Annual Environmental Report

2018

Kells

D0127-01

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1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0127-01, Kells, in Meath in accordance with the requirements of the wastewater discharge licence for the agglomeration. Specified reports are included as an appendix to the AER as follows:

1.1 Licence specific reporting included in AER

Assessment / Report	Included in AER
There is no Licence Specific Reports included in the AER.	

1.2 Treatment Type

The agglomeration is served by a wastewater treatment plant KELLS (MEATH) WWTP with a Plant Capacity PE of 8000. The treatment process includes the following:

1.2.1 KELLS (MEATH) WWTP

Treatment type	Yes / No	Details
Preliminary Treatment	Yes	Screening and Grit Classification
Primary Treatment	Yes	Salsness Solids Screening
Secondary Treatment	Yes	Aeration
Nutrient Removal	Yes	Ferric Sulphate
Tertiary Treatment	No	Settlement

The overall compliance of the final effluent with the Emission Limit Values (ELVs) is shown below. More detailed information on the below ELV's can be found in Section 2.2 Discharges from the agglomeration.

1.3 ELV Overview

1.3.1 KELLS (MEATH) WWTP

Compliance Status	
Were all parameters compliant for KELLS (MEATH) WWTP treatment plant	No
Where non compliant see Table 2.2.1 for details of parameters	

1.4 Sludge Removal

The amount of sludge removed from the wastewater treatment plant is shown below along with the transported destination of the sludge from the treatment plant.

Treatment Plant	Sludge type	Quantity	Unit	% Dry Solids	Destination
KELLS (MEATH) WWTP	Cake Sludge	900.9	Weight (Tonnes)	15	Paddy Brady Agri
KELLS (MEATH) WWTP	Liquid Sludge	2269	Weight (Tonnes)	1.12	Ferganstown, Navan

Annual Statement of Measures

The aeration rotors in both aeration tanks are due to be replaced for diffusers with a compressed air system to save energy and make treatment more efficient. This is due to be installed in early 2019.

2 MONITORING REPORTS SUMMARY

2.1 Summary report on monthly influent monitoring

A summary of influent monitoring for the treatment plant is presented in below. This monitoring is primarily undertaken in order to determine the overall efficiency of the plant in removing pollutants from the raw wastewater.

2.1.1 Influent Monitoring Summary - KELLS (MEATH) WWTP

Parameters	Number of Samples	Annual Max	Annual Mean
Total Phosphorus (as P) mg/l	11	9.26	6.22
Suspended Solids mg/l	12	283	129.51
Total Nitrogen mg/l	12	70.2	38.75
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	12	352	160.57
COD-Cr mg/l	12	701	286.01
Hydraulic Capacity		7608	1500

If other inputs in the form of sludge / leachate are added to the WWTP then these are included in Section 3.5 if applicable.

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 greater than the peak Treatment Plant Capacity as detailed further in Section 3.2.

2.2 Discharges from the agglomeration

2.2.1 Effluent Monitoring Summary - KELLS (MEATH) WWTP

Parameter	WWDL ELV (Schedule A)	ELV with Condition 2 Interpretation included Note 1	Interim % reduction from influent concentration	Number of sample results	Number of exceedances	Number of with Condition 2 Interpretation included	Annual Mean	Overall Compliance (Pass/Fail)
Suspended Solids mg/l	35	87.5	0	12	0	0	5.86	Pass
Ammonia-Total (as N) mg/l	2	2.4	0	12	0	0	0.78	Pass
ortho-Phosphate (as P) - unspecified mg/l	1	1.2	0	12	1	1	0.3	Fail
Nitrate (as N) mg/l	0	0	0	1	0	0	0.21	N/A
Total Nitrogen mg/l	0	0	0	12	0	0	13.55	N/A
BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l	25	50	0	12	1	0	6.95	Pass
Total Phosphorus (as P) mg/l	0	0	0	11	0	0	0.38	N/A
COD-Cr mg/l	125	250	0	12	0	0	30.59	Pass
Nitrite (as N) mg/l	0	0	0	1	0	0	0.09	N/A

Notes:
1– This represents the Emission Limit Values after the Interpretation provided for under Condition 2 of the licence is applied

Cause of Exceedance(s):

The Ortho-P exceedance was due to operational problems with the ferric dosing pumps.

Significance of Results:

The WWTP is non-compliant with the ELV‘s set in the wastewater discharge licence. There was one exceedance in relation to Ortho-P, which was also above the Condition 2 ELV. The impact on the receiving water is assessed further in Section 2.3.

2.3 Ambient monitoring summary

A summary of monitoring from ambient monitoring points associated with the wastewater discharge is provided in the sections below. For discharges to rivers upstream (U/S) and downstream (D/S) location data is provided. For other ambient points in lakes, coastal or transitional waters, monitoring data from the most appropriate monitoring station is selected.

2.3.1 Ambient Monitoring Report Summary - KELLS (MEATH) WWTP

The table below provides details of ambient monitoring locations and details of any designations as sensitive areas.

