was one secondary discharge in the agglomeration (SW3) identified at the licence application stage, arising from a septic tank which serves a section of a housing estate in the village. This system predated the main WWTP. The works to divert this discharge to the main sewer network was completed in early 2012.

1.2 Executive Summary

The Clogheen wastewater treatment plant has continued to operate effectively in this reporting period. The treatment plant is operated and managed on behalf of South Tipperary County Council by AECOM Ltd under a 20 year DBO contract agreement.

A review of the final effluent results and compliance with the Emission Limit Values set out in licence shows that there was no exceedence of the ELV for BOD which had an average effluent value of 2.3 mg/l against an ELV of 20 mg/l while Suspended Solids and COD had effluent values of 5.25 mg/l and 15.6 mg/l against ELV's of 30 mg/l and 125 mg/l respectively. The average effluent value for Ammonia Nitrogen was 1.09 mg/l against an ELV of 5mg/l.

The total influent flow for the year was 37,704 m³ while the current flow weighted average influent BOD to the plant is 241 mg/l giving a current pe loading of the plant of 415 pe. This compares with a plant design of 1,000 pe.

The average daily influent flow for the year was 103 m³ /day against a plant design of 225 m³/day which indicates that the plant is operating within it's hydraulic and treatment capacities.

A review of the ambient monitoring results for upstream and downstream of SW1 indicates that the discharge is having no adverse impact on the quality of the receiving waters.

The percentage reductions shown in the treatment efficiency report summary (table No 6) show that reductions of 99%, 97% and 98% were achieved in BOD, COD and Suspended Solids respectively.

A reduction of 98% was achieved in the Ammonia levels while nutrient removal efficiencies for TP and TN were 99% and 86 % respectively.

An interpretation of the final effluent results is given in Section 2 of this report.

2.0 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

Table 1 below is a tabular presentation of the wastewater treatment plant influent monthly monitoring results for 2013 for cBOD, COD, Suspended Solids, Total Nitrogen, Total Phosphorus, Ammonia and pH. Also set out below is the calculation of the pe equivalent load and the flow weighted average BOD load for the WWTP.

Table 1: Waste water treatment plant influent monitoring results for 2013

Date	Flow	BOD	COD	SS	TN	TP	pH	Ammonia
ELV	m3/day	20 mg/l	125 mg/l	30 mg/l	n/a	n/a	6 to 9	5 mg/l
08/01/2013	93	148	278	116	44.7	5.32	8	21.3
05/02/2013	161	110	254	183	13.3	2.02	7.8	5.4
05/03/2013	71	298	640	325	63.5	8.19	8.1	36.6
16/04/2013	261	273	550	191	56.4	7.68	7.9	36.5
21/05/2013	72	265	651	248	70.9	7.91	7.5	57
11/06/2013	101	335	613	261	92.9	10.9	7.8	68.6
16/07/2013	74	340	672	331	84.5	10.9	7.6	61.7
13/08/2013	62	380	804	352	65.5	10.11	7.2	47.6
03/09/2013	55	260	556	215	82.2	11.01	7.8	61.2
08/10/2013	58	313	658	271	93.5	11.5	8	68.3
05/11/2013	49	263	413	150	82.6	9.46	8.2	47
17/12/2013	155	138	225	122	58.8	6.43	8.3	52.9
No of Samples	12	12	12	12	12	12	12	12
Annual Max	261	380	658	352	93.5	11.5	8.3	68.6
Annual Mean	101	260	526	230	67.4	8.5	7.9	47

Calculation of the Population Equivalent load to the WWTP

The total influent for the year 2013 was 37,704 m³. The average daily influent flow was 103 m³.

The flow weighted averaged influent BOD as calculated per Table 2 below is 241 mg/l

Clogheen population equivalent was determined by the following formula:

Total Influent Flow for 2013 x flow-weighted averaged influent BOD divided by (0.06x365x1000).

Therefore the pe = (37,704 x 241) / (0.06 x 365x 1000) = 415 pe

Table 2: Calculation of the Flow weighted average BOS for 2012

Sample Date	Flow (m ³ /day)	BOD (mg/l)	BOD (Kg)
08/01/2013	93	148	13.8
05/02/2013	161	110	17.7
05/03/2013	71	298	21.2
16/04/2013	261	273	71.3
21/05/2013	72	265	19.1
11/06/2013	101	335	33.8
16/07/2013	74	340	25.2
13/08/2013	62	380	23.6
03/09/2013	55	260	14.3
08/10/2013	58	313	18.2
05/11/2013	49	263	12.9
17/12/2013	155	138	21.4
Totals	1212		292.50

The Flow weighted average BOD is 292.50 Kg x 1000 / 1212 m³ = 241 mg/l

2.2 Discharges from the agglomeration

Presented below in Table 3 and 4 are the primary discharge point monitoring effluent results for the parameters as set out in Schedule B of the Licence and a summary of the effluent monitoring and overall Compliance with the licence Emission Limit Values (ELV's).

