# Ballymore
# Wastewater Treatment Plant

# WWDL No. D0509-01

# ANNUAL ENVIRONMENTAL REPORT 2013
# (First Report)

# Ballymore Waste Water Discharge Licence

# (EPA Ref: D0509-01)

# Annual Environmental Report 2013

| | |
|---|---|
| **License Holder** | Irish Water |
| **Local Authority** | Westmeath County Council |
| **Project Title** | Ballymore Waste Water Discharge Licence |
| **Document Title** | Annual Environmental Report 2013 (Fourth Report) |
| **File** | G:\Waste Water Discharge Regulations & Applications\001 WWDL&A\WWDL\Ballymore WWTP\002 AER Submission\AER 2013 |

| Date | Prepared By | Checked By | Approved By | Revision |
|---|---|---|---|---|
| 28 February 2014 | M. Makura | G. Duggan | | |

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## A) INTRODUCTION

In accordance with Schedule D of the Wastewater Discharge Licence Ref No D0509-01, the following Annual Environmental Report covers the period January 2013 to December 2013. This is the First Annual Environmental Report submitted to the Agency for the Ballymore Wastewater Treatment Plant and agglomerations. The format of the report has taken into consideration the Environmental Protection Agency Guidance Document on the Preparation of the 2013 Annual Environmental Report (A.E.R.) for Waste Water Discharge Licences.

## B) Executive Summary

This Annual Environmental Report relates to the requirements of the Discharge Licence Ref D0509-01 for the Ballymore Town and agglomeration. The design population equivalent (P.E.) of the Ballymore Wastewater Plant is **500** and the actual measured organic population equivalent for 2013 is **441**. The primary discharge from the treatment plant is to the Stream Ballymore. The Ballymore agglomeration incorporates the villages of Ballymore. The waste water treatment plant (WWTP) is sited close to and discharges to the Ballymore Stream.

A Wastewater Discharge Licence was granted by the Environmental Protection Agency (EPA) to Westmeath County Council for the Ballymore WWTP on 18th October, 20103. Under Condition 6 of the granted licence, an Annual Environmental Report shall be submitted to the EPA by the 28th February of each year. This report is the First Annual Environmental Report completed for the Ballymore WWTP under the granted licence D0509-01.

## Section 1: Introduction and Background to 2013 AER

In accordance with the Environmental Protection Agency Wastewater Discharge Licence (W.W.D.L.), reference number D0104 for the Ballymore Wastewater Treatment Plant (W.W.T.P.), an Annual Environmental Report (A.E.R.) must be submitted to the Agency. This A.E.R. covers the period from January 2013 to December 2013 and includes the information as specified in Schedule D of W.W.D.L. reference number D0104 as outlined below and also takes cognisance of the Environmental Protection Agency, "Guidance on the Preparation and Submission of the Annual Environmental Report for Waste Water Discharge Licences", 2013.

### SCHEDULE D: Annual Environmental Report [Note 1]

- ◊ Discharges from the agglomeration
- ◊ Summary report on monthly influent monitoring
- ◊ Data collection and reporting requirements under the Urban Waste Water Treatment Directive
- ◊ Complaints Summary
- ◊ Pollutant Release and Transfer Register – report on previous year
- ◊ Pollutant Release and Transfer Register – proposal for current year
- ◊ Ambient Monitoring
- ◊ Storm water overflow identification and inspection report
- ◊ Reported Incident Summary
- ◊ Report on progress made and proposals being developed to meet the improvement programme requirements
- ◊ Development/Infrastructural works summary (competed in previous year or prepared for current year)
- ◊ Any other items specified by the Agency

## Section 2: Monitoring Reports Summary

### 2.1 Summary Report on Monthly Influent Monitoring

In accordance with condition 4.16 of licence D0509-01 the influent stream to the Ballymore Wastewater Treatment Plant was monitored for cBOD (Carbonaceous Biological Oxygen Demand), COD (Chemical Oxygen Demand), Suspended Solids, Total Nitrogen and Total Phosphorus. The results period January 2013–December 2013 are presented in Appendix 1. The average monthly flows and equivalent PE are summarised in Appendix 1. The average daily flow to the Ballymore wastewater treatment plant was **119.08m$^3$/d** and the population equivalent (P.E.) is **P.E. 307.**

