

**SOUTH TIPPERARY COUNTY COUNCIL**



**CLOGHEEN**

**WASTEWATER DISCHARGE LICENCE**

**REGISTER NUMBER D0453-01**

**ANNUAL ENVIRONMENTAL REPORT**

**1<sup>st</sup> JANUARY 2012 to DECEMBER 31<sup>ST</sup> 2012**

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## **1. INTRODUCTION AND EXECUTIVE SUMMARY**

### **1.1 Introduction**

The Environmental Protection Agency on 10<sup>th</sup> 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 at the end of the year an 'Annual Environmental Report' (AER) to provide a summary of activities relevant to the discharges for that year. This is the second Annual Environmental Report (AER) for Clogheen Wastewater Treatment Plant 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 2012".

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.

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 3.2mg/l against an ELV of 20 mg/l while Suspended Solids and COD had effluent values of 6.5mg/l and 20.1 mg/l against ELV's of 30 mg/l and 125 mg/l respectively. The average effluent value for Ammonia was 0.9 mg/l against an ELV of 5mg/l.

The total flow for the year was 40,726 m<sup>3</sup> while the current flow weighted average influent BOD to the plant is 269 mg/l giving a current pe loading of the plant of 499 pe. This compares with a plant design of 1,000 pe.

The average flow for the year was 111 m<sup>3</sup> /day against a plant design of 225 m<sup>3</sup>/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%, 96% and 97% were achieved in BOD, COD and Suspended Solids respectively.

A reduction of 97% was achieved in the Ammonia levels while nutrient removal efficiencies for TP and TN were 95% and 67 % respectively.

## 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 2012 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 2012**

Date	Flow	BOD	COD	SS	TN	TP	ph	Amm
	m3	mg/l	mg/l	mg/l	mg/l	mg/l	value	mg/l
24/01/2012	50	260	474	262	53.2	6.74	8	35.1
07/02/2012	64	330	540	235	81.2	10.44	8.2	52.9
06/03/2012	118	500	821	306	96	12.92	8.2	62.3
03/04/2012	75	360	655	202	90.9	11.7	8	59.8
01/05/2012	120	52*	141	139	8.8	1.36	7.6	2.8
12/06/2012	104	385	753	357	50.9	9.79	7.2	32.1
03/07/2012	178	268	608	227	62.9	8.4	7.7	43.1
21/08/2012	96	170	376	94	41.6	5.89	7.2	32.3
04/09/2012	67	170	356	86	37.4	5.15	7.3	27.9
02/10/2012	124	290	516	264	34.5	5.66	7.4	23.2
06/11/2012	102	100	210	83	31	3.86	7.4	22.5
11/12/2012	53	420	1,093	513	73.5	10.42	9.7	34.4
<b>Average</b>	<b>95.92</b>	<b>295.7</b>	<b>545.25</b>	<b>230.67</b>	<b>55.16</b>	<b>7.69</b>	<b>7.825</b>	<b>35.7</b>

### Calculation of the Population Equivalent load to the WWTP

The total influent for the year 2011 was 40,726 m<sup>3</sup> per Tables No 5 below.

The flow weighted averaged influent BOD as calculated per Table 2 below is 269 mg/l

Clogheen population equivalent was determined by the following formula:

Total Influent Flow for 2011 x flow-weighted averaged influent BOD divided by (0.06x366x1000).

Therefore the pe = (40,726 x 269) / (0.06 x 366x 1000) = **499**

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

Sample Date	Flow (m <sup>3</sup> /day)	BOD (mg/l)	BOD (Kg/day)
24/01/2012	50	260	13
07/02/2012	64	330	21.12
06/03/2012	118	500	59
03/04/2012	75	360	27
01/05/2012	120	52	6.24
12/06/2012	104	385	40.04
03/07/2012	178	268	47.704
21/08/2012	96	170	16.32
04/09/2012	67	170	11.39
02/10/2012	124	290	35.96
06/11/2012	102	100	10.2
11/12/2012	53	420	22.26
<b>Total</b>	<b>1151</b>		<b>310.2</b>

