SOUTH TIPPERARY COUNTY COUNCIL

CAHIR

WASTEWATER DISCHARGE LICENCE

REGISTER NUMBER D0167-01

ANNUAL ENVIRONMENTAL REPORT

1st JANUARY 2012 to DECEMBER 31ST 2012

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1.0 INTRODUCTION and EXECUTIVE SUMMARY

1.1 Introduction

The Environmental Protection Agency on 11th December 2012 granted South Tipperary County Council a Wastewater Discharge Licence (Register No D0167-01) in respect of the agglomeration named Cahir. One of the provisions of the licence (Condition 6.8) 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 the Cahir 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 for 2012.

The Cahir Wastewater Treatment Plant is located at Clogheen Road south west of Cahir town and is designed to serve a pe of 5,000. The present WWTP was first put into service in 1997 and a storm water holding facility and phosphorus dosing facility was added in 2005. The plant consists of a fine bubble diffused air extended aeration process with clarification, screening, grit removal and phosphorus removal. The plant operates a sludge thickening and dewatering facility.

Approximately 80% of the wastewater arising in the agglomeration is domestic in origin, with the remainder originating from Industrial and commercial sources. The primary discharge occurs into the River Suir. The primary discharge point SW001, discharges to the River Suir at 205003E, 123821N

The report presented below details the monitoring reports for influent and effluent loading at the WWTP along with the ambient upstream and downstream monitoring of the receiving water.

1.2 Executive Summary

The Cahir 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 3.58 mg/l against an ELV of 25 mg/l while Suspended Solids and COD had effluent values of 6.25mg/l and 22.91mg/l against ELV's of 35 mg/l and 125 mg/ l respectively. The average effluent value for Ammonia was 0.8 mg/l against an ELV of 5mg/l.

As the discharge licence was only issued in December 2012 it was not possible to test for Ortho P. However this parameter will be tested and reported on for future AER reports.

The total flow for the year was 342,100m3 while the current flow weighted average influent BOD to the plant is 281.5 mg/l giving a current pe loading of the plant of 4,385 pe. This compares with a plant design of 5,000 pe.

The average daily flow for the year was 935 m3 /day against a plant design of 1,253 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 SW001 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 96.5% 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 95% and 60 % 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 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 2102

	Flow (m3/day)	cBOD 5d with nitrification inhib (mg/l)	Chemical Oxygen Demand (mg/l)	Suspended Solids (mg/l)	Total Nitrogen as N (mg/l)	Total Phosphorus as P (mg/l)	Ammonia as N (mg/l)	pH (value)
10/01/2012	475	265	426	303	48.4	7.7	37.6	7.7
07/02/2012	397	380	595	207	66.3	8.92	47.7	7.6
06/03/2012	503	570	987	213	101	16.32	55.2	8
03/04/2012	540	530	960	297	88	16	60.6	7.3
01/05/2012	1242	175*	396	115	64	9.29	44.3	7.3
12/06/2012	807	268	458	109	51.4	8.01	33.2	7.4
03/07/2012	1907	250	413	212	36.8	6.13	22.3	9.1
08/08/2012	755	430	913	165	93.3	14.32	57.2	7.5
04/09/2012	721	185	371	53	58.8	8.41	40.2	7.4
16/10/2012	2493	205	408	138	57.8	9.39	40.1	7.4
06/11/2012	709	185	383	154	79.3	8.63	61.3	9.1
11/12/2012	735	430	807	193	83.3	16.72	47.4	7.5
Average	***940.33***	***336.18***	***593.08***	***179.92***	***69.03***	***10.82***	***45.59***	***7.78***

Calculation of the Population Equivalent load to the WWTP

The total influent for the year 2012 was 342,100m3 per Table 5 below.

The flow weighted averaged influent BOD as calculated per Table 2 below is 281.5 mg/l

The Cahir population equivalent (p.e) was determined by the following formula:

Total Influent flow for 2012 x flow-weighted averaged influent BOD divided by (0.06x366x1000).

Therefore the pe = (342,100 x 281.5) / (0.06 x 366 x 1000) = **4,385**

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

Sample Date	Flow (m3/day)	cBOD (mg/l)	cBOD (Kg/day)
10/01/2012	475	265	125.9
07/02/2012	397	380	150.9
06/03/2012	503	570	286.7
03/04/2012	540	530	286.2
01/05/2012	1242	175	217.4
12/06/2012	807	268	216.3
03/07/2012	1907	250	476.8
08/08/2012	755	430	324.7
04/09/2012	721	185	133.4
16/10/2012	2493	205	511.1
06/11/2012	709	185	131.2
11/12/2012	735	430	316.1
Total	**11,284**		**3176 Kg**

The Flow weighted average BOD is 3176 Kg x 1000 / 11284 m3 **= 281.5 mg/l**

2.2 Discharges from the agglomeration

Presented below in Tables 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 wastewater treatment plant effluent monitoring results with the associated Emission Limit Values (ELV's).

