

SOUTH TIPPERARY COUNTY COUNCIL



CLOGHEEN

WASTEWATER DISCHARGE LICENCE

REGISTER NUMBER D0453-01

ANNUAL ENVIRONMENTAL REPORT

1st JANUARY 2011 to DECEMBER 31ST 2011

TABLE OF CONTENTS	Page
1.0 INTRODUCTION	4
1.1 Site Information	4
1.2 Primary Discharge Point	4
1.3 Storm water overflows	5
1.4 Wastewater Treatment Plant Management	5
2.0 SUMMARY OF MONITORING REPORTS	6
2.1 Summary reports on Monthly Influent Monitoring	6
2.2 Discharges from the Agglomeration	7
2.2.1 Nutrient Removal Efficiencies	7
2.2.2 Monitoring of Primary Wastewater Discharge	10
2.3 Ambient Monitoring	11
2.4 Data Collection and reporting	12
2.5 Pollutant Release and Transfer Register	12
3.0 COMPLAINT AND INCIDENT REPORTS	13
3.1 Complaints Summary	13
3.2 Reported Incidents Summary	13
4.0 INFRASTRUCTURAL ASSESSMENT & PROGRAMME OF IMPROVEMENTS	14
4.1 Treatment Capacity	14
4.2 Storm Water Overflow and Identification Report	14
4.3 Report on progress and proposals to meet the Improvement Programme requirements	14
4.4 Habitats assessment	14
APPENDIX A – Summary of Effluent Data and Non Compliance	15

List of Tables

		Page
Table 1	Wastewater treatment plant influent monitoring results.	6
Table 2	Influent BOD Calculation sheet.	7
Table 2.1	Removal Efficiencies for P and N	7
Table 3	Primary discharge point monitoring results for flows January to June 2011	8
Table 4	Primary discharge point monitoring results for flows July to December 2011	9
Table 5	Monitoring of Primary wastewater discharge point (Effluent)	10
Table 6	Ambient monitoring results – Upstream	11
Table 7	Ambient monitoring results – Downstream	11
Table 8	Complaints summary	13
Table 9	Incidents summary	13

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 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 first 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 Licences.

1.1 Site Information

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 is one secondary discharge in the agglomeration (SW3), arising from a septic tank which serves a section of a housing estate in the village. This system predates the main WWTP. The works to divert this discharge to the main sewer network was substantially completed by the end of 2011.

1.2 Primary Discharge Point SW1

The primary Discharge Point SW1, discharges to the River Tar at 200538 E, 114124 N

1.3 Storm Water Overflows

There is 1 storm water overflow (SW1) which discharges via the primary discharge point.

1.4 Wastewater Treatment Plant Management

Clogheen wastewater treatment plant is operated and managed on behalf of South Tipperary County Council by AECOM Ltd. Kingswood Drive, City west Business Campus, Dublin 24.

2. SUMMARY OF MONITORING REPORTS

2.1 Summary report on monthly influent monitoring

Table 1 is a tabular presentation of the wastewater treatment plant influent monthly monitoring results for BOD, COD, Suspended Solids, Total Nitrogen and Total Phosphorus, as required by Condition 4.15 of the Discharge Licence. Also included are results for pH and Ammonia (N).

Table 1: Waste water treatment plant influent monitoring results for 2011

Date	Flow	BOD	COD	SS	TN	TP	ph	Amm
	m3	mg/l	mg/l	mg/l	mg/l	mg/l	value	mg/l
11/1/2011	338	150	374	89	52.1	6.04	7.2	28.2
8/2/2011	269	107	210	66	27.2	3.17	7.7	18.5
8/3/2011	117	100	188	70	25	3.47	7.7	19
5/4/2011	93	115	247	110	19.9	3.21	7.5	12.5
4/5/2011	359	165	286	114	33.3	4.52	7.8	25.6
8/6/2011	219	295	757	481	31.8	5.51	7.6	19.2
5/7/2011	160	84	143	68	13.9	2.20	7.5	8.3
9/8/2011	88	230	375	108	69.2	8.99	7.7	54
6/9/2011	124	83	153	69	16.4	2.71	7.4	12.8
11/10/2011	73	475	870	412	85.1	10.41	7.8	63.2
8/11/2011	114	178	348	88	69.4	8.16	6.8	50.3
6/12/2011	124	230	432	109	58.1	6.58	7.8	30.6
<i>Average</i>		<i>184</i>	<i>365</i>	<i>149</i>	<i>41.8</i>	<i>5.41</i>	<i>7.5</i>	<i>28.5</i>

Determination of the Population Equivalent load to the WWTP

The total influent for the year 2011 was 41,574 m³ per Tables No 3 and No 4 below.

