Annual Environmental Report 2017

Agglomeration Name:	**Knockaconny**
Licence Register No.	**D0463-01**

Contents

Section 1. Executive Summary and Introduction to the 2017 AER

1.1 Summary Report on 2017

This Annual Environmental Report has been prepared for **D0463-01, Knockaconny,** in County **Monaghan**, in accordance with the requirements of the wastewater discharge licence for the agglomeration.

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 1000. The treatment process includes the following:-

- Preliminary Treatment (Screens)
- Secondary Treatment (Aeration)
- Nutrient Removal (Chemical Dosing for Phosphorus Removal)

The final effluent from the Primary Discharge Point was compliant with the Emission Limit Values in 2017.

2,354,000kgs total weight liquid sludge was removed from the wastewater treatment plant in 2017.
Sludge was transferred to Sludge sent to sludge drying beds onsite

The following improvement works were undertaken in 2017:-

1. Issue *DO system on aeration tank has failed resulting in aeration unit operating at full speed.*
Measure *Replacement DO system required*
Status *Due for completion 2018*

2. Issue *Scrapers not operating effectively*
Measure *Replacement brackets, rubbers and stainless steel wire rope.*
Status *Due for completion 2018.*

An Annual Statement of Measures is included in **Appendix 7.1**

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Table 2.1 Influent Monitoring Summary

2.1.1 Monthly Influent Monitoring	BOD (mg / l)	COD (mg / l)	SS (mg / l)	TP (mg / l)	TN (mg / l)	Hydraulic Loading (m3/d)
Number of Samples	6	6	6	0	0	
Annual Max.	1310	2110	1350	0	0	375
Annual Mean	536.27	885.37	530.24			78.35

Other inputs in the form of sludge/leachate are added to the WWTP after the influent monitoring point and are therefore not represented by influent monitoring. Other inputs, where relevant, are detailed in Section 3.6.

Significance of results

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2

The annual maximum hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2. The design of the wastewater treatment plant allows for peak values and therefore the peak loads have not impacted on compliant with Emission Limit Value.

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring

2.2.1 Effluent Monitoring Summary	BOD (mg/l)	COD (mg/l)	TSS (mg/l)	Ortho P / MRP (mg/l)	Ammonia N (mg/l)	pH (Range)
WWDL ELV (Schedule A) where applicable	20.00	125.00	35.00	3.00	5.00	6 to 9
ELV with Condition 2 Interpretation included	40.00	250.00	87.50	3.60	6.00	No allowable exceedances
% Reduction (Schedule A)						
Number of sample results	6	6	6	6	6	6
Number of sample results above WWDL ELV	0	0	0	0	0	0
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	0	0	0
Annual Mean (for parameters where a mean ELV applies)						
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Pass	Pass	Pass

Significance of results

The WWTP was compliant with the ELV's set in the wastewater discharge licence.

2.3 Ambient Monitoring Summary

Table 2.3. Ambient Monitoring Report Summary Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	EPA Feature Coding Tool code	Bathing Water	Drinking Water	FWPM	Shellfish
Upstream Monitoring Point	268906, 335795	RS03B010640				
Downstream Monitoring Point	269003, 335758	RS03B010641	No	No	No	No

Table 2.3.2 Ambient Impact Assessment Table

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Current WFD Status	cBOD	0-Phosphate (as P)	Ammonia (as N)	Nitrogen		
Upstream Monitoring Point	Moderate	1.42	0.057	0.089			
Downstream Monitoring Point	Moderate	1.5	0.058	0.084			
Difference between Upstream and Downstream		8.000000000 00001E-02	0.001	-4.999999999 99999E-03			
EQS		2.6	0.075	0.14			
% of Eqs		3.08%	1.33%	-3.57%			

The results for the upstream and downstream monitoring and/or additional monitoring data sets from Irish Water are included in the Appendix.

Significance of results

- The WWTP was compliant with the ELV's set in the wastewater discharge licence as detailed in Section 2.2.
- The discharge from the WWTP has no observable negative impact on the Water Framework Directive status.

