SOUTH TIPPERARY COUNTY COUNCIL

KILSHEELAN

WASTEWATER DISCHARGE LICENCE

REGISTER NUMBER D0452-01

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 October 12th 2011 granted South Tipperary County Council Waste Water Discharge Licence (Register No. D0452-01) in respect of the agglomeration named Kilsheelan. One of the provisions of that licence is that the Council submit to the Agency at end of each 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 Kilsheelan Wastewater Treatment Plant and includes the information specified in Schedule D of the Wastewater Discharge Licence D0452-01.
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 Kilsheelan Waste Water Treatment Plant is located at Kilsheelan Co. Tipperary. (National Grid reference of E229186, N123271. The sewer network is generally a combined system with part of the system having a separate foul and surface water system installed since the early 80's and on recent housing developments. The sewerage generally flows by gravity to a pumping station located within the site of the wastewater treatment plant. The Kilsheelan wastewater treatment plant is operated under a Design Build Operate Contract (DBO) by AECOM Ltd who was awarded the contract in December 2002. The plant at Kilsheelan consists of an FM Environmental package activated sludge process plant and is designed to treat a population equivalent of 1,000pe. The plant was installed and commissioned in July 1998 under the Water Services Investment Programme at a cost of €194,901 and consists of two streams, each designed to handle a capacity of 500 pe.

A number of required upgrades were installed into the existing Kilsheelan WWTP as part of the Design Build contract and during the operational stage. The most significant were modifications to the plant control, installation of emergency standby generator, installation of RAS pumps, fine screens, flow meter and sampling equipment, new inlet pumps and pipe work and phosphorus removal facility. The inlet pumping station provides for screened storm discharge when the volume of influent exceeds the capacity to the forward feed pumps to treatment.

The treated effluent from the plant gravitates through an open pipe to a tributary of the Suir River (SW1), which immediately discharges directly into the River Suir.

1.2 Executive Summary

The Kilsheelan 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 2.9 mg/l against an ELV of 20 mg/l while Suspended Solids and COD had effluent values of 4.4 mg/l and 15.4 mg/l against ELV's of 30 mg/l and 125 mg/ l respectively. The average effluent value for Ammonia was 1.8 mg/l against an ELV of 10mg/l.

The total flow for the year was 109,973 m3 while the current flow weighted average influent BOD to the plant is 144 mg/l giving a current pe loading of the plant of 721 pe. This compares with a plant design of 1,000 pe.

The average daily flow for the year was 300 m3 /day against a plant design of 775 m3/day (at 3dwf) 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 98%, 95% and 97.5% were achieved in BOD, COD and Suspended Solids respectively.

A reduction of 91% was achieved in the Ammonia levels while nutrient removal efficiencies for TP and TN were 85% and 48.6 % 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 BOD, 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

	Location	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 mg/l as N	pH Value
10/01/2012	Influent	100	209	140	24.8	3.34	16.2	7.9
07/02/2012	Influent	170	326	259	30.1	5.35	17.4	8
06/03/2012	Influent	243	434	233	71.8	8.16	45.8	8.1
03/04/2012	Influent	278	593	386	45	7.33	29.3	7.9
01/05/2012	Influent	145*	412	221	33.1	5.09	17.4	8
12/06/2012	Influent	195	313	137	28.2	4.06	19.2	7.8
03/07/2012	Influent	86	147	84	19.9	2.44	9.9	7.8
08/08/2012	Influent	145	237	108	27.8	3.66	18.4	7.8
04/09/2012	Influent	102	197	83	20.5	2.5	10.1	7.8
02/10/2012	Influent	200	357	190	35.7	4.82	25.1	7.9
06/11/2012	Influent	155	258	173	31.6	4.29	20	8
11/12/2012	Influent	91	204	116	21.5	2.33	8	7.8
	Average	***160.5***	***307***	***178***	***32.5***	***4.4***	***19.7***	***7.9***

Calculation of the Population Equivalent load to the WWTP

The total influent for the year 2012 was 109,973 m3 per Tables No 5 below

The flow weighted averaged influent BOD as calculated per Table 2 is 144 mg/l

Kilsheelan population equivalent was determined by the following formula:

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

Therefore the pe = (109,973 x 144) / (0.06 x 366 x 1000) = **721**

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

	Flow (m3)	***BOD (mg/l)***	***BOD (Kg/day)***
10/1/2012	354	100	35.4
7/2/2012	283	170	48.11
6/3/2012	198	243	48.11
3/4/2012	203	278	56.43
1/5/2012	234	145	33.93
12/6/2012	216	195	42.12
3/7/2012	419	86	36.03
8/8/2012	240	145	34.8
4/9/2012	433	102	44.17
2/10/2012	189	200	37.8
6/11/2012	239	155	37.05
11/12/2012	383	91	34.85
Total	***3391***		***488.8***

The Flow weighted average BOD is 488.8 Kg x 1000 / 3391 m3 = 144 mg/l

2.2 Discharges from the agglomeration

Presented below in Tables 3 and 4 are the primary discharge point monitoring 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 (mg/l)	COD (mg/l)	SS (mg/l)	Total Nitrogen as N (mg/l)	Total P as (mg/l)	Ortho P (mg/l)	Ammonia mg/l as N	pH (value)
ELV's		**20 mg/l**	**125 mg/l**	**30 mg/l**	**n/a**	**n/a**	**3 mg/l**	**10 mg /l**	**6 to 9**
10/01/2012	354	2	15	5	14	0.69	0.62	2.6	8.0
07/02/2012	283	3	15	7	21.9	0.79		0.1	8.0
06/03/2012	198	3	15	4	19.2	0.52	0.43	5.6	7.9
03/04/2012	203	2	16	5	29.2	0.7		0.1	8.0
01/05/2012	234	4	15	3	26.7	0.38	0.27	0.1	8.0
12/06/2012	216	3	17	5	23.1	0.72		0.1	8.1
03/07/2012	419	3	15	3	14.1	1.14	1.04	0.7	8.0
08/08/2012	240	2	15	3	11.6	0.81		4.1	8.1
04/09/2012	433	2	15	3	7.6	0.5	0.42	2.0	8.0
02/10/2012	189	5	17	5	8.6	0.78		5.6	8.1
06/11/2012	239	2	15	3	11.3	0.62	0.57	0.2	8.0
11/12/2012	383	4	15	7	13.5	0.32		0.1	7.8
Average		***2.9***	***15.4***	***4.4***	***16.7***	***0.66***	***0.56***	***1.8***	***8.0***

Table 4: Summary of the Effluent Monitoring and Compliance

	BOD	COD	SS	TN	TP	Ammonia	Ortho P	pH
WWDL ELV	***20 mg/l***	***125 mg/l***	***30 mg/l***	***n/a***	***n/a***	***10 mg/l***	***3 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
Annual Mean	2.9	15.4	4.4	16.7	0.66	1.8	0.56	8.0
Overall Compliance	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass

Table 5: Kilsheelan WWTP Primary point daily flow recordings (m3/day) for 2012 as required under Scheule B (Monitoring) of the Discharge licence.