The flow weighted averaged influent BOD as calculated per Table 2 is 170 mg/l

Clogheen population equivalent was determined by the following formula:

Total Influent Flow for 2011 x flow-weighted averaged influent BOD divided by (0.06x365x1000).

Therefore the PE = (41,574 x 170) / (0.06 x 365 x 1000) = **323**

Table 2: Influent BOD Calculation sheet

Date	Influent Flow	Influent BOD	BOD (Kg)
11/1/2011	338	150	50.7
8/2/2011	269	107	28.8
8/3/2011	117	100	11.7
5/4/2011	93	115	10.7
4/5/2011	359	165	59.2
8/6/2011	219	295	64.6
5/7/2011	160	84	13.4
9/8/2011	88	230	20.2
6/9/2011	124	83	10.3
11/10/2011	73	475	34.7
8/11/2011	114	178	20.3
6/12/2011	124	230	28.5
Total	2078 m3		353.1 Kg

The Flow weighted average BOD is $353.1 \text{ Kg} \times 1000 / 2078 \text{ m}^3 = 170 \text{ mg/l}$

2.2 Discharges from the agglomeration

The primary discharge point monitoring results for the parameters as set out in Schedule B.1 of the licence is presented in tabular form on the following Tables 3, 4, and 5. Tables 3 and 4 contain daily flows (m³/day)

The highest daily flow of 801 m³ was recorded on 31/12/2011

The lowest daily flow of 19 m³ was recorded on 30/6/2011

The average daily flow for 2011 was 114 m³ /day

The total flow for the year 2011 was 41,574 m³

2.2.1 Nutrient Removal Efficiencies

A summary of the nutrient removal efficiencies for N and P are given in Table 2.1 below. The removal efficiency was calculated at 62 % for TN and 93 % for TP based on annual average figures.

Table 2.1 Removal Efficiencies for P and N

Annual Average Influent TN (mg/l)	Annual Average Effluent TN (mg/l)	Removal Efficiency %
41.8 mg/l	15.9 mg/l	62%
Annual Average Influent TP (mg/l)	Annual Average Effluent TP (mg/l)	Removal Efficiency
5.41 mg/l	0.39 mg/l	93%

Table 3: Primary discharge point daily monitoring results as set out in Schedule B.1 of the licence for Flow (m³/day) for the months of January to June 2011

Day	January	February	March	April	May	June
1	94	109	127	132	151	64
2	92	107	92	143	227	84
3	92	117	93	143	97	67
4	76	116	79	157	359	104
5	77	431	88	93	260	104
6	83	432	88	67	263	123
7	255	96	83	99	168	53
8	206	269	117	59	169	219
9	204	266	102	90	132	88
10	148	117	67	92	130	119
11	338	198	130	81	101	220
12	206	197	129	305	68	220
13	208	111	71	98	76	114
14	204	313	85	85	86	121
15	176	189	101	76	86	67
16	175	135	83	93	80	151
17	85	105	84	94	78	115
18	88	290	76	77	74	93
19	91	134	152	80	66	94
20	92	133	152	90	95	143
21	90	117	80	81	180	96
22	85	114	93	82	180	75
23	85	100	82	108	66	101
24	77	97	85	110	91	289
25	68	116	73	84	91	75
26	111	91	95	86	71	76
27	88	92	96	94	82	50
28	96	96	79	87	84	87
29	100		164	70	83	48
30	100		105	151	80	19
31	90		85		87	

Table 4: Primary discharge point daily monitoring results as set out in Schedule B.1 of the licence for Flow (m3/day) for the months of July to December 2011.