Table 3: Tabular presentation of the Clogheen wastewater treatment plant effluent monitoring results with the associated Emission Limit Values (ELV's)

Date	cBOD 5d with nitrification inhib (mg/l)	Chemical Oxygen Demand (mg/l)	Suspended Solids (mg/l)	Total Nitrogen (as N) mg/l	Total P as P (mg/l)	Soluble Reactive Phosphorus as P (mg/l)	Ammonia as N (mg/l)	pH (value)
ELV's	20 mg/l	125 mg/l	30 mg/l	n/a	n/a	1 mg/l	5 mg/l	6 to 9
08/01/2013	2	15	4	10.7	0.09	0.03	0.7	7.2
05/02/2013	2	15	5	5.2	0.06	nt	1.8	7.3
05/03/2013	2	15	6	13	0.14	0.03	0.4	7.3
16/04/2013	4	15	13	3.8	0.24	0.05	2.7	7.2
21/05/2013	2	19	6	12.2	0.12	0.03	0.3	7.4
11/06/2013	3	18	6	15.7	0.18	0.05	1.1	7.3
16/07/2013	2	15	7	5.5	0.15	0.07	0.5	7.4
13/08/2013	2	15	3	13	0.31	nt	0.3	7.7
03/09/2013	2	15	3	6.6	0.09	0.04	0.2	7.5
08/10/2013	2	15	4	2.9	0.07	nt	0.7	7.2
05/11/2013	2	15	3	15.6	0.07	0.03	0.5	7.2
17/12/2013	3	15	3	11.1	0.07	NT	3.9	7.4
No of Samples	12	12	12	12	12	8	12	12
Annual Max	4	19	13	15.7	0.31	0.07	3.9	7.7
Annual Mean	2.3	15.6	5.25	9.6	0.13	0.04	1.09	7.3

Table 4: Summary of the Effluent Monitoring and Compliance

	cBOD	COD	SS	TN	TP	Amm	Ortho P	pH
WWDL ELV	20 mg/l	125 mg/l	30 mg/l	n/a	n/a	5 mg/l	1 mg/l	6 to 9
No of sample results	12	12	12	12	12	12	6	12
No of sample results above ELV	0	0	0	0	0	0	0	0
No of sample results above ELV with Condition 2 interpretation	0	0	0	0	0	0	0	0
Overall Compliance	Pass	Pass	Pass	n/a	n/a	Pass	Pass	Pass

Interpretation of Results:

As can be seen from the final effluent results all parameters met the required ELV's in the reporting year 2013. In reference to Table 9 below (Section 3) it will be seen that influent load reductions in excess of 95% for BOD, COD, Suspended Solids, TP and Ammonia were achieved while an 86% reduction was achieved in the TN load.

Table 5 : Clogheen WWTP Primary discharge point daily flow recordings (m3/day) for 2013 as required under Schedule B (Monitoring) of the Discharge Licence.

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	114	110	52	70	48	50	73	194	59	358	108	46
2	102	119	68	72	55	74	80	242	50	108	151	36
3	65	119	49	68	111	71	62	110	52	121	149	57
4	47	242	68	67	54	41	66	112	37	42	54	37
5	112	152	104	66	56	92	59	92	35	49	47	43
6	114	160	217	90	66	47	74	67	26	49	109	41
7	170	82	92	92	227	52	72	82	44	43	48	49
8	88	105	197	95	122	85	55	71	46	46	53	47
9	23	107	198	93	109	87	70	86	29	34	185	44
10	77	138	46	217	63	184	58	79	24	40	185	55
11	36	72	109	175	63	93	78	80	32	40	28	129
12	34	141	46	140	64	119	65	72	33	42	58	93
13	39	191	112	126	55	104	76	57	34	53	106	109
14	24	154	55	126	100	234	78	115	45	49	40	230
15	118	102	19	187	75	177	63	116	46	261	35	232
16	117	92	19	254	55	175	65	79	157	82	62	41
17	586	94	90	108	158	58	61	65	55	303	64	154
18	175	72	132	124	74	78	52	66	58	188	35	262
19	90	71	113	61	76	67	51	73	42	150	47	54
20	92	74	481	123	46	64	52	70	37	152	41	117
21	63	60	300	124	66	82	54	67	55	215	50	216
22	111	61	71	99	54	85	53	79	56	161	51	218
23	144	61	69	125	56	87	71	54	32	66	40	113
24	341	77	66	108	58	62	161	74	75	285	42	115
25	466	61	79	58	58	66	112	76	35	105	46	114
26	323	59	68	53	234	67	82	53	33	161	39	262
27	325	62	69	55	71	64	83	70	40	163	38	49
28	246	64	68	64	192	48	43	60	42	131	42	221
29	199		105	50	60	70	89	163	119	145	38	223
30	231		107	55	46	72	232	52	157	108	48	398
31	144				48		344	59		68		310

