SOUTH TIPPERARY COUNTY COUNCIL

MULLINAHONE

WASTEWATER DISCHARGE LICENCE

REGISTER NUMBER D0456-01

ANNUAL ENVIRONMENTAL REPORT

1st JANUARY 2013 to DECEMBER 31ST 2013

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1.0 INTRODUCTION and EXECUTIVE SUMMARY

1.1 Introduction

The Environmental Protection Agency on 11th December 2013 granted South Tipperary County Council a Wastewater Discharge Licence (Register No D0456-01) in respect of the agglomeration named Mullinahone. One of the provisions of the licence (Condition 6.8) is that the Council submit to the Agency on an annual basis an 'Annual Environmental Report' (AER) to provide a summary of the activities relevant to the discharges for that year. This is the first Annual Environmental Report (AER) for Mullinahone 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 2013"

The Mullinahone Wastewater Treatment Plant is located approximately 0.5 Km south of Mullinahone village and has a National Grid reference of E233656, N139632. The sewer network is generally a combined system with the more recent housing developments in the village having installed separate foul and surface water systems. A pumped discharge from one of these Housing estates is received by the WWTP.

The plant consists of a manual inlet bar screen, an imhoff primary settlement tank followed by two rotating biological contactors. There is no phosphorus removal system at the plant. The plant has a design capacity of 500pe.

Because of the limited number of dilutions available in the Mullinahone stream, the licence requires a major upgrade of the WWTP to achieve stringent emission limit values. This is required by December 2019.

Preliminary Consultancy works and assessments have already taken place in 2013 with a view to replacement of the existing WWTP with a new purpose built facility. This has included acquisition of a small portion of adjoining lands to facilitate the new development. Progress on this will be detailed in future AER submissions to the EPA.

1.2 Executive Summary

The operation of the Mullinahone wastewater treatment has proved to be a challenge in this reporting period due to the inadequate treatment capacity of the existing infrastructure at the site. The treatment plant is operated and maintained by the Water Services Section of South Tipperary County Council.

A review of the final effluent results and compliance with the Emission Limit Values set out in licence shows that there was a number of exceedences of the ELV for BOD (2 No) which had an annual average effluent value of 30 mg/l against an ELV of 25 mg/l while Suspended Solids and COD had annual effluent values of 53 mg/l and 130 mg/l against ELV's of 35 mg/l and 125 mg/ l respectively. The average effluent value for Ammonia was 25 mg/l against an ELV of 10mg/l. The average effluent value for Soluble Reactive Phosphorus was 3.2 mg/l against an ELV of 5mg/l.

The total flow for the year was estimated to be 98,550 m3 while the average influent BOD to the plant was 111 mg/l giving a current pe loading of the plant of 498 pe. This compares with a plant design of 500 pe.

The average daily influent flow for the year was estimated to be 270 m3 /day against a plant design of 337 m3/day at 3 DWF which indicates that the plant is highly hydraulically loaded. This is evidenced by high influent loading to the plant in wet weather conditions due to the combined sewer system and lack of storm water storage / retention facilities at the site.

A review of the ambient monitoring results for upstream and downstream of SW1 indicates that the an Upstream SSRS Score of 5.6 and a Downstream SSRS Score also of 5.6, indicating that there is no deterioration in the SSRS risk score downstream from the effluent discharge point.

The percentage reductions shown in the treatment efficiency report summary (Section 3) shows that reductions of 73%, 62% and 29 % were achieved in BOD, COD and Suspended Solids respectively.

A reduction of 38% was achieved in the Ammonia levels while a 25% reduction was achieved in the Soluble Reactive Phosphorus levels.

An analysis and interpretation of the final effluent results is given under section 2.2 of this report.

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, Ammonia Nitrogen (N), Soluble Reactive Phosphorus and pH. Also set out below is the calculation of the pe equivalent load for the plant

Table 1: Waste water treatment plant influent monitoring results for Mullinahone WWTP.

	cBOD 5d with nitrification inhib mg/l	Chemical Oxygen Demand (COD) mg/l	Suspended Solids mg/l	pH Value pH unit	Ammonia Nitrogen (as N) mg/l	Soluble Reactive Phosphorus (as P) mg/l
ELV	**25 mg/l**	**125 mg/l**	**35 mg/l**	**6 to 9**	**10 mg/l**	**5 mg/l**
24/01/2013	184	386.7	100	8.205	45.01	4.2
26/06/2013	103.5	513	55	8.439	74	7.1
28/08/2013	83.37	216	66	7.71	24.5	2.51
17/10/2013	72	232	76	7.89	18.5	3.225
2/01/2014	85.59	207	50	7.8	4.98	11.749
No of Samples	***4***	***4***	***4***	***4***	***4***	***4***
Annual Max	***184***	***513***	***76***	***8.439***	***74***	***7.1***
Annual Mean	***110.7***	***337***	***74.25***	***8.061***	***40.5***	***4.26***

Calculation of the Population Equivalent load to the WWTP

The total influent for the year 2013 was estimated to be 98,550 m3. The average daily influent flow was therefore 270 m3/day. The averaged influent BOD as calculated per Table 1 above is 110.7 mg/l

The Mullinahone population equivalent was determined by the following formula:

Total Influent Flow for 2013 x averaged influent BOD divided by (0.06x365x1000).