Day	July	August	September	October	November	December
1	100	99	123	93	314	330
2	110	56	125	92	426	362
3	112	72	122	45	41	291
4	273	73	124	53	46	334
5	160	55	123	80	54	334
6	203	65	126	76	55	173
7	118	66	52	45	46	380
8	73	84	45	57	114	307
9	74	88	225	57	75	257
10	73	142	126	45	188	333
11	46	83	126	73	123	475
12	70	88	55	42	123	476
13	58	86	53	48	56	374
14	81	87	51	119	47	475
15	60	103	139	59	65	454
16	105	83	101	59	190	484
17	106	73	76	89	505	513
18	61	80	76	51	611	514
19	143	59	57	48	227	404
20	50	63	54	32	226	404
21	52	63	47	82	229	314
22	177	64	51	358	104	291
23	56	66	87	358	81	315
24	57	76	137	44	162	402
25	64	171	138	52	75	280
26	71	110	54	53	85	280
27	55	70	53	33	86	180
28	72	70	170	205	295	224
29	73	57	170	106	178	729
30	83	49	145	107	249	725
31	84	61		105		801

2.2.2 Monitoring of Primary Wastewater Discharge SW1

Table 5 below shows the results for the parameters BOD, COD, Suspended Solids, TN, TP, Ammonia and pH.

The monitoring results demonstrate that the wastewater treatment plant is operating well and within the Discharge limits set out in the licence, taking into account the exceedences allowable in Schedule B3 of the licence.

Table 5: Monitoring results for Primary Wastewater Discharge SW1

	BOD mg/l	COD mg/l	SS mg/l	TN mg/l	TP mg/l	Amm mg/l	pH value
11/1/2011	2	15	5	6.7	0.05	1.5	7.3
8/2/2011	2	15	5	11.3	0.10	5.6	7.5
8/3/2011	2	17	5	14.8	0.13	0.6	7.2
5/4/2011	2	19	5	11.0	0.14	0.1	7.3
4/5/2011	2	18	5	14.7	0.76	0.1	7.3
8/6/2011	2	16	5	15.3	0.82	0.2	7.2
5/7/2011	2	15	5	17.3	1.36	1.9	7.3
9/8/2011	4	28	5	18.3	0.59	7.4	7.2
6/9/2011	3	17	7	19.8	0.35	0.1	7.0
11/10/2011	2	15	3	28.3	0.1	0.1	7.2
8/11/2011	2	15	3	18.3	0.09	4.5	6.9
6/12/2011	3	15	5	15.5	0.18	4.3	8.1
<i>Average</i>	<i>2.3</i>	<i>17.1</i>	<i>4.8</i>	<i>15.9</i>	<i>0.39</i>	<i>2.2</i>	<i>7.3</i>

Comment:

An analysis of results and compliance with licence requirements are given in Appendix A of this AER. The testing for Ortho P did not take place in 2011 as the licence was only issued in October 2011. Arrangements have been put in place for this test to be carried out in 2012. Discharge Licence ELV for Ammonia (N) of 5mg/l was issued in October 2011.

2.3 Ambient monitoring summary

The ambient monitoring results for the parameters as set out in **Schedule B.4** of the licence for the primary discharge is presented in table No 6 (Upstream) and table No 7 (Downstream) below.

Table 6 Ambient monitoring at aSW-I U upstream of SW I

SampleDate	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH
	mg/l as N	mg/l	mg/l	mg/l as P	
03-Feb-11	0.01	0.9	12.29	<0.01	8.5
20-Apr-11	0.02	1.0	9.74	<0.01	8.0
08-Jun-11	0.02	1.5	9.77	0.02	7.8
17-Aug-11	<0.01	0.6	12.20	0.01	7.6
14-Nov-11	0.01	<1.0	9.61	0.02	7.8

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

SampleDate	Ammonia(N)	BOD	Dissolved Oxygen	Ortho-phosphate	pH
	mg/l as N	mg/l	mg/l	mg/l as P	
03-Feb-11	<0.01	1.0	12.17	<0.01	8.0
20-Apr-11	0.02	1.0	11.30	<0.01	8.4
08-Jun-11	<0.01	1.3	10.44	0.02	7.9
17-Aug-11	<0.01	0.6	13.02	0.01	8.5
14-Nov-11	0.01	<1.0	9.83	0.02	7.8

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 2011 was submitted to the EPA in electronic form in 2011

2.5 Pollution Release and Transfer Register (PRTR)

This information is not required to be submitted in the 2011 AER submission as advised by the EPA for this discharge licence, as the licence was only issued in October 2011.