Day	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec
1	309	266	201	148	234	198	626	392	555	211	229	590
2	347	262	216	190	232	284	351	246	401	189	257	590
3	347	274	209	203	205	284	419	282	401	214	277	395
4	333	276	209	166	60	301	384	321	433	203	277	507
5	361	276	209	186	**35**	301	396	321	482	177	246	478
6	333	276	198	183	35	216	392	274	326	195	239	453
7	343	283	206	206	65	413	489	274	435	195	232	522
8	343	257	203	206	65	581	489	240	401	236	219	385
9	343	260	91	186	184	154	292	350	401	212	268	385
10	354	261	258	186	228	154	410	150	258	195	256	375
11	305	286	258	179	190	154	499	313	345	250	256	383
12	326	286	164	175	214	216	452	313	322	202	256	379
13	322	184	171	172	158	245	498	275	311	221	249	436
14	328	244	190	192	158	231	468	318	278	221	319	375
15	328	296	193	192	184	563	468	300	276	149	242	455
16	250	189	231	148	175	592	468	684	276	195	248	455
17	272	246	224	221	187	441	436	747	255	315	274	354
18	285	241	224	194	190	441	445	556	250	424	274	396
19	285	241	175	164	203	425	412	487	246	314	432	457
20	290	241	175	187	203	438	414	487	245	296	403	556
21	264	221	188	193	136	497	449	482	234	296	323	522
22	264	224	149	193	186	521	449	486	248	229	428	**776**
23	264	219	267	148	160	446	251	438	248	211	467	449
24	269	263	206	178	149	446	367	460	203	232	413	393
25	240	218	206	107	149	384	343	565	198	243	413	544
26	309	218	155	250	204	421	339	565	260	250	628	544
27	243	168	199	209	204	392	344	424	204	244	700	544
28	311	194	180	150	181	454	316	482	204	244	613	476
29	311	207	177	150	174	481	316	507	207	244	577	564
30	263		202	277	168	320	283	516	207	182	556	564
31	331		202		168		298	485		241		548
	9473	7077	5934	5539	4916	10994	12265	12255	9110	6989	10571	14850

Total	109973
Min	35
Max	776
Ave	300

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

	cBOD	COD	SS	TN	Ammonia	TP
Influent Mass Loading (Kg/day)	48.15	92.1	53.4	9.75	5.91	1.32
Effluent Mass Loading (Kg/day)	0.87	4.62	1.32	5.01	0.54	0.20
% Efficiency Reduction	98%	95%	97.5%	48.6%	91%	85%

2.4 Treatment Capacity Report

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

Table7 : Treatment Capacity Report Summary Table

Hydraulic Capacity – Design	775 m3 /day @ 3dwf
Hydraulic Capacity – Current Loading	300 m3 /day
Hydraulic Capacity – Remaining	475 m3 / day
Organic Capacity – Design (pe)	1,000 pe
Organic Capacity – Current Loading (pe)	721 pe
Organic Capacity – Remaining (pe)	279 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 8 (Upstream) and Table 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 8: Ambient monitoring at aSW-IU upstream of SW1

Sample Date	Ammonia (mg/l)	BOD (mg/l)	DO (mg/l)	Ortho P (mg/l)	pH (value)	Temp (deg C)	Total Nitrogen (mg/l)
27/03/2012	0.0452	1.56	491	10.96	0.01	8.23	10.5
27/06/2012	0.2603	0.51	NT	AR	0.03	8.107	18
27/09/2012	0.1113	1.11	AR	10.35	0.01	8.08	12.7
11/12/2012	0.06	1.44	503	11.97	0.03	7.968	6.8
Average Value	**0.12**	**1.16**	**497.00**	**11.09**	**0.02**	**8.10**	**12.00**
Maximum Value	**1.21**	**5.87**	**511.00**	**12.20**	**0.16**	**8.25**	**3.70**
95% Percentile	**0.24**	**1.54**	**502.40**	**11.87**	**0.03**	**8.21**	**17.21**

Table 9: Ambient monitoring at aSW-ID downstream of SW1

Sample Date	Ammonia (mg/l)	BOD (mg/l)	DO (mg/l)	Ortho P (mg/l)	pH (value)	Temp (deg C)	Total Nitrogen (mg/l)
27/03/2012	0.0533	1.54	495	10.88	BLD	8.25	10.8
27/06/2012	0.263	0.58	NT	AR	0.03	8.055	17.2
27/09/2012	0.1076	0.66	AR	10.5	0.01	8.08	11.7
11/12/2012	0.071	1.51	511	11.79	0.02	8.015	7.2
Average Value	**0.12**	**1.07**	**503.00**	**11.06**	**0.02**	**8.10**	**11.73**
Maximium Value	**1.21**	**5.87**	**511.00**	**12.20**	**0.16**	**8.25**	**3.70**
95% Percentile	**0.24**	**1.54**	**510.20**	**11.70**	**0.03**	**8.22**	**16.38**

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	229138E, 123062N	TBC	No
aSW-ID downstream of SW1	229303E, 123029N	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 Pollutant 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 Kilsheelan 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)**
None	None	None	None	N/A	N/A

3.2 Reported Incidents Summary

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

Table 12: Incidents Summary

Date and Time	**Incident Description**	**Authorities Contacted**	**Corrective Action**	**Closed (Y/N)**
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 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 overflows for the Kilsheelan Agglomeration have been identified and are set out in Schedule A.4 of the discharge licence.