Ambient Monitoring Point from WWDL (or as agreed with EPA)	Irish Grid Reference	Code	Bathing Water	Drinking Water	FWPM	Shellfish	WFD Status
Upstream	273697, 277272	TPEFF2300D0127SW001	No	No	No	No	Poor
Downstream	276189, 275984	TPEFF2300D0127SW001	No	No	No	No	Poor

2.3.2 Ambient Monitoring Parameter Summary - KELLS (MEATH) WWTP

The table below provides a summary of monitoring results for designated ambient monitoring points. The upstream and downstream annual mean values are shown (mg/l), and the difference between both monitoring stations is given as a percentage of the Environmental Quality Standard (EQS) where relevant.

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
Alkalinity-total (as CaCO3) mg/l	RS07B011200	95.6	RS07B011300	104.8		
Ammonia-Total (as N) mg/l	RS07B011200	0.05	RS07B011300	0.06	0.14	7.6
Dissolved Oxygen mg/l	RS07B011200	11.81	RS07B011300	10.94		
Nitrate (as N) mg/l	RS07B011200	1.32	RS07B011300	1.45		
Nitrite (as N) µg/l	RS07B011200	13.85	RS07B011300	13.62		
ortho-Phosphate (as P) - unspecified mg/l	RS07B011200	0.05	RS07B011300	0.05	0.075	5.4
Total Oxidised Nitrogen (as N) mg/l	RS07B011200	1.32	RS07B011300	1.46		
Total Hardness (as CaCO3) mg/l	RS07B011200	110.4	RS07B011300	121.8		
Dissolved Oxygen % Saturation	RS07B011200	79.64	RS07B011300	72.6		
pH pH units	RS07B011200	8.02	RS07B011300	7.93		

Parameter Name	Upstream Monitoring Point Location	Upstream Monitoring Point Annual Mean	Downstream Monitoring Point Location	Downstream Monitoring Point Annual Mean	EQS	% of EQS
True Colour mg/litre Pt Co	RS07B011200	43	RS07B011300	42		
Chloride mg/l	RS07B011200	21.62	RS07B011300	22.26		
BOD - 5 days (Total) mg/l	RS07B011200	1.82	RS07B011300	1.72	2.6	-4.1
Conductivity @25°C µS/cm	RS07B011200	298.6	RS07B011300	305.8		
Temperature °C	RS07B011200	9.68	RS07B011300	9.76		
Total Nitrogen mg/l	RS07B011200	2.58	RS07B011300	2.7		

Significance of Results:

The WWTP discharge was not compliant with the ELV's set in the wastewater discharge licence.

The ambient monitoring results meet the required EQS. Where the ambient monitoring results meets the EQS this relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

The discharge from the wastewater treatment plant does not have an observable negative impact on the water quality.

The discharge from the WWTP has no observable negative impact on the Water Framework Directive status.

3 OPERATIONAL REPORTS SUMMARY

3.1 Treatment Efficiency Report

Treatment efficiency is based on the removal of key pollutants from the influent wastewater by the treatment plant. In essence the calculation is based on the balance of load coming into the plant versus the load leaving the plant. The efficiency is presented as a percentage removal rate.

A summary presentation of the efficiency of the treatment process including information for all the parameters specified in the licence is included below:

3.1.1 Treatment Efficiency Report Summary - KELLS (MEATH) WWTP

Parameter	Influent mass loading (kg/year)	Effluent mass emission (kg/year)	Efficiency (% reduction of influent load)
SS	91951.07	3176.91	96.55
TN	27512.69	7342.73	73.31
COD	203071.25	16581.86	91.83
cBOD	114009.11	3767.46	96.7
TP	4483.41	203.68	95.46

Note: The above data is based on sample results for the number of dates reported.

3.2 Treatment Capacity Report Summary

Treatment capacity is an assessment of the hydraulic (flow) and organic (the amount of pollutants) load a treatment plant is designed to treat versus the current loading of that plant.

KELLS (MEATH) WWTP	
Peak Hydraulic Capacity (m^3/day) - As Constructed	5400
DWF to the Treatment Plant (m^3/day)	1800
Current Hydraulic Loading - annual max (m^3/day)	7608
Average Hydraulic loading to the Treatment Plant (m^3/day)	1500
Organic Capacity (PE) - As Constructed	8000
Organic Capacity (PE) - Collected Load (peak week)	7767
Organic Capacity (PE) - Remaining	233
Will the capacity be exceeded in the next three years? (Yes/No)	No

3.3 Complaints Summary

A summary of complaints of an environmental nature is included below.

Number of Complaints	Nature of Complaint	Number Open Complaints	Number Closed Complaints
14	Blocked Sewer	0	14

3.4 Reported Incidents Summary

Environmental incidents that arise in an agglomeration are reported on an on-going basis in accordance with our waste water discharge licences. Where an incident occurs and it is reportable under the licence, it is reported to the Environmental Protection Agency through their Environmental Data Exchange Network, or in some instances by telephone. Some incidents which arise in the agglomeration are recorded by Irish Water but may not be reportable under our licence for example where the incident does not have an impact on environmental performance.

