SOUTH TIPPERARY COUNTY COUNCIL

KILSHEELAN

WASTEWATER DISCHARGE LICENCE

REGISTER NUMBER D0452-01

ANNUAL ENVIRONMENTAL REPORT

1st JANUARY 2011 to DECEMBER 31ST 2011

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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 first 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 *".*

1.1 Site Information

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 Primary Discharge Point SW1

The Primary Discharge Point, SW1, discharges treated effluent from the Kilsheelan WWTP to the River Suir at 229206 E, 123047N. There is one secondary wastewater discharge at 229029E, 123134N to be discontinued.

1.3 Storm Water Overflows

There are 5 storm water overflows in the agglomeration.

- SW2 located at 229206 E, 123047 N (discharge via primary discharge point SW1)
- SW3 located at 229206 E, 123407 N (discharge via primary discharge point SW1)
- SW4 located at 228824 E, 123193 N
- SW5 located at 228633 E, 123244 N
- SW6 located at 228144 E, 123467 N

1.4 Wastewater Treatment Management

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

1. SUMMARY OF MONITORING REPORTS

1.1 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.

Table 1: Waste water treatment plant influent monitoring results.

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	134	190	481	285	35.2	5.56	7.7	21.4
8/2/2011	312	114	227	106	24.6	2.86	8.0	16.3
8/3/2011	310	155	283	169	29.8	3.83	8.0	16.3
5/4/2011	117	94	174	55	32.6	3.91	8.0	21.1
4/5/2011	154	210	330	159	34.5	5.43	7.8	31.5
8/6/2011	258	245	630	335	44.2	9.24	7.7	28.8
5/7/2011	239	320	691	435	36.5	6.81	7.6	20.6
9/8/2011	167	195	342	200	35.8	5.42	7.7	27.9
6/9/2011	196	185	355	220	37.1	5.79	7.8	30.8
11/10/2011	180	335	700	361	51.1	8.38	7.8	42.1
8/11/2011	207	200	455	311	36.4	6.32	7.6	21.6
6/12/2011	442	160	372	202	21.9	3.59	7.8	9.0
Average		*200*	*420*	*237*	*35*	*5.6*	*7.8*	*24*

Determination of the Population Equivalent load to the WWTP

The total influent for the year 2011 was 99,108 m3 per Tables No 3 and No 4 below

The flow weighted averaged influent BOD as calculated per Table 2 is 198 mg/l

Kilsheelan 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 = (99,108 x 198) / (0.06 x 365 x 1000) = **896**

Table 2: Influent BOD Calculation sheet

Date	Influent Flow	Influent BOD	BOD (Kg)
11/1/2011	134	190	25.5
8/2/2011	312	114	35.6
8/3/2011	310	155	48.1
5/4/2011	117	94	11
4/5/2011	154	210	32
8/6/2011	258	245	63.2
5/7/2011	239	320	76.5
9/8/2011	167	228	38.1
6/9/2011	196	185	36.3
11/10/2011	180	335	60.3
8/11/2011	207	200	41.4
6/12/2011	442	160	70.7
Total	2716 m3		538.7 Kg

The Flow weighted average BOD is 538.7 Kg x 1000 / 2716 m3 = 198 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 26,366 m3 /day was recorded on 9/2/2011
The lowest daily flow of 10 m3/day was recorded on 9/1/2011
The average daily flow for 2011 was 270.5 m3 /day
The total flow for the year 2011 was 98,743 m3

2.2.1 Nutrient Removal Efficiencies

A summary of the nutrient removal efficiencies for TN and TP are given in Table 2.1 below. The removal efficiency was calculated at 45 % for TN and 90 % 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 %
35 mg/l	19.3 mg/l	45 %
Annual Average Influent TP (mg/l)	Annual Average Effluent TP (mg/l)	Removal Efficiency
5.60 mg/l	0.58 mg/l	90%

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	90	158	388	168	132	198
2	216	217	429	204	188	175
3	199	187	400	134	198	183
4	168	247	276	134	154	213
5	201	372	340	117	303	217
6	169	368	342	95	307	166
7	197	370	338	153	281	170
8	29	312	310	117	281	258
9	10	388	306	213	146	214
10	17	390	382	213	220	202
11	134	360	216	158	181	302
12	27	431	172	137	189	302
13	296	435	172	168	197	195
14	153	355	156	58	187	204
15	412	513	56	172	189	176
16	410	498	38	193	185	216
17	192	522	39	196	186	336
18	245	440	39	190	172	245
19	238	490	212	186	177	249
20	269	492	216	161	193	132
21	240	494	214	167	233	273
22	242	442	154	171	233	209
23	241	512	162	148	175	196
24	239	341	200	148	194	291
25	282	601	212	296	202	208
26	298	285	214	130	149	210
27	185	287	214	182	192	206
28	240	571	150	167	184	195
29	244		194	189	172	200
30	242		152	177	172	173
31	151		23		227	

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	173	156	161	33	165	468
2	181	138	164	33	373	519
3	185	143	216	66	596	518
4	130	167	220	112	388	514
5	239	146	244	181	243	366
6	168	232	196	148	239	442
7	279	174	151	190	165	434
8	205	178	160	193	207	421
9	162	167	155	189	243	428
10	158	158	207	124	211	413
11	160	205	211	180	263	409
12	242	160	176	160	429	375
13	162	184	191	153	235	491
14	155	188	157	168	231	408
15	172	116	152	158	229	427
16	180	175	176	162	165	429
17	184	192	226	165	272	425
18	134	118	228	204	611	427
19	171	90	224	150	773	320
20	181	182	140	158	769	399
21	177	180	171	163	390	378
22	150	184	82	229	388	348
23	175	151	67	233	437	393
24	177	159	173	469	280	371
25	173	182	173	325	422	367
26	169	162	199	218	442	369
27	149	153	162	164	392	309
28	187	155	150	179	388	364
29	166	151	156	229	369	384
30	193	165	147	247	572	384
31	193	161		247		348

2.2.2 Monitoring of Primary Wastewater Discharge SW1

Table 5 below shows the results for the parameters BOD, COD, Suspended Solids
The monitoring results demonstrate that the wastewater treatment plant is operating well and within the Discharge limits set out in the licence.