2.4 Pollutant Release and Transfer Register (PRTR) - report for previous year

A PRTR is not required as the PE is < 100000

Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)
Influent mass loading (kg/year)	9,738	16,077	9,629
Effluent mass emission (kg/year)	76	383	72
% Efficiency (% reduction of influent load)	99%	98%	99%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/day)	227
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/day)	681
Hydraulic Capacity – Current loading (m3/day)	78
Hydraulic Capacity – Remaining (m3/day)	603
Organic Capacity - Design / As Constructed (PE)	1,000
Organic Capacity - Collected Load (PE)	393
Organic Capacity – Remaining (PE)	607
Will the capacity be exceeded in the next three years? (Yes / No)	No

3.3 Extent of Agglomeration Summary Report

In this section Irish Water is required to report on the amount of urban waste water generated within the agglomeration. It does not include any waste water collected and created in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended).

Table 3.3 - Extent of Agglomeration Summary Report

	% of P.E. load generated in the agglomeration	**Estimated / Measured**
Load generated in the agglomeration that is collected in the sewer network		Estimated
Load collected in the agglomerations that enters treatment plant	100%	Estimated
Load collected in the sewer network but discharges without treatment (includes SWO, EO, and any discharges that are not treated)	Unknown	Estimated

Load generated in the agglomeration that is collected in the sewer network is the total load generated and collected in the municipal network within the boundary of the agglomeration.

Load collected in the agglomerations that enters treatment plant is that portion of the previous figure which enters the waste water treatment plant.

Load collected but discharged without treatment is that portion of the first figure which is discharged without treatment.

3.4 Complaints Summary

There were no complaints associated with the WWTP in 2017.

3.5 Reported Incidents Summary

There were no incidents associated with the WWTP in 2017.

3.6 Sludge / Other inputs to the WWTP

There were no sludge/other inputs to the WWTP in 2017.

Section 4. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

A summary of the Storm Water Overflow significance and operation is included below. The Stormwater Overflow Assessment was submitted previously in AER 2014.

Table 4.1.1 - SWO Identification and Inspection Summary Report

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High/Med/ Low)	Compliance with DoEHLG criteria	No. of times activated in 2017 (No. of events)	Total volume discharged in 2017 (m3)	Total volume discharged in 2017 (P.E.)	Estimated / Measured data
SW002	256270, 323709	Yes	Low	Compliant	Unknown	Unknown	Unknown	Estimated

Table 4.1.2 - SWO Identification and Inspection Summary Report

How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2013?	Unknown
Is each SWO identified as non-compliant with DoEHLG Guidance included in the Programme of Improvements?	
The SWO assessment includes the requirements of relevant WWDL Schedules (Yes/No)	Yes
Have the EPA been advised of any additional SWOs / changes to Schedules A/C under Condition 1 ?	No

4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.

There are no Specified Improvements in the WWDL.

A summary of the status of any improvements identified by under Condition 5.2 is included below.

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
10007268	Flow monitoring and sampling MN	Improved Operational Control	100%		Complete 2016

Table 4.2.3 - Sewer Integrity Risk Assessment Tool Summary

The Improvement Programme should include an assessment of the integrity of the existing wastewater works for the following:	Risk Assessment Rating (High, Medium, Low)	Risk Assessment Score	Reference to relevant section of AER (e.g. Appendix 2 Section 4.	Specified improvements	Comment
Hydraulic Risk Assessment Score	High	120	2016		
Environmental Risk Assessment Score	Low	145	2016		
Structural Risk Assessment Score	High	140	2016		
Operation & Maintenance Risk Assessment Score	Low	52	2016		
Overall Risk Score for the agglomeration	High	457	2016		

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required by Condition 5 in Licence	Required in this AER or outstanding from previous AER?	Included in this AER?	Reference to previous AER contain report or relevant section of this A
Priority Substances Assessment	Required	No	No	AER 2014
Drinking Water Abstraction Point Risk Assessment	Required	No	No	AER 2016
Shellfish Impact Assessment	Not Required	No	No	
Pearl Mussel Report	Not Required	No	No	
Toxicity/Leachate Management	Not Required	No	No	
Toxicity of Final Effluent Report	Not Required	No	No	
Small Stream Risk Score Assessment	Not Required	No	No	
Habitats Impact Assessment	Not Required	No	No	

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	Yes	No further screening required
Drinking Water Abstraction Point Risk Assessment	No	There were no recommendations
Shellfish Impact Assessment	No	
Pearl Mussel Report	No	
Toxicity/Leachate Management	No	
Toxicity of Final Effluent Report	No	
Habitats Impact Assessment	No	

5.1 Priority Substances Assessment

The Priority Substance Assessment Report was submitted previously in AER 2014. A summary of the significance and operation is included below.