| | **BOD** mg/l | **cBOD** mg/l | **COD** mg/l | **SS mg/l** | **TP mg/g** | **TN mg/l** | **Cond. (200C uS/cm)** | **pH (pH units)** | **Hydraulic Loading m3/d** | **Organic Loading (PE/day)** |
|---|---|---|---|---|---|---|---|---|---|---|
| **Number of Samples** | | 12 | 12 | 12 | 12 | 12 | 12 | 12 | | |
| **Maximum Result** | | 251 | 625 | 424 | 9.0 | 79 | 1,044 | 7.73 | **159** | **563** |
| **Annual Mean** | | 163 | 345 | 142 | 5.0 | 49 | 840 | 7.21 | **119** | **307** |

**Table 2.1: Influent Monitoring Summary Table**

### 2.2 Discharges from the Agglomeration

The primary wastewater discharge SW1 (P) discharges directly to the Stream Ballymore at location 2221224E, 248411N. Composite samples of the effluent were taken over the period of January 2013 to December. The results are presented in Appendix 2. The results show the effluent quality was of an excellent

| | Flow (m3/day) | cBOD (mg/l) | COD (mg/l) | TSS (mg/l) | Total P (mg/l) | Total N (mg/l) | Ammonia (mg/l) | Ortho P (mg/l) | Conductivity | PH | Comment |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Monitoring Frequency** | **Cont.** | **Bi-monthly** | **Bi-monthly** | **Bi-monthly** | **Bi-monthly** | **Bi-monthly** | **Bi-monthly** | **Bi-monthly** | **Bi-monthly** | **Bi-monthly** | |
| **WWDL ELV (Schedule A)** | | **25** | **125** | **35** | | | **3.5** | **2** | | **6.00-9.00** | |
| **ELV with Condition 2 Interpretation included** | | | | | | | | | | | |
| **Number of sample results** | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | |
| **Number of sample results above WWDL ELV** | N/A | 0 | 0 | 0 | N/A | N/A | N/A | 0 | N/A | 0 | |
| **Number of sample results above ELV with Condition 2 Interpretation included** | N/A | 0 | 0 | 0 | N/A | N/A | N/A | 0 | N/A | 0 | |
| **Annual Mean (for parameters where a mean ELV applies)** | 104 | 7.47 | 35.92 | 20.27 | 1.01 | 13.91 | 1.96 | 0.85 | 643 | 7.28 | |
| **Overall Compliance (Pass/Fail)** | N/A | Pass | Pass | Pass | N/A | N/A | N/A | Pass | N/A | Pass | |

**Table 2.2.1: Effluent Monitoring Summary Table**

## 2.3 Ambient Monitoring Summary

The ambient monitoring of the receiving water was carried out in accordance with Schedule B4: of the Wastewater Discharge Licence D0509-01. The results are presented in Appendix 3, upstream monitoring data for sampling station aSW1u and the downstream monitoring data for sampling station aSW1d.
The arithmetic mean for the water quality parameters tested indicate that the receiving water upstream and downstream of the primary discharge point is not in compliance with the good water quality status of the European Communities Environmental Objectives ( Surface Waters) Regulations, 2009 (S.I. No 272 of 2009) and results show that the arithmetic mean for the parameters tested downstream of the primary discharge show that the primary discharge point have a very high impact on surface water quality of the Ballymore Stream.

| Ambient Monitoring Point from WWDL | Irish Grid Reference | EPA Feature Coding Tool | Does assessment of the ambient monitoring results indicate that the discharge if impacting on the water quality? |
|---|---|---|---|
| **aSW1(P)u** | **221333E, 248400N** | **RS26B330280** | **The Surface water is not achieving good water quality status upstream of discharge point** |
| **aSW1(P)d** | **221223E, 248413N** | **RS26B330300** | **The discharge point have a high negative impact on the surface water quality** |

**Table 2.3.1: Ambient Monitoring Summary Table**

## 2.4 Data Collection and Reporting Requirements under the Urban Waste Water Treatment Directive

The Environmental Section of Westmeath County Council is responsible for all the data collection and reporting requirement under the Urban Waste Water Treatment Directive. All results have been submitted via EDEN at https://www.edenireland.ie.