2.3 Ambient monitoring summary

The ambient monitoring results for the parameters as set out in Schedule B of the licence for the primary discharge is presented in Table No 6 (Upstream) and Table No 7 (Downstream) below. Also presented in Table 8 is a summary of the ambient monitoring. The monitoring results indicate that the discharge is not having any significant impact on the quality of the receiving waters.

Table 6 Ambient monitoring at aSW-I U upstream of SW I (E200509, N114072)

Sample Date	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH	Temp	TN
17/01/2013	0.268	0.24	11.12	0.02	7.5	7.1	1.5
26/06/2013	BLD	0.97	9.25	0.02	7.579	14.7	2.6
22/08/2013	BLD	0.75	10.86	0.008	7.948	nt	1.2
04/12/2013	0	0.45	11.39	0.006	7.77	7.7	1.6
Max Value	0.268	0.97	11.39	0.02	7.948	14.7	2.6
Mean Value	0.07	0.60	10.7	0.014	7.7	9.83	1.73

Table 7 Ambient monitoring at aSW-Id downstream of SW I (E200618, N114131)

Sample Date	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH	Temp	TN
17/01/2013	0.272	BLD	11.14	0.02	7.424	7	1.3
26/06/2013	0.01	0.68	11.68	0.014	7.74	7.6	1.9
22/08/2013	BLD	0.81	10.74	0.008	7.9	nt	0.8
04/12/2013	0.01	0.9	9.37	0.03	7.643	13.7	2.0
Max Value	0.272	0.81	11.68	0.03	7.9	13.7	2.0
Mean Value	0.07	0.60	10.73	0.018	7.68	11.67	1.5

Table 8 : Ambient Monitoring Summary Table

Ambient Monitoring Point from WWDL	Irish Grid Reference	EPA Feature Coding Tool code	Is discharge impacting on water quality
aSW-IU upstream of SW1	200509E, 114072N	TBC	No
aSW-ID downstream Of SW1	200618E, 114131N	TBC	No

Small Stream Risk Score (SSRS):

An SSRS was carried out in 2013, the results of which are presented below.

Clogheen WWTP SSRS Scoring	SSRS Score
Upstream	10
Downstream	11

The results above show that there is no deterioration to the SSRS score downstream from the effluent discharge point.

Comment on impact on receiving waters.

Clogheen Wastewater final effluent discharges to the River Tar. The dilution available and the assimilative capacity available is very substantial and this combined with the level of treatment which includes phosphorous removal means that the discharge is having no impact on the River Tar. The Q Rating both upstream of the discharge and downstream is 4

2.4 Data collection and reporting requirements under the Urban Waste Water Treatment Directive.

It is confirmed that the annual urban waste water information for agglomerations and treatment plants with a population equivalent greater than 500 for the year 2013 was submitted to the EPA in electronic form in the first quarter of 2014.

2.5 Pollution Release and Transfer Register (PRTR)

The submission of a PRTR for 2013 for the Clogheen Agglomeration is not required, as advised by the EPA, as the population equivalent for the agglomeration is less than 2,000.

3.0 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

Presented below is a summary of the efficiency of the treatment process including information for all the parameters specified in the licence.

Table 9: Treatment Efficiency Report Summary Table

	cBOD	COD	SS	TN	TP	Ammonia
Influent mass loading (Kg/day)	26.8	54.2	23.7	6.94	0.88	4.84
Effluent mass Emission (Kg/day)	0.23	1.6	0.53	0.96	0.01	0.11
% Efficiency (% reduction of influent load)	99%	97%	98%	86%	99%	98%

3.2 Treatment Capacity Report

Presented below is a summary of the current and remaining treatment capacity of the treatment process.

Table 10: Treatment Capacity Report Summary Table

Hydraulic Capacity – Design	225 m3 /day
Hydraulic Capacity – Current Loading	103 m3/day
Hydraulic Capacity – Remaining	122 m3/day
Organic Capacity – Design (pe)	1,000 pe
Organic Capacity – Current Loading (pe)	415 pe
Organic Capacity – Remaining (pe)	585 pe
Will the capacity be exceeded in the next 3 years	No

3.3 Complaints Summary

There were no complaints of an environmental nature received during 2013.

Table 11: Complaints

Number	Date and Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
None	None	None	None	N/A	N/A

3.4 Reported Incidents Summary

There was no recorded incidents in relation to the Clogheen Wastewater Treatment Plant in 2013.