Table 5.1 - Priority Substance Assessment Summary Report

Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance?	Desktop Study and Screening Analysis
Does the assessment include a review of Trade inputs to the works?	Yes
Does the assessment include a review of other inputs to the works?	No
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	No
Recommendations	No further screening required
Status of any improvement measures required	N/A

5.2 Drinking Water Abstraction Point Risk Assessment

The Drinking Water Risk Assessment was submitted previously in AER 2016. A summary of the significance and operation is included below.

Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary

Is a Drinking Water Abstraction Risk Assessment required in the 2017 AER (or outstanding from a previous AER)?	Yes
Does the Drinking Water Abstraction Risk Assessment identify whether any of the discharges in Schedule A of the licence pose a risk to a drinking water abstraction?	No
Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)?	No
What is the overall risk ranking applied by the licensee?	Low
Does the risk assessment consider the impacts of normal operation?	Yes
Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)?	Yes
Does the risk assessment include control measures for each risk identified?	N/A
Does the risk assessment consider operational control measures?	N/A
Does the risk assessment include infrastructural control measures?	N/A
Recommendations	There were no recommendations
Does the Improvement Programme for the agglomeration include control measures / corrective actions to eliminate / reduce priority substances identified as having an impact on receiving water quality?	N/A
Status of any improvement measures required.	N/A

Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

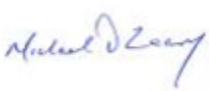
Does the AER include an executive summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a technical amendment / review of the licence?	No
List reason e.g. additional SWO identified	N/A
Is there a need to request/advise the EPA of any modifications to the existing WWDL? Refer to Condition 1.7 (changes to works/discharges) & Condition 4 (changes to monitoring location, frequency etc.)	No
List reason e.g. failure to complete specified works within dates specified in the licence, changes to monitoring requirements	N/A
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	N/A
Ensure the following reports are included	

Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2017 AER.
- Monitoring Reports Summary.
- Operational Reports Summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports
- Certification and Sign Off
- Appendices

I certify that the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed:  Date:27/02/2018

Michael O'Leary
Acting Head of Environmental Regulation

Section 7. Appendices

Appendix 7.1 Statement of Measures / Improvement Programme

1. Issue DO system on aeration tank has failed resulting in aeration unit operating at full speed.
   Measure Replacement DO system required
   Status Due for completion 2018

2. Issue Scrapers not operating effectively
   Measure Replacement brackets, rubbers and stainless steel wire rope.
   Status Due for completion 2018.

Appendix 7.2 Ambient Monitoring

Upstream

Date	Ammonia (mg/l)	Ortho P (mg/l)	BOD (mg/l)	Total N (mg/l)	D.O. (% Sat)	D.O. (mg/l)	pH (mg/l)	
24/01/2017	0.22	0.03	1.10			11.42	8.10	6.30
05/04/2017	0.03	0.02	1.80			10.94	8.00	9.40
20/06/2017	0.07	0.13	1.40			7.23	8.00	16.00
09/08/2017	0.04	0.09	1.50			8.86	7.90	15.50
18/10/2017	0.14	0.04	1.20			9.12	8.00	11.20
07/12/2017	0.03	0.04	1.50			10.85	7.80	8.10
Mean	0.09	0.06	1.42			9.74	7.97	11.08
95%ile	0.20	0.12	1.73			11.30	8.08	15.88

Downstream

Date	Ammonia (mg/l)	Ortho P (mg/l)	BOD (mg/l)	Total N (mg/l)	D.O. (% Sat)	D.O. (mg/l)	pH (mg/l)	
24/01/2017	0.22	0.03	1.30			11.62	8.10	6.30
05/04/2017	0.03	0.02	1.70			10.39	8.00	9.10
20/06/2017	0.06	0.13	1.60			8.30	8.10	16.50
09/08/2017	0.03	0.08	1.80			9.08	8.00	14.70
18/10/2017	0.14	0.04	1.30			9.18	8.00	11.40
07/12/2017	0.04	0.04	1.30			10.42	7.80	9.80
Mean	0.08	0.06	1.50			9.83	8.00	11.30
95%ile	0.20	0.12	1.78			11.32	8.10	16.05