

**SOUTH TIPPERARY COUNTY COUNCIL**



**LIMERICK JUNCTION**

**WASTEWATER DISCHARGE LICENCE**

**REGISTER NUMBER D0457-01**

**ANNUAL ENVIRONMENTAL REPORT**

**1<sup>ST</sup> JANUARY 2013 to DECEMBER 31<sup>ST</sup> 2013**

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## **1.0 INTRODUCTION and EXECUTIVE SUMMARY**

### **1.1 Introduction**

The Environmental Protection Agency on the 11<sup>th</sup> December 2013 granted South Tipperary County Council a Wastewater Discharge Licence (Register No D0457-01) in respect of the agglomeration named Limerick Junction. 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 activities relevant to the discharges for that year. This is the first Annual Environmental Report (AER) for the Limerick Junction 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 Limerick Junction Wastewater Treatment Plant is approximately 4 Km west of Tipperary Town (National Grid Reference of E186481 , N138974). The plant is located off the N24 Tipperary to Limerick Road on the access route to Limerick Junction railway station.

The Limerick Junction agglomeration is served by a secondary waste water treatment plant which has a design capacity of 500 pe. The plant consists of a package activated sludge plant , divided into aeration and clarifier settlement zones and includes a sludge storage tank.

Generally discharge to the plant is via gravity sewer. There is also one pumped trade effluent discharge to the sewer licensed by South Tipperary County Council under Section 16 of the Water Pollution Acts, from the Ballykisteen Hotel and Leisure facility.

The primary discharge (SW001) is the outfall from the WWTP to a tributary of the Pope's River. The discharge licence requires the upgrade of the Limerick Junction WWTP by December 2019 to achieve specified emission limit values.

### **1.2 Executive Summary**

The Limerick Junction wastewater treatment plant has operated reasonably well in this reporting period. The treatment plant was operated and managed in 2013 by the Water Services Section of South Tipperary County Council.

The annual mean effluent values for BOD, COD, Suspended Solids, Soluble Reactive Phosphorus and Ammonia were within the Emission Limit Values (ELV's) specified in the licence. However there were a number of individual exceedences for Suspended Solids , COD and Ammonia during the year.

A review of the final effluent results and compliance with the Emission Limit Values set out in the licence shows that there was no exceedence of the ELV for BOD which had an average effluent value of 8.8 mg/l against an ELV of 20 mg/l while Suspended Solids and COD had annual mean effluent values of 25.2 mg/l and 67.6 mg/l against ELV's of 35 mg/l and 125 mg/l respectively. The average effluent value for Ammonia Nitrogen was 2.27 mg/l against an ELV of 3.5 mg/l.

The total flow for the year was estimated to be 96,725 m<sup>3</sup> while the current average estimated influent BOD to the plant is 112 mg/l - giving a current pe loading for the plant of 494 pe. This compares with a plant design of 500 pe.

The average estimated daily influent flow for the year was 265 m<sup>3</sup> /day against a plant design of 337 m<sup>3</sup>/day (at 3 dwf) which indicates that on an annual average basis the plant is operating within its hydraulic and treatment capacities at present. However significant variations in flows and loads over that designed can occur on occasion due to infiltration to the sewer system within the agglomeration.

A review of the ambient monitoring results upstream and downstream of the primary discharge point (SW1) gave a Small Streams Risk Score of 0.8 for the upstream and 1.6 for the downstream. These results would indicate that there is no deterioration to the SSRS risk score downstream from the effluent discharge point.

The percentage reductions shown in the treatment efficiency report summary table No 6 show that reductions of 92%, 69% and 82 % were achieved in BOD, COD and Suspended Solids respectively.

A reduction of 70% was achieved in the Ammonia levels while a reduction in the Soluble Reactive Phosphorus value was 75%.

An analysis and interpretation of the final effluent results is set out in Section 2.2 of this report.

As the Discharge Licence was only issued in December 2013, not all parameters were tested at the frequency required in the licence. However arrangements will be put in place to ensure all parameters will be tested and at the frequency required in 2014.