Therefore the pe = (98,550 x 110.7) / (0.06 x 365 x 1000) = **498 pe**

2.2 Discharges from the agglomeration

Presented below in Tables 3 and 4 are the primary discharge point monitoring effluent results for a number of 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). A complete set of monitoring results at the frequency required in the Discharge Licence will be included in the second AER due for submission in 2015.

Table 3 : Tabular presentation of the wastewater treatment plant effluent monitoring results with the associated Emission Limit Values (ELV's).

	cBOD 5d with nitrification inhib (mg/l)	Chemical Oxygen Demand (COD) mg/l	Suspended Solids mg/l	pH Value pH unit	Ammonia Nitrogen (as N) mg/l	Soluble Reactive Phosphorus (as P) mg/l
ELV	**25 mg/l**	**125 mg/l**	**35 mg/l**	**6 to 9**	**10 mg/l**	**5 mg/l**
24/01/2013	33	149.8	52	7.483	22.885	2.25
26/06/2013	41.92	159	42	7.546	40.5	5.6
28/08/2013	24.48	111	60	7.42	19.3	2.28
17/10/2013	21.1	101	58	7.52	18	2.7
2/01/2014	23.1	64	26	7.51	1	0.842
No of Samples	***4***	***4***	***4***	***4***	***4***	***4***
Annual Max	***41.92***	***159***	***60***	***7.546***	***40.5***	***5.6***
Annual Average	***30.13***	***130.2***	***53***	***7.49***	***25***	***3.2***

Table 4: Summary of the Effluent Monitoring and Compliance

	BOD	COD	SS	Ortho P	Ammonia	pH
WWDL ELV	**25 mg/l**	**125 mg/l**	**35 mg/l**	**5 mg/l**	**10 mg/l**	**6 to 9**
No of sample results	4	4	4	4	4	4
No of sample results above ELV	2	2	4	1	4	0
No of sample results above ELV with Condition 2	2	2	4	0	4	0
Overall Compliance	Fail	Fail	Fail	Pass	Fail	Pass

Interpretation of results: It will be noted from the final effluent results that the overall performance of the plant has not been very satisfactory in 2013. However more recent remedial works to the RBC unit and de-sluding at the plant has allowed for improved results as highlighted in the final effluent results taken in January 2014. It is hoped to continue this improvement in the 2014 reporting period

2.3 Ambient monitoring summary

The ambient monitoring results for the parameters as set out in Schedule B of the licence is presented in table No 5 (Upstream) and table No 6 (Downstream) below. Also presented in Table 7 is a summary of the ambient monitoring. The monitoring results indicate that the discharge is not having a significant impact on the existing quality of the receiving water.

Table 5: Ambient monitoring at aSW-I U upstream of SW I

Sample Date	Ammonia	BOD	DO	Ortho P	pH	Temp
26/06/2013	0.74	1.66	6.28	0.18	7.808	14.4
28/08/2013	8.95	9.84	4.02	1.34	7.5	16.4
17/10/2013	4.25	6.55	9.51	0.451	7.54	13.1
Max Value	**8.95**	**9.84**	**9.51**	**1.34**	**7.808**	**16.4**
Average Value	**4.64**	**6.02**	**6.60**	**0.66**	**7.6**	**14.6**

Table 6: Ambient monitoring at aSW-Id downstream of SW I

Sample Date	Ammonia	BOD	DO	Ortho P	pH	Temp
26/06/2013	0.41	1.66	9.63	0.22	8.071	13.2
28/08/2013	1.72	1.36	6.68	0.385	7.65	14.9
17/10/2013	1.09	2.63	8.07	0.275	7.72	13.5
Max Value	**1.72**	**2.63**	**9.63**	**0.385**	**8.071**	**14.9**
Average Value	**1.07**	**1.88**	**8.12**	**0.29**	**7.8**	**13.9**

Table 7 : 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	E233572, N140133	RS16M090400	No
aSW-ID downstream of SW1	E233482, N138898	Rs16M090500	Very low assimilative capacity in downstream receiving water

Small Stream Risk Score Assessment:

Sampling of the receiving water was carried as a biological assessment to detect potential sources of pollution to the watercourse. It involves identifying the abundance of pollution sensitive and pollution tolerant macroinvertebrae. The results shown below indicate that there is no deterioration to the SSRS risk score from the effluent discharge point.