## Section 3: Operation Reports Summary

### 3.1 Treatment Efficiency Report

In accordance with condition 4.16 of Wastewater Discharge Licence D0509-01 the wastewater treatment plant removal efficiencies for 2013 are presented in Appendix 5. The summary of the removal efficiencies is represented in Table 3.1.1 below

| | cBOD kg/yr | COD kg/yr | SS kg/yr | Total P kg/yr | Total N kg/yr | Comment |
|---|---|---|---|---|---|---|
| **Influent mass loading(kg/year)** | 6,731.11 | 15,532.27 | 11,074.68 | 265.71 | 2,281.07 | |
| **Effluent mass emission (kg/year)** | 605.90 | 1,395.09 | 831.69 | 36.60 | 548.56 | |
| **% Efficiency (% reduction of influent load)** | 93.70 | 87.90 | 85.20 | 82.90 | 71.40 | |

**Table 3.1.1 Treatment Efficiency Summary Report**

### 3.2 Treatment Capacity

The Average daily flow at the Ballymore WWTP between January 2013 and December 2013 was **119.08m³/day** with the average strength of the influent in terms of cBOD being **154mg/l** for results taken from January 2013 to December 2013.The Urban Waste Water Treatment Regulations define that one Population Equivalent (PE) is equivalent to 60g of cBOD. A figure of 225 litres per person was used to determine the hydraulic loadings.

| | |
|---|---|
| **Hydraulic Capacity – Design / As Constructed (m3/day)** | 135 |
| **Hydraulic Capacity – Current loading (m3/day)** | 165 |
| **Hydraulic Capacity – Remaining (m3/day)** | -30 |
| **Organic Capacity - Design / As Constructed (PE)** | 600 |
| **Organic Capacity - Current loading (PE)** | 441 |
| **Organic Capacity – Remaining (PE)** | 159 |
| **Will the capacity be exceeded in the next three years? (Yes / No)** | No |

**Table 3.2.1 Treatment Capacity Report Summary Table**

## 3.3 Extent of Agglomeration Summary Report

The table below summaries the amount of urban waste water generated within an agglomeration depending on whether it is collected and treated in a municipal waste water works or in a private system

| | % of total load generated in the agglomeration |
|---|---|
| **Load generated in the agglomeration that is collected in the sewer network** | **100%** |
| **Load collected in the agglomerations that enters treatment plant** | **100%** |
| **Load generated in the agglomeration going to individual and appropriate treatment systems.** | **0%** |
| **Load generated in the agglomeration that is not collected and not individually treated.** | **0%** |

**Table 3.3.1 Extent of Agglomeration Summary Table**

## 3.4 Complaints Summary

For the period of January 2013 to December 2013 there have been no reported complaints

| Number | Date & Time | Nature of Complaint | Cause of Complaint | Actions taken to resolve issue | Closed |
|---|---|---|---|---|---|
| NONE | NONE | NONE | NONE | NONE | NONE |

**Table 3.4.1 Complaint Summary Table**

## 3.5 Reported Incidents Summary

There no reported incidents in 2013

| Date & Time | Incident Description | Cause | Corrective Action | Authorities Contacted | Reported to EPA | Closed Y/N |
|---|---|---|---|---|---|---|
| None | None | None | None | None | None | None |

**Table 3.5.1 Incidents Reported to the Environmental Protection Agency in 2013.**

The following table summaries the recurring incidents on Ballymore WWTP

| Incident Type (e.g. Non-compliances, Emissions, Spillage, pollution Incident) | Incident Description | Cause | No. Of Incident | Corrective Action | Authorities Contacted | Reported to EPA | Closed Y/N |
|---|---|---|---|---|---|---|---|
| None | None | None | None | None | None | None | None |

**Table 3.5.2 Summary of Recurring Incidents Table**

There were no discrepancies between the number of incidents and the records of incidents reported to EPA in 2013.

| | |
|---|---|
| **Number of Incidents in 2013** | 0 |
| **Number of Incidents reported to the EPA in 2013** | 0 |
| **Explanation of any discrepancies between the two numbers above** | N/A |

