# Annual Environmental Report

# 2018


Kentstown

D0479-01

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# 1 EXECUTIVE SUMMARY AND INTRODUCTION TO THE 2018 AER

This Annual Environmental Report has been prepared for D0479-01, Kentstown, 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 Kentstown WWTP with a Plant Capacity PE of 800. The treatment process includes the following:

### 1.2.1 Kentstown WWTP

| Treatment type | Yes / No | Details |
|---|---|---|
| **Preliminary Treatment** | Yes | Screening |
| **Primary Treatment** | No | |
| **Secondary Treatment** | Yes | Diffused Aeration and Settlement |
| **Nutrient Removal** | Yes | P Removal (Ferric Dosing) |
| **Tertiary Treatment** | No | |

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 Kentstown WWTP

| Compliance Status | |
|---|---|
| **Were all parameters compliant for Kentstown 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 |
|---|---|---|---|---|---|
| **Kentstown WWTP** | Liquid Sludge | 1316 | Weight (Tonnes) | 1 | Navan WWTP |

**Annual Statement of Measures**

Improvement works involving the installation of new storm water holding tank, new inlet screen, new composite samplers and the upgrade of the current aeration system commenced in July 2018. Completion of all works is expected at the end of Q1 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 - Kentstown WWTP

| Parameters | Number of Samples | Annual Max | Annual Mean |
|---|---|---|---|
| **BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l** | 8 | 370 | 171.67 |
| **COD-Cr mg/l** | 8 | 1140 | 381.05 |
| **Suspended Solids mg/l** | 8 | 276 | 137.83 |
| **Total Phosphorus (as P) mg/l** | 6 | 10.1 | 5.32 |
| **Total Nitrogen mg/l** | 5 | 84 | 46.55 |
| **Hydraulic Capacity** | | 893 | 330 |

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 - Kentstown 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) |
|---|---|---|---|---|---|---|---|---|
| **Total Nitrogen mg/l** | 0 | 0 | 0 | 7 | 0 | 0 | 17.62 | N/A |
| **Suspended Solids mg/l** | 25 | 62.5 | 0 | 8 | 0 | 0 | 12.05 | Pass |
| **ortho-Phosphate (as P) - unspecified mg/l** | 1.5 | 1.8 | 0 | 8 | 0 | 0 | 0.44 | Pass |
| **pH pH units** | 6 to 9 | 0 | 0 | 8 | 0 | 0 | 7 | Pass |
| **Total Phosphorus (as P) mg/l** | 0 | 0 | 0 | 8 | 0 | 0 | 0.58 | N/A |
| **COD-Cr mg/l** | 50 | 100 | 0 | 8 | 0 | 0 | 34.93 | Pass |
| **BOD, 5 days with Inhibition (Carbonaceous BOD) mg/l** | 10 | 20 | 0 | 8 | 5 | 0 | 10.33 | Fail |
| **Ammonia-Total (as N) mg/l** | 2 | 4 | 0 | 7 | 0 | 0 | 1.38 | Pass |

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):

Not Applicable.

Significance of Results:

The WWTP was not compliant with the ELV's set in the Wastewater Discharge Licence. There were 5 samples which exceeded the BOD ELV, 3 of which were reportable. The impact on the receiving water is assessed 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 - Kentstown 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** | 296672, 264894 | TPEFF2300D0479SW001 | No | No | No | No | Poor |
| **Downstream** | 297681, 264966 | TPEFF2300D0479SW001 | No | No | No | No | Poor |

### 2.3.2 Ambient Monitoring Parameter Summary - Kentstown 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 |
|---|---|---|---|---|---|---|
| **Ammonia-Total (as N) mg/l** | RS08N010090 | 0.07 | RS08N010110 | 0.16 | 0.14 | 62 |

| Parameter Name | Upstream Monitoring Point Location | Upstream Monitoring Point Annual Mean | Downstream Monitoring Point Location | Downstream Monitoring Point Annual Mean | EQS | % of EQS |
|---|---|---|---|---|---|---|
| **ortho-Phosphate (as P) - unspecified mg/l** | RS08N010090 | 0.072 | RS08N010110 | 0.080 | 0.075 | 10.4 |
| **Total Nitrogen mg/l** | RS08N010090 | 3.05 | RS08N010110 | 3.08 | | |
| **Chloride mg/l** | RS08N010090 | 27.8 | RS08N010110 | 31.78 | | |
| **Alkalinity-total (as CaCO3) mg/l** | RS08N010090 | 333.2 | RS08N010110 | 323.4 | | |
| **Total Hardness (as CaCO3) mg/l** | RS08N010090 | 404.6 | RS08N010110 | 401.4 | | |
| **Dissolved Oxygen mg/l** | RS08N010090 | 10.35 | RS08N010110 | 9.81 | | |
| **Temperature °C** | RS08N010090 | 9.04 | RS08N010110 | 9.22 | | |
| **True Colour mg/litre Pt Co** | RS08N010090 | 14.2 | RS08N010110 | 15 | | |
| **Nitrate (as N) mg/l** | RS08N010090 | 2.03 | RS08N010110 | 2.8 | | |
| **Dissolved Oxygen % Saturation** | RS08N010090 | 89.51 | RS08N010110 | 84.93 | | |
| **Total Oxidised Nitrogen (as N) mg/l** | RS08N010090 | 2.05 | RS08N010110 | 2.88 | | |
| **Conductivity @25°C µS/cm** | RS08N010090 | 770.4 | RS08N010110 | 783.6 | | |
| **BOD - 5 days (Total) mg/l** | RS08N010090 | 1.25 | RS08N010110 | 1.47 | 2.6 | 8.5 |