3.0 Complaint and Incident Reports

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 2011.

Table 8: Complaints

Date and Time	Name of Complainant	Nature of Complaint	Response to Complaint	Closed (Y/N)
None	None	None	None	N/A

3.2 Reported Incidents Summary

There was no recorded incident in relation to the Clogheen Wastewater Treatment facility in 2011.

Table 9: Incidents Summary

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

4.0 Infrastructural Assessments and Programme of Improvements

4.1 Treatment capacity

The total influent flow for the year 2011 was 41,574 m³ per Tables No3 and No 4

The flow-weighted averaged influent BOD as calculated per Table 2 is 170mg/l

The Clogheen population equivalent was determined at 323pe, while the design pe for the plant is 1,200 pe. This demonstrates that the plant is operating within it's treatment and design capacity at present.

4.2 Storm water overflow identification and inspection report

This report is not required for submission to the EPA until the second AER and will be submitted then.

4.3 Report on progress made and proposals being developed to meet the improvement programme requirements

This report is not required for submission to the EPA until the second AER and will be submitted then.

4.4 Habitats assessment

The discharge licence for Clogheen was issued in October 2011.

It is proposed that the Habitats assessment will be undertaken in 2012 and submitted in the second AER, due in February 2013.

Appendix A

Summary of Clogheen Effluent Data and Non compliant tests recorded in 2011

Sample From Effluent		Ammonia mg/l as N	Suspended Solids mg/l	cBOD 5d with nitrification inhib mg/l	Chemical Oxygen Demand mg/l	pH Value pH unit	Total Phosphorus (as P) mg/l	Soluble Reactive Phosphorus (as P) mg/l	Total Nitrogen (as N) mg/l
elv		5	30	20	125	6-9		1	
Clogheen	11/01/2011	<1.5	<5	<2	<15	7.3	0.05		9.8
Clogheen	08/02/2011	<5.6	5	2	15	7.5	0.10		6.7
Clogheen	08/03/2011	0.6	<5	<2	<17	7.2	0.13		12.6**
Clogheen	05/04/2011	<0.1	<5	<2	19	7.3	0.14		11.7*
Clogheen	04/05/2011	<0.1	<5	<2	18	7.3	0.76		12.8
Clogheen	08/06/2011	<0.2	<5	<2	<16	7.2	0.82		9.1
Clogheen	05/07/2011	<1.9	<5	<2	<15	7.3	1.36		13.9*
Clogheen	09/08/2011	<7.4	<5	<4	<28	7.2	0.59		18.8*
Clogheen	06/09/2011	<0.1	<7	<3	<17	7.0	0.35		18
Clogheen	11/10/2011	<0.1	<3	<2	<15	7.2	0.1		18.4
Clogheen	08/11/2011	<4.5	3	<2	<15	6.9	0.09		9.3*
Clogheen	06/12/2011	<4.3	5	<3	<15	8.1	0.18		7.5
No Tests		12.0	12.0	12.0	12.0	12.0	12.0		12.0
Maximum		7.4	7.0	4.0	28.0	7.9	1.36		18.8
Average Value		2.2	4.8	2.3	17.1	7.7	0.39		12.4
No samples Failing		2.0	0.0	0.0	0.0	0.0	0.0		0.0
Compliance with licence		see note 2	yes	yes	yes	yes	n/a	see Note 1	n/a

Note 1: No testing for Ortho P was carried out in 2011 as licence was only issued in October 2011. Arrangements are in place for this parameter to be tested in 2012.

Note 2: Licence ELV limit for Ammonia (N) was issued in October 2011.