**Table 3.5.3 Summary of Incidents Reported to EPA**

## 3.6 Sludge/Other Inputs to the WWTP

All agglomerations are required to provide a report detailing all 'other inputs' to the waste water treatment plant. These inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant. The table below summaries the Sludge inputs to the treatments stream at the WWTP for 2013

| Input type | $m^3$/year | PE/year | % of Load |
|---|---|---|---|
| **Domestic/Septic Tank Sludge** | **0** | **0** | **0** |
| **Industrial/Commercial Sludge** | **0** | **0** | **0** |
| **Landfill Leachate(delivered by tanker)** | **0** | **0** | **0** |
| **Landfill Leachate(delivered by Sewer Network** | **0** | **0** | **0** |
| **Other (specify)** | **0** | **0** | **0** |

**Table 3.6.1: Sludge Other Inputs Summary table**

# Section 4: Infrastructural Assessments & Programme of Improvements

## 4.1 Stormwater Overflow identification and Inspection Report

Storm Water Overflow Assessment as per condition 4.

The Ballymore agglomeration currently includes one storm tank facility. There is currently 2 storm water overflows (CSO's) on the collection network. One is on the inlet works, and one on the storm tank. If in the event that the inlet works are unable to cope with the flows entering the WWTP or the storm tank is full or heavy rain, the stormwater overflows are activated.
The table below summaries the Stormwater Overflow identification and Inspection Report

| WWDL Name / Code for Storm Water Overflow | Irish Grid Reference | Included in Schedule A4 of the WWDL | Compliance with DoEHLG Criteria | No. of times activated in 2013 (No. of events) | Total volume discharged in 2013 (m3) | Total volume discharged in 2013 (P.E.) | Estimated /Measured data |
|---|---|---|---|---|---|---|---|
| SW002 | 221224E 248411N | Yes | Not yet assessed | Not yet assessed | Not yet assessed | Not yet assessed | Not yet assessed |

**Table 4.1.1: SWO Identification and Inspection Summary Report Table A**

| | |
|---|---|
| **How much sewage was discharged via SWOs in the agglomeration in the year (m3/yr)?** | Not Assessed |
| **How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?** | Not Assessed |
| **What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2013?** | Not Assessed |
| **Is each SWO identified as non-compliant with Guidance included in the Programme of Improvements?** | Not Assessed |
| **The SWO assessment includes the requirements of Schedule A3 & C3** | Not Assessed |
| **Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?** | No |

**Table 4.1.2: SWO Identification and Inspection Summary Report Table B**

## 4.2 Report on progress made and proposals being developed to meet the improvements programme requirement

Under Condition 5.4 Westmeath County Council must implement the Specified Improvement Programme as defined in Schedule C. The first AER summaries the works as proposed by Westmeath County Council in the Ballymore WWDL application and submitted in 2012.
An estimated improvement works programme is subject to budget approval from the Irish Water.

The progress of the works are summarised in the Schedule A3 and C Improvement Programme Summary Table

**Table 4.2.1 Specified Improvement Programme (Schedule A and C) summary**

| Specified Improvement Programmes (Under Schedule A and C of WWDL) | Licence Schedule (A or C) | Licence Completion Date | Date Expired? (N/NA/Y) | Status of Works (Not Started, Delayed due to WSIP or Funding, Work on Site, Commissioning Phase, Completed) | Comments *To be completed under* | Licensee Timeframe for Completing the Work |
|---|---|---|---|---|---|---|
| Install a storm water holding tank at Ballymore | C | 22/12/2011 | No | Not Started | Dependant on Irish Water Funding | Timeframe pending IW approval |
| Upgrade Ballymore WWTP to meet the emission limits specified in Schedule A: Discharges and Discharge monitoring of this licence. | C | 31/12/2019 | No | Not Started | Dependant on Irish Water Funding | Timeframe pending IW approval |

The status of improvements in accordance with condition 5.2 not required until the second AER

| Improvement Identifier | Improvement Description | Improvement Source | Progress (% completed) | Expected Completion Date |
|---|---|---|---|---|
| ***None*** | ***None*** | *WWTP assessment (Condition 5.2).* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Sewer Integrity Tool (Condition 5.2).* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Secondary discharges assessment (Condition 5.2).* | **N/A** | **N/A** |
| ***None*** | ***None*** | *SWO assessment (Condition 4 &5.2).* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Drinking Water Abstraction Risk Assessment (Condition 4)* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Shellfish Impact Risk Assessment (Condition 5)* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Pearl Mussel Impact Assessment (Condition 4)* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Improved Operational Control* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Incident Reduction* | **N/A** | **N/A** |
| ***None*** | ***None*** | *Elimination/Reduction of Priority Substances* | **N/A** | **N/A** |