The Flow weighted average BOD is 310.2 Kg x 1000 / 1151 m<sup>3</sup> = **269 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	Flow m <sup>3</sup> /day	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)
<b>ELV's</b>		<b>20 mg/l</b>	<b>125 mg/l</b>	<b>30 mg/l</b>	<b>n/a</b>	<b>n/a</b>	<b>1 mg/l</b>	<b>5 mg/l</b>	<b>6 to 9</b>
24/01/2012	50	2	16	5	28.3	0.16	0.07	0.9	7.1
07/02/2012	64	7	23	9	28.8	0.22	NT	0.8	6.7
06/03/2012	118	4	28	6	19.1	0.57	0.44	1.5	6.8
03/04/2012	75	2	21	6	16.3	0.57	NT	1.7	7.2
01/05/2012	120	2	24	8	14.4	0.62	0.46	1.2	7
12/06/2012	104	4	21	3	22.1	0.32	NT	2.1	7.8
03/07/2012	178	3	23	18	6.8	0.68	0.38	0.1	7.1
21/08/2012	96	2	21	9	20.3	0.22	NT	0.1	7.4
04/09/2012	67	2	15	3	12.3	0.2	0.12	0.2	7.5
02/10/2012	124	6	19	4	9.7	0.27	NT	1.7	7.5
06/11/2012	102	2	15	4	14.9	0.09	0.04	0.5	7.3
11/12/2012	53	2	15	3	22.9	0.1	NT	0.1	7.3
<b>Average</b>	<b>96</b>	<b>3.2</b>	<b>20.1</b>	<b>6.5</b>	<b>18</b>	<b>0.34</b>	<b>0.25</b>	<b>0.9</b>	<b>7.2</b>

**Table 4: Summary of the Effluent Monitoring and Compliance**

	cBOD	COD	SS	TN	TP	Amm	Ortho P	pH
<b>WWDL ELV</b>	<b>20 mg/l</b>	<b>125 mg/l</b>	<b>30 mg/l</b>	<b>n/a</b>	<b>n/a</b>	<b>5 mg/l</b>	<b>1 mg/l</b>	<b>6 to 9</b>
<b>No of sample results</b>	12	12	12	12	12	12	6	12
<b>No of sample results above ELV</b>	0	0	0	n/a	n/a	0	0	0
<b>Annual Mean</b>	3.2	20.1	6.5	18.0	0.34	0.9	0.25	7.2
<b>Overall Compliance</b>	Pass	Pass	Pass	n/a	n/a	Pass	Pass	Pass



**Table 5 : Clogheen WWTP Primary discharge point daily flow recordings (m3/day) for 2012 as required under Schedule B (Monitoring) of the Discharge Licence.**