SSRS Score Upstream 5.6 SSRS Score Downstream 5.6

2.4 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 2013 was submitted to the EPA in electronic form in the first quarter of 2014..

2.5 Pollutant Release and Transfer Register (PRTR)

Submission of the PRTR Emissions Data information (i.e all relevant worksheets including the Facility ID and Activities sheet) is not required as part of this AER as the agglomeration size is less Than 2,000 pe

3.0 OPERATIONAL REPORTS SUMMARY.

3.1 Treatment Efficiency Report

Presented below in Table 8 is a summary of the efficiency of the treatment process including information for all the parameters specified in the licence.

Table 8: Treatment Efficiency Report Summary Table

	cBOD 5d with nitrification inhib	Chemical Oxygen Demand (COD)	Suspended Solids	Ammonia Nitrogen (as N)	Soluble Reactive Phosphorus (as P)
Influent mass loading (kg/day)	29.9	91	20	10.9	1.15
Effluent mass emission (kg/day)	8.1	35	14.3	6.75	0.86
% Efficiency (% reduction of influent) load)	73%	62%	29%	38%	25%

3.2 Treatment Capacity Report

Presented below in Table 9 is a summary of the current and remaining treatment capacity of the treatment process.

Table9 : Treatment Capacity Report Summary Table

Hydraulic Capacity – Design	337 m3 /day @ 3dwf
Hydraulic Capacity – Current Loading	270 m3 /day
Hydraulic Capacity – Remaining	67 m3 / day
Organic Capacity – Design (pe)	500 pe
Organic Capacity – Current Loading (pe)	498 pe
Organic Capacity – Remaining (pe)	2 pe
Will the capacity be exceeded in the next 3 years	Depending on timescale of proposed upgrade works.

3.1 Complaints Summary

There were no complaints of an environmental nature related to the discharge to water from the Mullinahone Wastewater Treatment Plant in 2013.

Table 10: 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 were a number of recorded exceedence in relation to the Mullinahone WWTP in 2013. As the discharge licnece was issued at the end of 2013 the opportunity to report against known ELV's within the reporting year was not possible. All exceedences will be reported as set out in the licence requirements in 2014.

Table 11: Incidents Summary

Date and Time	Incident Description	Cause	Corrective Action	Authorities Contacted	Reported to EPA	Closed (Y/N)
2013	Various	Plant performance	Remedial work in 2014	STCC	See note above	N/A

Table 12: A summary of the incident details as required in the EPA reporting guidelines is set out below

No of Incidents in 2013	None
Number of Incidents reported to the EPA via EDEN in 2013.	None
Explanation of any discrepancies between the two numbers above.	Discharge licence only issued in December 2013.

4.0 INFRASTRUCTURAL ASSESSMENT & PROGRAMME OF IMPROVEMENTS

4.1 Storm Water overflow identification and inspection report.

The Discharge Licence for the Mullinahone Agglomeration was issued in December 2013. A report on storm water overflow identification and inspection will be included in the second AER for this Agglomeration which is due for submission in 2015.

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

As the licence for the Mullianhone Agglomeration was only issued in December 2013 there is no proposal developed yet in relation to upgrade works for the plant. However some initial Consultancy assessment works and land acquisition for a planned new plant have been completed.
An update on this will be made and reported upon in the second AER due for submission in 2015.

4.4 Sewer Integrity Risk Assessment

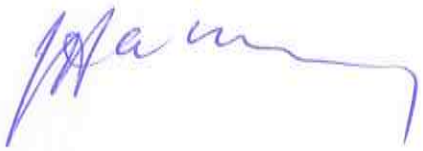
A sewer integrity risk assessment will be carried out on the Mullinahone Agglomeration following further investigation of the network in 2014. This assessment will be completed and submitted to the Agency as part of the second AER submission due in 2015.

5.0 LICENCE SPECIFIC REPORTS

As the Discharge Licence was only issued in December 2013, there is no licence specific reports to submit in this AER submission. A review of the report requirements will be undertaken and the relevant reports submitted as part of the second AER due for submission in 2015.

6.0 CERTIFICATION AND SIGN OFF

I certify that this Annual Environmental Report (AER) for the reporting year 2013 for the Waste Water Discharge Licence No D0456-01 in respect of the Mullinahone Agglomeration is representative and accurate.

Signed  **Dated:** 28/4/14

Mr Jimmy Harney

Acting Director of Services

Environment and Water Services

South Tipperary County Council