**Table 4.2.2 Improvement Programme summary table**

## 4.3 Sewer Integrity Assessment

This shall be forwarded when available. The report and investigations works required are included a "program and investigations works" report to Irish Water.

| **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 Section4.** |
|---|---|---|---|
| Hydraulic Risk Assessment Score | *Not Assessed* | *Not Assessed* | *Not Assessed* |
| Environmental Risk Assessment Score | *Not Assessed* | *Not Assessed* | *Not Assessed* |
| Structural Risk Assessment Score | *Not Assessed* | *Not Assessed* | *Not Assessed* |
| Operation & Maintenance Risk Assessment Score | *Not Assessed* | *Not Assessed* | *Not Assessed* |
| Overall Risk Score for the agglomeration | *Not Assessed* | *Not Assessed* | *Not Assessed* |

**Table 4.3.1 Sewer Integrity Risk Assessment Tool Improvement Programme (Works) summary table:**

## Section 5: License Specific Reports

Discharge licence makes requirements in relation to submission of specific reports or carrying out specific assessments. The specific requirements for Ballymore WWTP are summarised in the Table 5.0 below

| Licence Specific Report | Required in 2013 AER or outstanding from previous AER | Included in 2013 AER | Reference to relevant Section of AER |
|---|---|---|---|
| **Priority Substances Assessment** | No | No | |
| **Drinking Water Abstraction Point Risk Assessment** | No | No | |
| **Habitats Impact Assessment** | No | No | |
| **Shellfish Impact Assessment** | No | No | |
| **Pearl Mussel Report** | No | No | |
| **Toxicity / Leachate Management** | No | No | |
| **Toxicity of Final Effluent** | No | No | |

**Table 5.0: License Specific Reports**

## 5.1 Priority Substances Assessment

This report is not required until the Second AER

| | |
|---|---|
| **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** | N/A |
| **Does the assessment include a review of Trade inputs to the works?** | N/A |
| **Does the assessment include a review of other inputs to the works?** | N/A |
| **Does the report contain 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)** | N/A |
| **Does the assessment identify that a priority substance is impacting the receiving water?** | N/A |
| **Does the assessment identify that priority substances may be impacting the receiving water?** | N/A |
| **Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?** | N/A |

**Table 5.1.1: Priority Substances Assessment Summary Table**

## 5.2 Drinking water Abstraction Point Risk Assessment

This report is not required

| | |
|---|---|
| **Is a Drinking Water Abstraction Risk Assessment required in the 2013 AER (or outstanding from a previous AER)** | N/A |
| **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** | N/A |
| **Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)** | N/A |
| **What is the overall risk ranking applied by the licensee** | N/A |
| **Does the risk assessment consider the impacts of normal operation** | N/A |
| **Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)** | N/A |
| **Does the risk assessment include control measures for each risk identified** | N/A |
| **Does the risk assessment include operational control measures e.g? incident notification to DW source** | N/A |
| **Does the risk assessment include infrastructural control measures** | N/A |
| **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 |

**Table 5.2.1: Drinking water Abstraction Point Risk Assessment**

## 5.3 Shellfish Impact Assessment Report

This report is not required

| | |
|---|---|
| **Is a Shellfish Impact assessment required in the 2013 AER (or outstanding from a previous AER)?** | N/A |
| **List prescribed organisations consulted when preparing the assessment (BIM, SFPA, MI)** | N/A |
| **Does the assessment identify that any of the discharges from the works are impacting on the microbiological quality of the shellfish?** | N/A |
| **Does the assessment recommend that there is a requirement to install UV/other disinfection equipment on any of the discharges?** | N/A |
| **Provide details on disinfection system to be employed** | N/A |
| **Has this been completed?** | N/A |
| **If not yet complete what is the expected date for completion?** | N/A |
| **Where disinfection is required, is there a programme in place to demonstrate the efficiency of any disinfection system in place?** | N/A |
| **What is the demonstrated efficiency of the disinfection system?** | N/A |
| **Is there a shellfish monitoring programme in place?** | N/A |
| **Does the shellfish or shellfish water monitoring programme include results generated by other organisations** | N/A |
| **List organisations contributing data to the assessment** | N/A |
| **Does the Improvement Programme for the agglomeration include the findings and recommendations of the shellfish impact risk assessment?** | N/A |