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	92.5	51	56	81.5	120	65	137.5	100	77	78	67	348
2	358	52	167	67	168	373.5	79	154	77	124	58	348
3	94	66	93.5	75	15	373.5	178	237	64	81	96.5	303
4	106	71	93.5	119	188	130	278	113.5	67	86	96.5	359
5	58	71	78	81	168	51	90	113.5	66	57	65	150
6	63	61	118	81	168	485	174	104	38	126	102	168
7	66	64	77	52	61	130	78	62	83	126	59	51
8	66	55	69	149	63	144	78	131	65	87	199	74
9	65	55	72	162	222	77	62	72	65	71	115	74
10	81	92	75.5	84	63	77	97	81	137	182	97	56
11	50	73.5	75.5	75	50	117	131	282.5	65	153	97	53
12	47	73.5	73	240	71	104	144	282.5	47	56	102	81
13	57	48	84	69	71	50	115	185	103	63	159	139
14	54.5	60	68	78	49	341	96.5	274	52	63	21	52
15	54.5	49	118	78	69	250	96.5	227	88.5	72	72	113.5
16	161	69	165	203	65	114	54	289	88.5	213	64	113.5
17	51	104	88.5	112	73	114	105	78	53	289	232.5	103
18	101	63.5	88.5	112	198	154	55	100.5	54	77	232.5	154
19	54	63.5	85	98	66.5	89	51	100.5	93	65	235	90
20	61	50	71	86	66.5	203	79	121	53	70	95	53
21	58.5	130	76	105.5	50	132	59	96	59	70	329	179
22	58.5	71	103	105.5	73	70	59	103	67.5	52	252	179
23	84	57	70	80	42	95.5	51	139	67.5	62	102	147
24	50	65	79.5	343	68	95.5	109	185	78	46	23	175.5
25	311	70	79.5	99	61.5	143	59	184	101	60	23	175.5
26	122	70	69	75	61.5	148.5	69	184	59	54	360	159
27	59	65	90	74	68	148.5	64	115	64	76	391	183
28	147	67	67	94	33	200	71	213	80	76	352	237
29	147	85	61	94	122	74	71	121	81.5	72	280	154.5
30	51		65	268	86	137.5	146	66	81.5	106	392	154.5
31	58		81.5		51		310			91		116
	2886.5	1972	2657.5	3440.5	2731	4686.5	3246.5	4514	2175	2904	4769	4743

Total	40726
Min	21
Max	485
Ave	111

### 2.3 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 6: Treatment Efficiency Report Summary Table**

	<b>cBOD</b>	<b>COD</b>	<b>SS</b>	<b>TN</b>	<b>TP</b>	<b>Ammonia</b>
<b>Influent Mass Loading (Kg/day)</b>	32.82	60.52	25.60	6.12	0.85	3.96
<b>Effluent Mass Loading (Kg/day)</b>	0.36	2.23	0.72	2.0	0.04	0.10
<b>% Efficiency Reduction</b>	99%	96%	97%	67%	95%	97%

### 2.4 Treatment Capacity Report

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

**Table 7: Treatment Capacity Report Summary Table**

<b>Hydraulic Capacity – Design</b>	225 m3 /day
<b>Hydraulic Capacity – Current Loading</b>	111 m3 /day
<b>Hydraulic Capacity – Remaining</b>	114 m3 / day
<b>Organic Capacity – Design (pe)</b>	1,000 pe
<b>Organic Capacity – Current Loading (pe)</b>	499 pe
<b>Organic Capacity – Remaining (pe)</b>	501 pe
<b>Will the capacity be exceeded in the next 3 years</b>	No

## 2.5 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 8 (Upstream) and Table No 9 (Downstream) below. Also presented in Table 10 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**

Sample Date	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH	Temp	TN
	mg/l as N	mg/l	mg/l	mg/l as P	value	Celsius	mg/l
20/3/2012	0.03	1.5	11.47	<0.01	7.968	11.4	NT
27/6/2012	0.2135	0.26	NT	0.02	7.723	15.9	NT
18/9/2012	0.05	1.06	10.73	0.01	7.683	12.0	2.3
6/12/12	0.1136	0.54	11.82	0.02	7.531	5.0	0.9

**Table 7 Ambient monitoring at aSW-Id downstream of SW I**

Sample Date	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH	Temp	TN
	mg/l as N	mg/l	mg/l	mg/l as P	value	Celsius	mg/l
20/3/2012	0.02	2.1	11.71	<0.01	7.968	11.4	NT
27/6/2012	0.198	0.59	NT	0.02	7.689	15.9	NT
18/9/2012	0.06	2.92	10.57	0.02	7.762	12.1	2.9
6/12/12	0.1364	0.45	11.73	0.02	7.481	5.6	0.9

**Table 10: Ambient Monitoring Summary Table**

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

## **2.6 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 2012 was submitted to the EPA in electronic form in 2012.

## **2.7 Pollution Release and Transfer Register (PRTR)**

This AER/PRTR for 2012 has been submitted electronically to the EPA.

The AER/PRTR Emissions Data information (i.e all relevant worksheets including the Facility ID and Activities sheet) has been printed out and included in this AER -see Appendix attached.