Table 12: Incidents Summary

Date and Time	Incident Description	Cause	No of Incidents	Corrective Action	Authorities Contacted	Reported EPA	Closed (Y/N)
2013	None	N/A	0	N/A	N/A	N/A	N/A

Table 13: A summary of the incident details as required in the EPA.

No of Incidents in 2013	None
Number of Incidents reported to the EPA via EDEN in 2013.	None
Explanation of any discrepancies between the two numbers above.	N/A

4.0 INFRASTRUCTURAL ASSESSMENT & PROGRAMME OF IMPROVEMENTS

4.1 Report on storm water overflow identification and inspection.

The following storm water overflow for Clogheen was identified in Schedule A.4 of the discharge licence.

Storm Water Overflow

Discharge Point Code	Location – Grid Ref	Name of Receiving Waters
SW 1 (SWO discharges via primary discharge point)	200583E, 114124N	River Tar

A report on storm water overflow identification and inspection was submitted to the Agency (EPA) as part of the AER submission for 2012. The SWO Identification and Inspection Summary Report is presented in Table 14 below.

Table 14: SWO Identification and Inspection Summary Report Table

Is each SWO Identified as non complaint with DoEHLG included in the Programme of Improvements	No SWO Identified as non-complaint
Does the SWO assessment include the requirements of Schedule C3	No Improvement works specified in the Licence for the storm overflow
Has the EPA been advised of any additional SWO's / changes to Schedule C and A4 under Condition 1.7	No additional SWO's / changes to Schedule C3 and A4 under Condition 1.7 required or identified.

4.2 Report on progress made and proposals to meet the Improvement Programme Requirements

There was one discharge to be discontinued, namely SW3 as detailed in Schedule A3 of the licence.

It is confirmed by the Licensee that this discharge has been discontinued in 2012 by means of the construction of a pump sump which replaced an old septic tank construction.

4.3 Sewer Integrity Risk Assessment

The sewer integrity risk assessment for the Clogheen Agglomeration was submitted as part of the 2012 AER submission. A summary of the Risk Assessment is presented below in Table 15 below.

Table 15: Summary of Sewer Integrity Risk Assessment

Element	Risk Ass Score	Risk Category	% Risk Score	Max Risk Score
Section 2.1 Hydraulic Risk Assessment	145	High	97 %	150
Section 3.1 Env Risk Assessment	140	Low	28 %	500
Section 4.1 Structural Risk Assessment	150	High	100 %	150
Section 5.1 O and M Risk Assessment	30	Low	15 %	200
Total RAS for Network	465	High	47 %	1000

Funding is being sought through budget submissions for 2014 for funds that will allow a more comprehensive and detailed assessment of the sewers to the standards set out in the Sewer Integrity Risk Assessment Tool facility.

5.0 LICENCE SPECIFIC REPORTS

5.1 Habitats Impact Assessment

In relation to the requirement for an Ecological Assessment under condition 4.18 of the discharge licence, the Executive Chemist for the Local Authority was in contact with the relevant officer in the EPA about this requirement during 2013.

Presently the licensee is satisfied, based on WFD monitoring programme review, that the quality of the receiving water is of good status and that it is also satisfied that the WWTP does not discharge directly or indirectly into the catchment of any freshwater pearl mussel (*Margaritifera margaritifera*) area.

5.2 Drinking Water Abstraction Point Risk Assessment.

Following a review by the Environment Section of the Local Authority, it is satisfied that there is no drinking water abstractions point located downstream of the agglomeration and therefore the potential to impact on such an abstraction does not arise.

5.3 Outstanding Reporting Requirements (Previous AER's)

5.3.1 Sewer Integrity Risk Assessment (associated Improvement Works)

The Sewer Integrity Risk Assessment for the Clogheen Agglomeration was carried out in 2012.

It would have indicated a High risk for the hydraulic and structural elements of the assessment.

However this result is based on the fact that assessment of the network to the standards set out in the assessment tool was not possible. The assessment was based only on a visual assessment and a review of existing sewer layout maps and data.

Funding is being sought through budget submissions for 2014 for funds that will allow a more comprehensive and detailed assessment of the sewers to the standards set out in the Sewer Integrity Risk assessment tool facility. This in turn should allow for development of an appropriate improvement works programme if required.

6.0 CERTIFICATION AND SIGN OFF

I certify that this Annual Environmental Report (AER) for the reporting year 2013 for the Waste Water Discharge Licence No D0453-01 in respect of the Clogheen Agglomeration is representative and accurate.

Signed



Dated: 28/04/14

Mr Jimmy Harney

Acting Director of Services

Environment and Water Services

South Tipperary County Council