A summary of reported incidents is included below.

3.4.1 Summary of Incidents

Incident Type	Cause	No. of incident occurrences	Recurring (Y/N)	Closed (Y/N)
Non-compliance	WWTP not designed for P removal	1	Yes	Yes
Uncontrolled release	Plant or equipment breakdown at WWTP	1	No	Yes
Uncontrolled release	Other	1	No	No
Uncontrolled release	Other	2	No	No
Non-compliance	Plant or equipment maintenance at WWTP	2	No	Yes
Non-compliance	Plant or equipment breakdown at WWTP	1	No	Yes
Uncontrolled release	EO caused by ragging or blocking	1	No	Yes
Non-compliance	Plant or equipment breakdown at WWTP	1	No	Yes
Non-compliance	Plant or equipment breakdown at WWTP	1	No	Yes
Uncontrolled release	Screen maintenance issue	1	Yes	No
Uncontrolled release	Tank Overflow	2	No	Yes

3.4.2 Summary of Overall Incidents

Question	Answer
Number of Incidents in 2018	14
Number of Incidents reported to the EPA via EDEN in 2018	14
Explanation of any discrepancies between the two numbers above	N/A

3.5 Sludge / Other inputs to the WWTP

'Other inputs' to the waste water treatment plant are summarised in table below

Input type	Quantity	Unit	P.E.	% of load to WWTP	Included in Influent Monitoring (Y/N)?	Is there a leachate/sludge acceptance procedure for the WWTP?	Is there a dedicated leachate/sludge acceptance facility for the WWTP?(Y/N)
There is no Sludge and Other Input data for the Treatment Plant included in the AER.							

4 INFRASTRUCTURAL ASSESSMENTS AND PROGRAMME OF IMPROVEMENTS

4.1 Storm Water Overflow Identification and Inspection Report

A summary of the operation of the storm water overflows and their significance where known is included below:

No Appendix Included.

4.1.1 SWO Identification

WWDL Name / Code for Storm Water Overflow	Irish Grid Ref.	Included in Schedule A4 of the WWDL	Significance of the overflow (High / Medium / Low)	Assessed against DoEHLG Criteria	No. of times activated in 2018 (No. of events)	Total volume discharged in 2018 (m^3)	Monitoring Status
SW2	275202, 276303	Yes	Low	Meeting			Not Monitored
SW3	274661, 270677	Yes	Low	Not Meeting			Not Monitored

4.1.2 Inspection Summary Report

SWO Summary	
How much sewage was discharged via SWOs in the agglomeration in the year (m^3)?	Not Monitored
Is each SWO identified as not meeting DoEHLG Guidance included in the Programme of Improvements?	Yes
The SWO Assessment included the requirements of relevant of WWDL schedules?	No
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	No

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

4.2.1 Specified Improvement Programme Summary

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

Specified Improvement Programmes (under Schedule A and C of WWDL)	Licence Schedule	Licence Completion Date	Date Expired? (N/NA/Y)	Status of Works	Timeframe for Completing the Work	Comments
Upgrade to Phosphorus removal system	A	31/12/2014	Yes	Works Completed		
Upgrading of Storm Water Overflow SW3 to comply with the criteria outlined in the DoEHLG “Procedures and Criteria in relation to Storm Water Overflows, 1995”	A	31/12/2014	Yes	At Planning Stage	31/12/2021	

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

4.2.2 Improvement Programme Summary

Improvement Identifier	Improvement Description	Improvement Source	Expected Completion Date	Comments
D0127-IP:24	Installation of new auger screen on the inlet to the works	Other	Completed March 2018	

4.2.3 Sewer Integrity Risk Assessment

The utilisation of multiple capital maintenance programmes and the outputs of the workshops with the Local Authority Operations Staff held under the programme can be used to satisfy the requirements of Condition 5 regarding network integrity. Improvement works identified by way of these programmes and workshops will be included in the Improvements Summary Table.

5 LICENCE SPECIFIC REPORTS

A wastewater discharge licence may require a number of reports on specific subject areas to be prepared for the agglomeration in question. These reports are submitted to the EPA as part of the Annual Environmental Report. This section provides list of the various reports required for this agglomeration and a brief summary of their recommendations.

5.a Licence Specific Reports Summary Table

Licence Specific Report	Required by licence	Year included in AER	Included in this AER	Reference to relevant section of AER
Drinking Water Abstraction Point Risk Assessment	Yes	2014	No	
Priority Substances Assessment	Yes	2014	No	

6 CERTIFICATION AND SIGN OFF

6.1 Summary of AER Contents

Parameter	Answer
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?	No
List reason e.g. changes to monitoring requirements	N/A
Have these processes commenced?	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER	N/A

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

Date: 19/02/2019

This AER has been produced by Irish Water's Environmental Information System (EIMS) and has been electronically signed off in that system for and on behalf of,

Eleanor Roche

Acting Head of Environmental Regulation.

7 APPENDIX

There are no Appendices included.