## 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 and the annual mean BOD load for the WWTP.

**Table 1: Treatment plant influent monitoring results for Limerick Jtn WWTP for 2013.**

Sample Date	C BOD 5d with nitrification inhib (mg/l)	Chemical Oxygen Demand (mg/l)	Suspended Solids (mg/l)	pH (Value)	Soluble Reactive Phosphorus (mg/l)	Ammonia Nitrogen (mg/l)
ELV	20 mg/l	125 mg/l	35 mg/l	6 to 9	2 mg/l	3.5 mg/l
20/03/2013	34.3	106	40	7.843	1.25	11.06
17/04/2013	45	117.4	64	7.63	1.15	6.239
26/09/2013	95.97	221	60	7.71	2.03	1.95
19/11/2013	303	481	108	7.629	2.375	8.5
12/12/2013	81	168	434	7.6	2.3	11.7
<b>No of Samples</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>	<b>5</b>
<b>Annual Max</b>	<b>303</b>	<b>481</b>	<b>434</b>	<b>7.843</b>	<b>2.375</b>	<b>11.7</b>
<b>Annual Mean</b>	<b>112</b>	<b>219</b>	<b>141</b>	<b>7.7</b>	<b>1.82</b>	<b>7.9</b>

### **Calculation of the Population Equivalent load to the WWTP**

The total influent for the year 2013 was estimated to be 96,725 m<sup>3</sup> or an average daily influent flow of 265 m<sup>3</sup> /day. This estimation is based on totaliser flow readings from the flow meter on the site.

Following issue of the Discharge Licence, a data flow logger has been installed which will allow for a continuous flow recording in 2014. The average influent BOD calculated per Table 1 above is 112 mg/l

The current Limerick Junction population equivalent was determined by the following formula:

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

Therefore the pe = (96,725 x 112) / (0.06 x 365 x 1000) = **494 pe**

## 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 2 : 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 (mg/l)	Suspended Solids (mg/l)	pH (Value)	Soluble Reactive Phosphorus (mg/l)	Ammonia Nitrogen (mg/l)
<b>ELV</b>	20 mg/l	125 mg/l	35 mg/l	6 to 9	2 mg/l	3.5 mg/l
<b>20/03/2013</b>	15.6	129	60	7.657	0.75	7.81
<b>17/04/2013</b>	19.32	111	46	7.63	0.8	2.27
<b>26/09/2013</b>	1.35	45	14	7.68	0.685	0.1
<b>19/11/2013</b>	5.88	34	2	7.501	BLD	1.15
<b>12/12/2013</b>	1.67	19	4	7.59	0.014	0.03
<b>No of Samples</b>	5	5	5	5	5	5
<b>Annual Max</b>	19.32	111	46	7.68	0.8	7.81
<b>Annual Mean</b>	8.8	67.7	25.2	7.6	0.45	2.27



**Table 3: Summary of the Effluent Monitoring and Compliance**

	cBOD	COD	SS	Ortho P	Ammonia	pH
WWDL ELV	20 mg/l	125 mg/l	35 mg/l	2.0 mg/l	3.5 mg/l	6 to 9
No of sample results	5	5	5	5	5	5
No of sample results above ELV	0	1	2	0	1	0
No of sample results above ELV with Condition 2 interpretation	0	0	2	0	1	0
Overall Compliance	Pass	Pass	Fail	Pass	Fail	Pass

**Interpretation of results:**

Exceedences in Suspended Solids, COD and Ammonia were recorded on the 20/03/2013. An exceedence in the Suspended Solids figure was also recorded on 17/04/2013. Process changes including de-sludging and monitoring of the MLSS levels at the plant resulted in the reduction of the final effluent values for Suspended Solids , COD and Ammonia from April onwards. It is noted that the annual mean value for all parameters recorded was within the EIV's set out in the licence. The summary of the effluent monitoring and overall compliance is set out in Table 3 above.

### 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 4 (Upstream) and table No 5 (Downstream) below. Also presented in Table 6 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 water.