### 3.0 OPERATIONAL REPORTS SUMMARY

#### 3.1 Complaints summary

There were no complaints of an environmental nature related to the discharge to water from the Clogheen Wastewater Treatment plant in 2012.

*Table 11: Complaints*

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

#### 3.2 Reported Incidents Summary

There was no recorded incident in relation to the Clogheen Wastewater Treatment facility in 2012.

*Table 12: Incidents Summary*

<b>Date and Time</b>	<b>Incident Description</b>	<b>Authorities Contacted</b>	<b>Corrective Action</b>	<b>Closed (Y/N)</b>
None	None	None	None	N/A

*Table 13: A summary of the incident details as required by the EPA reporting guidelines is set out below*

No of Incidents	None
Number of Incidents reported to EPA via EDEN in 2012	None
Explanation of any discrepancies between the two number	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 have been identified in Schedule A.4 of the discharge licence.

#### Storm Water Overflows

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

The operation of the storm water overflows (SWOs) was assessed under the criteria set out in Section 4 of the Urban Waste Water Treatment Directive (91/271/EEC) – Procedures and Criteria in relation to Storm Water Overflows. The overflow was observed and assessed during 2012 in both dry and storm conditions. The following criteria were assessed.

**1. Causes significant visual or aesthetic impact and public complaints**

The storm water overflow SW1 (SWO) is the overflow from the WWTP via SW1. This is a screened overflow and does not cause any visual or aesthetic impact or lead to any public complaints.

**2. Causes deterioration in water quality in the receiving water**

The storm water overflow identified above does not cause any deterioration of water quality in the receiving waters (River Tar).

**3. Gives rise to failure in meeting the requirements of National Regulations on foot of EU Directives (Bathing Water etc):**

The receiving waters are not designated bathing areas.

**4. Operates in dry weather**

The storm water overflow does not operate in dry weather flow conditions.

Presented below in Table 14 is the SWO Identification and Inspection Summary Report.

**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 is attached in Appendix C.

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
<b>Total RAS for Network</b>	<b>465</b>	<b>High</b>	<b>47 %</b>	<b>1000</b>

#### 4.4 Habitats Assessment

In relation to the requirement for a Habitats Assessment, the licensee intends to contact the Agency (EPA) by separate correspondence to clarify this requirement and seek a review. Presently the licensee is satisfied, based on WFD monitoring programme review, that the quality of the receiving water is of good status. Following contact with the Agency, and should the requirement still be required, the licensee will undertake the Assessment for submission to the Agency (EPA) in the AER due in 2014.

## **5.0 ENVIRONMENTAL LIABILITY AND FINANCIAL PROVISIONS**

### **5.1 Environmental Liabilities and Financial Charges**

The licensee has in place funding to meet the financial charges associated with the monitoring and enforcement costs payable to the Agency (EPA). These payments are made on an annual basis. The current annual cost for the Clogheen WWTP is €2,968.

Financial provisions in relation to underwriting of potential costs for remedial actions in the event of accidents or other Environmental Liabilities will need to be assessed by the Local Authority.

## **6.0 RISK BASED ASSESSMENTS (Priority Substances)**

### **6.1 Priority Substances Assessments**

The requirement for a risk based assessment to identify the possible presence of priority substances is not specifically set out in the Discharge Licence. However the Licensee has prepared and submitted to the Agency (EPA) the PRTR report for 2012 – see attached Appendix.



## **7.0 CERTIFICATION & SIGN OFF**

I certify that this Annual Environmental Report (AER) for the reporting year 2012 for the Waste Water Discharge Licence No D0453-01 in respect of the Clogheen Agglomeration is representative and accurate.

**Signed:**

**Dated:**

**Mr Jimmy Harney**

**Acting Director of Services**

**Environment and Water Services**

**South Tipperary County Council**

**APPENDIX A**

**AER/PRTR Emissions Data**

**APPENDIX B**

**Sewer integrity Risk Assessment**