Date	Flow m3/Day	cBOD 5d with nitrification inhib (mg/l)	Chemical Oxygen Demand (mg/l)	Suspended Solids (mg/l)	Total Nitrogen as N (mg/l)	Total Phosphorus as P (mg/l)	Ammonia as N (mg/l)	pH (value)
ELV		**25 mg/l**	**125 mg/l**	**35 mg/l**	**n/a**	**n/a**	**5 mg/l**	**6 to 9**
10/01/2012	475	2	27	5	22.7	0.38	0.9	7.2
07/02/2012	397	5	25	7	29.9	0.25	0.5	6.4
06/03/2012	503	6	45	10	33.9	0.34	1	6.3
03/04/2012	540	2	29	5	30.4	1.17	0.9	7.3
01/05/2012	1242	2	20	3	30.5	0.58	0.9	7.1
12/06/2012	807	10	24	12	14.7	0.37	0.2	7.3
03/07/2012	1907	3	18	8	15.3	0.21	0.1	6.7
08/08/2012	755	2	17	4	33.6	0.51	0.5	7.3
04/09/2012	721	4	23	7	25.8	1.05	0.4	7.2
16/10/2012	2493	2	15	3	26.2	0.42	0.5	7
06/11/2012	709	2	15	4	28.1	0.33	1.1	6.4
11/12/2012	735	3	17	7	37.1	0.31	2.5	6.3
Average	***940.33***	***3.58***	***22.91***	***6.25***	***27.4***	***0.49***	***0.8***	***6.9***

Table 4: Summary of the Effluent Monitoring and Compliance

	cBOD	**COD**	**SS**	**TN**	**TP**	**Amm**	**pH**
WWDL ELV	**25 mg/l**	**125 mg/l**	**35 mg/l**	**n/a**	**n/a**	**5 mg/l**	**6 to 9**
No of sample results	12	12	12	12	12	12	12
No of sample results above ELV	0	0	0	n/a	n/a	0	0
Annual Mean	3.6	22.9	6.3	26.5	0.5	0.8	6.9
Overall Compliance	Pass	Pass	Pass	n/a	n/a	Pass	Pass

Table 5: Cahir 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	827	239	551	603	1242	599	1232	910	705	548	1678	1293
2	3401	237	490	580	569	2913	1309	999	705	774	690	1293
3	2986	373	411	540	638	2913	1907	1359	668	619	971	1499
4	2285	412	411	392	636	598	973	967	721	707	971	1277
5	2285	412	214	363	858	840	1002	967	702	630	673	627
6	2400	429	503	363	858	1275	1802	730	621	937	709	1452
7	651	397	316	671	1259	814	852	729	812	937	660	928
8	651	186	439	671	403	546	852	755	718	669	1799	177
9	539	186	459	886	1279	764	880	734	718	586	868	177
10	475	740	481	836	744	764	1074	778	1010	1666	1143	1692
11	596	632	481	703	567	1196	1411	1725	309	2287	1143	735
12	496	632	427	591	581	807	464	1725	400	1190	762	810
13	466	370	695	568	581	619	1277	1917	664	674	900	1350
14	392	361	618	777	573	2275	897	1641	742	674	738	547
15	392	389	618	777	556	2400	897	**4504**	750	945	791	792
16	468	409	948	777	553	1412	770	3133	750	2493	713	792
17	468	686	616	1068	682	1412	1125	1117	739	889	1841	3666
18	200	130	616	706	879	1246	756	1095	672	3444	1841	1720
19	1025	130	592	566	372	1640	747	1095	697	1275	2585	760
20	456	347	573	854	372	1640	767	955	682	787	949	685
21	444	574	541	654	611	1379	739	911	676	787	2930	1583
22	444	527	617	654	567	1462	739	696	695	767	5428	1583
23	634	417	594	565	588	898	891	1156	695	746	2125	874
24	685	479	606	916	569	898	810	1398	831	709	2782	1210
25	800	390	606	819	569	904	789	1136	1040	722	2782	1210
26	800	390	582	609	569	691	702	1136	647	687	3786	2211
27	1139	449	617	612	569	2053	763	887	698	745	1036	2243
28	1139	410	569	570	648	**102**	725	1103	751	745	817	1394
29	465	428	565	570	769	1676	725	1242	737	618	863	1229
30	202		564	1466	729	1232	1008	727	737	999	800	1229
31	474		603		619		1113	873		540		1048
Totals	28683	11757	16919	20726	21009	37966	29997	39099	21291	30796	45772	38085

Total Flow	**342100**
Min	**102**
Max	**4504**
Ave	**935**

2.3 Treatment Efficiency Report

Presented below in Table 6 is a summary of the efficiency reductions achieved in the treatment process for those parameters specified in the licence.