Table 5: Monitoring of Primary Wastewater Discharge SW1

	BOD mg/l	COD mg/l	SS mg/l	TN mg/l	TP mg/l	pH	Amm mg/l
11/1/2011	**3**	**16**	**5**	**30.4**	**0.41**	**7.8**	**0.1**
8/2/2011	**3**	**21**	**8**	**13.3**	**0.41**	**8.0**	**0.1**
8/3/2011	**6**	**26**	**8**	**17.6**	**0.49**	**8.0**	**0.3**
5/4/2011	**4**	**29**	**5**	**22.7**	**0.44**	**8.1**	**0.1**
4/5/2011	**3**	**18**	**5**	**18.8**	**0.76**	**7.8**	**0.1**
8/6/2011	**10**	**32**	**12**	**17.4**	**0.43**	**7.6**	**3.2**
5/7/2011	**5**	**24**	**6**	**30.2**	**0.78**	**7.9**	**0.2**
9/8/2011	**3**	**18**	**5**	**13.6**	**0.44**	**8.0**	**10**
6/9/2011	**2**	**15**	**4**	**15**	**0.79**	**8.0**	**3.8**
11/10/2011	**4**	**24**	**3**	**21.2**	**0.78**	**7.9**	**7.0**
8/11/2011	**3**	**15**	**6**	**18.5**	**0.75**	**7.8**	**0.5**
6/12/2011	**4**	**15**	**4**	**13.2**	**0.45**	**7.9**	**0.1**
Average	***4.2***	***21***	***5.9***	***19.3***	***0.58***	***7.9***	***2.1***

Comment: An analysis of the results and compliance with licence requirements are given in Appendix A of this AER**.**

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 6 (Upstream) and Table 7 (Downstream)

Table 6 Ambient monitoring at aSW-IU upstream of SW1

SampleDate	Ammonia(N) mg/l as N	BOD mg/l	Dissolved Oxygen mg/l	Ortho-phosphate mg/l as P	pH Units
04-Jan-11	0.02	0.9	12.26	0.02	8.1
28-Apr-11	<0.01	0.8	13.63	<0.01	8.4
04-Jul-11	0.03	0.8	11.79	0.03	8.1
22-Sep-11	0.02	1.1	11.91	0.02	8.2

Table 7 Ambient monitoring at aSW-Id downstream of SW1

SampleDate	Ammonia(N) mg/l as N	BOD mg/l	Dissolved Oxygen mg/l	Ortho-phosphate mg/l as P	pH Units
04-Jan-11	0.03	1.0	12.32	0.02	8.1
28-Apr-11	0.01	0.9	12.10	<0.01	8.2
04-Jul-11	0.03	1.1	13.81	0.03	8.2
22-Sep-11	0.02	1.0	11.46	0.02	8.1

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.

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 Kilsheelam 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 Kilsheelan 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 98,743 m3 per Tables No3 and No 4

The flow-weighted averaged influent BOD as calculated per Table 2 is 198 mg/l

The Kilsheelan population equivalent was determined at 896 pe, while the design pe for the plant is 1,000 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. However it is noted that the licence sets out a specified Improvement Programme requirement for relocation of the primary discharge point by June 2012. A proposal to deal with this requirement will be developed and funding sought for it's implementation in 2012.

Appendix A

Summary of Kilsheelan 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		10	30	20	125	6-9		3	
Kilsheelan	11/01/2011	0.1	5	<3	16	7.8	0.41		30.4
Kilsheelan	08/02/2011	0.1	8	3	21	8.0	0.41		13.3
Kilsheelan	08/03/2011	0.3	8	6	26	8.0	0.49		17.6
Kilsheelan	05/04/2011	0.1	5	4	29	8.1	0.44		22.7
Kilsheelan	04/05/2011	0.1	<5	3	18	7.8	0.76		18.8
Kilsheelan	08/06/2011	3.2	12	10	32	7.6	0.43		17.4
Kilsheelan	05/07/2011	0.2	6	5	24	7.9	0.78		30.2
Kilsheelan	09/08/2011	10	<5	3	18	8.0	0.44		13.6
Kilsheelan	06/09/2011	3.8	4	2	15	8.0	0.79		15
Kilsheelan	11/10/2011	7.0	<3	<4	24	7.9	0.78		21.2
Kilsheelan	08/11/2011	0.5	6	<3	15	7.8	0.75		18.5
Kilsheelan	06/12/2011	0.1	4	<4	15	7.9	0.45		13.2
No Tests		12.0	12.0	12.0	12.0	12.0	12.0		12.0
Maximum		10	12	10.0	32.0	8.1	0.79		30.4
Average Value		2.1	5.9	4.2	21	7.9	0.58		19.3
No samples Failing		0.0	0.0	0.0	0.0	0.0	0.0		0.0
Compliance with licence		yes	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.