Storm Water Overflows

Discharge Point Code	Location – Grid Ref	Name of Receiving Waters
SW 2 (discharge via primary discharge point SW1)	229206E, 123047N	River Suir
SW3 (discharge via primary discharge point SW1)	229206E, 123047N	River Suir
SW4 (Overflow from original septic tank in the village)	228824E, 123193N	River Suir
SW5 (Overflow to the River Suir on western side of Kilsheelan bridge)	228633E, 123244N	River Suir
SW6 (Overflow from pumping Station at Cloghcarrigeen	228144E, 123467N	River Suir

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 overflows were observed and assessed during 2012 in both dry and wet weather conditions. The following criteria were assessed.

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

   The storm water overflows SW 2 (overflow from pump station at the WWTP) and SW3 (overflow from chamber outside the plant) is a mix of screened overflow from the WWTP and dilute storm water from the network and does not cause any visual or aesthetic impact or lead to any public complaints.

SW4 is the overflow from the original septic tank in the village and has a submerged outlet to the River Suir. The septic tank is receiving minimal load at present and potential for overflow is low. Consequently it does not cause any significant visual, aesthetic impact or lead to public complaint.

Similarly SW5 (storm overflow to the western side of Kilsheelan Bridge) and SW6 (overflow from the pumping station at Cloghcarrigeen) and do not cause any visual or aesthetic impact or lead to public complaint. The operation of pumping station is monitored and maintained as part of the overall network management in the village.

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

   The storm water overflows identified above do not cause any deterioration of water quality in the receiving waters (River Suir).

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 overflows do 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 storm water overflows
Has the EPA been advised of any additional SWO's / changes to Schediule C and A4 under the licence conditions.	No additional SWO's / changes to Schedule C3 and A4 under the licence required or identified.

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

There are two Improvement Programme Works specified in Schedule C1 and C2 of the Discharge Licence.

Schedule C1 identified that the primary discharge point SW1 was to be relocated to the main course of the River Suir. The licensee can confirm that these works were undertaken and completed in 2012.

Schedule C2 identified that the SW7 discharge was to be discontinued. The licensee can confirm that it is presently seeking an alternative outlet for this discharge to the main WWTP via an adjoining housing estate. Implementation of the works are dependant on the taking in charge of the adjoining housing estate by the Council (which is now complete) and the securing of a wayleave through private property for an alternative pipe route (to be commenced). The licensee will endeavour to have this Improvement Programme Work undertaken and completed in 2013.

4.3 Sewer Integrity Risk Assessment

The sewer integrity risk assessment for the Kilsheelan Agglomeration is attached in Appendix B

A summary of the Risk Assessment is presented below in Table 15 below.

Table 15: Summary of the Sewer Risk Assessment for Kilsheelan

Element	Risk Ass Score	Risk Category	% Risk Score	Max Risk Score
Section 2.1 Hydraulic Risk Assessment	115	High Risk	77 %	150
Section 3.1 Env Risk Assessment	335	Medium Risk	67 %	500
Section 4.1 Structural Risk Assessment	135	High Risk	90 %	150
Section 5.1 O and M Risk Assessment	68	Low Risk	34 %	200
Total RAS for Network	653	High Risk	65 %	1000

5.0 ENVIRONMENTAL LIABILITY AND FINANCIAL PROVSIONS

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 Kilsheelan WWTP is €2,968.

Financial provisions in relation to underwriting of potential costs for remedial actions in the event of accidents or other Environmental Liabilites 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 D0452-01 in respect of the Kilsheelan Agglomeration is representative and accurate.

Signed: **Dated:** 27/2/2013

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