Table 6: Treatment Efficiency Report Summary Table

	cBOD	**COD**	**SS**	**Ammonia**	**TN**	**TP**
Influent Mass Loading (Kg/day)	314.32	554.53	168.23	42.63	64.54	10.12
Effluent Mass Loading (Kg/day)	3.35	21.42	5.84	0.75	25.62	0.46
% Efficiency Reduction	99%	96%	96.5%	98%	60%	95%

2.4 Treatment Capacity Report

Presented below in Table 7 is a summary of the current and the remaining treatment capacity of the treatment process.

Table 7: Treatment Capacity Report Summary Table

Hydraulic Capacity – Design	1253 m3 /day
Hydraulic Capacity – Current Loading	935 m3 /day
Hydraulic Capacity – Remaining	318 m3 / day
Organic Capacity – Design (pe)	5,000 pe
Organic Capacity – Current Loading (pe)	4,385 pe
Organic Capacity – Remaining (pe)	615 pe
Will the capacity be exceeded in the next 3 years	No

2.5 Ambient monitoring summary

The ambient monitoring results for the parameters as set out in Schedule B of the licence 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 show that the discharge is not having any significant impact on the quality of the receiving water.

Table 8: Ambient monitoring at aSW-IU upstream of SW1 Cahir

Sample Date	Ammonia (mg/l)	BOD (mg/l)	DO (mg/l)	Ortho P (mg/l)	pH (value)
4/4/2012	0.0526	1.11	12.5	0	8.31
27/6/2012	0.2533	0.81	NT	0.02	8.058
13/9/2012	0.123	0.55	9.77	0.02	7.95
6/12/2012	0.1638	0.44	12.07	0.03	7.878
Average	0.148	0.7275	11.45	0.018	8.05
Max Value	0.25	1.11	12.5	0.03	8.31
95% tile	0.24	1.07	12.46	0.03	8.27

Table 9: Ambient monitoring at aSW-Id downstream of SW1 Cahir

Sample Date	Ammonia (mg/l)	BOD (mg/l)	DO (mg/l)	Ortho P (mg/l)	pH (value)
4/4/2012	0.067	1.53	12.7	0	8.36
27/6/2012	0.2398	0.93	NT	0.01	8.062
13/9/2012	0.1368	0.49	10.06	0.03	7.97
6/12/2012	0.1239	0.59	12.06	0.02	7.884
Average	0.142	0.885	11.61	0.02	8.069
Max Value	0.2398	1.53	12.7	0.03	8.36
95% tile	0.22	1.44	12.64	0.03	8.32

Table 10: 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	**204982E, 123920N**	**RS16S021890**	**No**
aSW-ID downstream of SW1	**205054E, 123744N**	**RS16S021900**	**No**

Note: In compliance with condition 4.18 the licensee will submit to the Agency for Agreement a new downstream Ambient monitoring location to replace downstream monitor point RS16SO21900.

2.6 Data and reporting requirements under the Urban Waste Water Treatment Directive

It is confirmed that the annual urban wastewater 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 Pollutant Release and Transfer Register (PRTR)

Submission of the AER/PRTR for 2012 for the Cahir WWTP is not required as instructed by the Agency (EPA) as the Discharge Licence for Cahir was only issued in December 2012.

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 Cahir Wastewater treatment Plant in 2012.

Table 11: Complaints

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

3.2 Reported Incidents Summary

There was no recorded incidents in relation to the Cahir Wastewater Treatment Plant in 2012.

Table 12: Incidents Summary

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

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

No of Incidents in 2012	None
Number of Incidents reported to the EPA via EDEN in 2012.	None
Explanation of any discrepancies between the Two numbers above.	N/A

4.0 INFRASTRUCTURAL ASSESSMENT & PROGRAMME OF IMPROVEMENTS

4.1 Storm Water Overflow Identification and Inspection Report

This report shall be submitted to the Agency as part of the second AER, due in 2014.

4.2 Report on progress made and proposals being developed to meet Improvement Programme requirements.

This report shall be submitted to the Agency as part of the second AER, due in 2014.

4.3 Sewer Integrity Risk Assessment

The sewer integrity risk assessment for the Cahir Agglomeration will be carried out in 2013 and reported on in the AER for 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 Cahir Agglomeration is €4,160.

The licensee shall, subject to assessment and funding availability provide an Environmental Liabilities Risk Assessment Report to the Agency as part of the 2nd AER due in 2014

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 will be reviewed and reported upon to the Agency by the licensee as part of the 2ND AER report due in 2014.

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 D0167-01 in respect of the Cahir Agglomeration is representative and accurate.

Signed: **Dated:**

Mr Jimmy Harney

Acting Director of Services

Environment and Water Services

South Tipperary County Council