**Table 4: Ambient monitoring at aSW-I U upstream of SW I**

Sample Date	Ammonia	BOD	DO	Ortho P	pH	Temp
20/03/2013	0.1926	0.79	11.21	0.03	8.098	4.5
22/08/2013	BLD	1.16	7.3	0.2	7.915	15.1
<b>Max Value</b>	<b>0.1926</b>	<b>1.16</b>	<b>11.21</b>	<b>0.2</b>	<b>8.098</b>	<b>15.1</b>
<b>Average Value</b>	<b>0.0963</b>	<b>0.975</b>	<b>9.255</b>	<b>0.115</b>	<b>8.007</b>	<b>9.8</b>

**Table 5: Ambient monitoring at aSW-Id downstream of SW I**

Sample Date	Ammonia	BOD	DO	Ortho P	pH	Temp
20/03/2013	0.197	1.43	11.15	0.05	8.19	5.7
22/08/2013	0.18	1.38	6.73	0.258	8.034	18
<b>Max Value</b>	<b>0.197</b>	<b>1.43</b>	<b>11.15</b>	<b>0.258</b>	<b>8.19</b>	<b>18</b>
<b>Average Value</b>	<b>0.1885</b>	<b>1.405</b>	<b>8.94</b>	<b>0.154</b>	<b>8.112</b>	<b>11.85</b>

**Table 6 : Ambient Monitoring Summary Table**

<b>Ambient Monitoring Point from WWDL</b>	<b>Irish Grid Reference</b>	<b>EPA Feature Coding Tool code</b>	<b>Is discharge impacting on water quality</b>
<b>aSW-IU upstream of SW1</b>	186529E, 138957N	TBC	No
<b>aSW-ID downstream of SW1</b>	186443E, 139272N	RS25V270720	No

**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                      0.8                      SSRS Score Downstream                      1.6

**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 has been submitted to the EPA in electronic form in the first quarter of 2014.

**2.5 Pollutant Release and Transfer Register (PRTR) – report for previous year.**

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 7 is a summary of the efficiency of the treatment process including information for parameters specified in the licence.

**Table 7: Treatment Efficiency Report Summary Table**

	cBOD 5d with nitrification inhib	Chemical Oxygen Demand (COD)	Suspended Solids	Ammonia Nitrogen (as N)	Soluble Reactive Phosphorus
Influent mass loading (kg/day)	29.7	58	37.4	2	0.48
Effluent mass emission (kg/day)	2.3	17.9	6.7	0.6	0.12
% Efficiency (% reduction of influent load)	92%	69%	82%	70%	75%

#### 3.2 Treatment Capacity Report

Presented below in Table 8 is a summary of the current and remaining treatment capacity of the treatment process.

**Table 8 : Treatment Capacity Report Summary Table**

Hydraulic Capacity – Design	337 m <sup>3</sup> /day @ 3dwf
Hydraulic Capacity – Current Loading	265 m <sup>3</sup> /day
Hydraulic Capacity – Remaining	72 m <sup>3</sup> / day
Organic Capacity – Design (pe)	500 pe
Organic Capacity – Current Loading (pe)	494 pe
Organic Capacity – Remaining (pe)	6 pe
Will the capacity be exceeded in the next 3 years	Dependant on proposals and timescale for upgrade works to the plant.

### 3.3 Complaints summary

There were no complaints of an environmental nature related to the discharge to water from the Limerick Junction Wastewater treatment Plant in 2013.

*Table 9: 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

### 3.4 Reported Incidents Summary

There was no recorded incidents reported in relation to the Limerick Junction Wastewater Treatment Plant in 2013. The discharge licence for the agglomeration was only issued in December 2013.

*Table 10: 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 11: 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 ( licence only issued in December 2013).
Explanation of any discrepancies between the two numbers above.	Discharge licence only issued in December 2013.

## **4.0 INFRASTRUCTURAL ASSESSMENTS & PROGRAMME of IMPROVEMENTS**

### **4.1 Storm Water overflow identification and inspection report.**

The Discharge Licence for Limerick Junction was only issued on December 12<sup>th</sup>, 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 Limerick Junction Agglomeration was only issued in December 2013 there is no report or proposal developed yet in relation to upgrade works for the plant.

An update on this will be made and reported upon in the second AER due for submission in 2015.

### **4.3 Sewer Integrity Risk Assessment**

A sewer integrity risk assessment will be carried out on the Limerick Junction Agglomeration following 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**

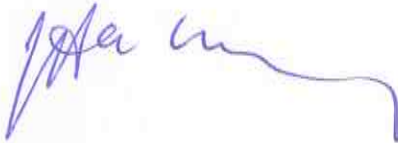
### **5.1 Priority Substances Assessment**

As the discharge licence was only issued in December 2013 it was not possible to undertake such an assessment. This assessment will be carried out in 2014 and reported on in the AER 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 D0457-01 in respect of the Limerick Junction 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**