| Parameter Name | Upstream Monitoring Point Location | Upstream Monitoring Point Annual Mean | Downstream Monitoring Point Location | Downstream Monitoring Point Annual Mean | EQS | % of EQS |
|---|---|---|---|---|---|---|
| **Nitrite (as N) µg/l** | RS08N010090 | 16.03 | RS08N010110 | 78.42 | | |
| **pH pH units** | RS08N010090 | 8.06 | RS08N010110 | 8.06 | | |

Significance of Results:

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

The ambient monitoring results did not meet the required EQS for Ammonia and Ortho-P. Where the ambient monitoring results does not meet the EQS this relates to the Oxygenation and Nutrient Conditions set out in the Surface Water Regulations 2009.

A deterioration in water quality has been identified in terms of Ammonia-N and Ortho- P, however it is not considered that this is caused by the primary discharge from the WWTP, as the plant was compliant with its Ammonia-N and Ortho-P ELVs.

Other sources of water quality deterioration in the area are unknown, however storm water overflows may be a contributing factor.

Despite meeting the required EQS, an increase in the downstream ambient BOD concentration is noted. This may be attributed to the BOD ELV non-compliances which occurred in 2018 as a result of plant being organically overloaded.

The discharge from the WWTP has no observable negative impact on the Water Framework Directive status. The status is Poor upstream and downstream of the WWTP plant. It is noted that consistent achievement with the ELVs would benefit the quality of the receiving water.

# 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 - Kentstown WWTP

| Parameter | Influent mass loading (kg/year) | Effluent mass emission (kg/year) | Efficiency (% reduction of influent load) |
|---|---|---|---|
| **SS** | 15721.19 | 1196.18 | 92.39 |
| **TN** | 6626.16 | 1876.09 | 71.69 |
| **TP** | 691.93 | 57.9 | 91.63 |
| **cBOD** | 19580.63 | 1025.48 | 94.76 |
| **COD** | 43463.37 | 3468.04 | 92.02 |

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.

| Kentstown WWTP | |
|---|---|
| **Peak Hydraulic Capacity ($m^3$/day) - As Constructed** | 405 |
| **DWF to the Treatment Plant ($m^3$/day)** | 135 |
| **Current Hydraulic Loading - annual max ($m^3$/day)** | 893 |
| **Average Hydraulic loading to the Treatment Plant ($m^3$/day)** | 330 |
| **Organic Capacity (PE) - As Constructed** | 800 |
| **Organic Capacity (PE) - Collected Load (peak week)** | 1089 |
| **Organic Capacity (PE) - Remaining** | 0 |
| **Will the capacity be exceeded in the next three years? (Yes/No)** | Yes |

## 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 |
|---|---|---|---|
| **1** | Blocked Sewer | 0 | 1 |

## 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) |
|---|---|---|---|---|
| **Uncontrolled release** | EO caused by ragging or blocking | 1 | Yes | No |
| **Uncontrolled release** | Inadequate Infrastructure | 1 | Yes | No |
| **Non-compliance** | WWTP upgrade required to meet ELV | 1 | Yes | No |
| **Uncontrolled release** | Other | 1 | No | Yes |
| **Non-compliance** | Inadequate Operational Procedures | 1 | No | Yes |
| **Spillage** | Inadequate Operational Procedures | 1 | No | Yes |

### 3.4.2 Summary of Overall Incidents

| Question | Answer |
|---|---|
| **Number of Incidents in 2018** | 6 |
| **Number of Incidents reported to the EPA via EDEN in 2018** | 6 |
| **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** | 297455, 264979 | Yes | Medium | 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?** | Yes |
| **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 |
|---|---|---|---|---|---|---|
| **There are no Specified Improvement Programmes for this Agglomeration.** | | | | | | |

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 |
|---|---|---|---|---|
| **D0479-IP:20** | Installation of new storm water holding tank including associated flow meters | Incident Reduction | 31/3/2019 | |
| **D0479-IP:21** | Installation of new inlet works including new screen, new inlet pumps and associated flow meters | Incident Reduction | 31/3/2019 | |
| **D0479-IP:22** | Upgrade of aeration system including new blowers and new aeration grids. | Improved Operational Control | 31/3/2019 | |
| **D0479-IP:23** | Installation of new influent and final effluent composite samplers | Improved Operational Control | 31/3/2019 | |

### 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 |
|---|---|---|---|---|
| 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?** | Yes |
| **List reason e.g. additional SWO identified** | Proposed new additional storm water overflow location (from new inlet works). |
| **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?** | No |
| **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: 19/03/2019

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.