**Table 5.3.1: Shellfish Impact Assessment summary table:**

## 5.4 Toxicity/Leachate Management

This Report is not required

| | |
|---|---|
| **Is a Toxicity / Leachate Management Report required in the 2013 AER (or outstanding from previous AER)** | N/A |
| **What % of the total influent is leachate?** | N/A |
| **Does the study identify any constituents of the leachate that present an environmental risk?** | N/A |
| **List leachate constituent identified and impact** *(insert a row for each constituent)* | N/A |
| **Has the WWTP suitability to treat the leachate been assessed?** | N/A |
| **What are the results of the assessment (Suitable / Not Suitable / Suitable subject to improvement programme works completion)** | N/A |
| **Has the study identified the max and operational loadings (mass, volume and rate of addition) for leachate to the WWTP?** | N/A |
| **Is there a monitoring programme for the priority substances identified above?** | N/A |
| **Have trigger and action levels for the concentration of identified leachate constituents been established to prevent impact on the receiving water?** | N/A |
| **Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of leachate acceptance on the operation of the WWTP?** | N/A |

**Table 5.4.1:Toxicity / Leachate Management Report summary table:**

## 5.5 Toxicity of the final Effluent Report

This report is not required

**Toxicity of the final effluent assessment summary table:**

| | |
|---|---|
| **Is a Toxicity report required? (Condition 4)** | N/A |
| **Has the study been carried out against 4 species in 3 trophic levels?** | N/A |
| **Does the report identify that the discharge is toxic to any of the species in the study?** | N/A |
| **List species impacted** | N/A |
| **Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the toxicity of the final discharge?** | N/A |

**Table 5.5.1: Toxicity of the final effluent assessment summary table:**

## 5.6 Pearl Mussel Measures Report

This report is not required

| | |
|---|---|
| **Is a progress report on implementation of the findings of Pearl Mussel Protection Measures report required in the 2013 AER (or outstanding from previous AER)** | N/A |
| **Is there a Pearl Mussel Protection Measures Report for the receiving water body?** | N/A |
| **Include hyperlink to internet location of report** | N/A |
| **Does this report identify measures relevant to discharges from the works as having a potential impact on the Pearl Mussel water?** | N/A |
| **Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of discharge on pearl mussel populations?** | N/A |

**Table 5.6.1: Pearl Mussel Measure Report summary table**

## 5.7 Habitats Impact Assessment Report

This report is not required

| | |
|---|---|
| **Is a Habitats Assessment required in the 2013 AER (includes outstanding assessments from previous years)?** | N/A |
| **Was the scope of the study agreed in advance with NPWS** | N/A |
| **Does the report include a Stage 1 screening assessment?** | N/A |
| **Does the screening identify that discharges are causing an impact on listed sites?** | N/A |
| **Does the report require a Stage 2 Appropriate assessment?** | N/A |
| **Does the report identify any European Sites (e.g. SPA, SAC, NHA) that discharges from the works could have an impact on?** | N/A |
| **List European sites identified (insert a line for each site identified)** | N/A |
| **Does the report include mitigation measures for each identified impact?** | N/A |
| **Does each measure explain how the adverse impact will be avoided/reduced?** | N/A |
| **Does the Improvement Programme for the agglomeration include any procedural and/or infrastructural works to reduce the impacts of discharges on the a listed site (NHA, SAC, SPA)?** | N/A |

**Table 5.7.1: Habitats Impact Assessment summary table:**

## Section 6. Certification and Sign off

| | |
|---|---|
| **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? (see 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)** | No |
| **Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?** | No |
| **List outstanding Report** | N/A |

I hereby submit Annual Environmental Report for Ballymore Town and Environs Agglomeration, WWDL No D0509-01 for 2013. I certify that the information contained within this Annual Environmental Report is truthful, accurate and complete.

**Signed by:** _____ **Date:** 28/7/2014.

*(On behalf of Westmeath County Council)*

**Print signature name:** GREG DUGGAN.

**Position in organisation:** Senior Engineer.

# Appendix 1: Influent Monitoring Data

| Station Name | Sample Date | Manual Flows $m^3$ | cBOD mg/l | Chemical Oxygen Demand | Conductivity @ 20°C | pH | Suspended Solids | Temperature | Total Nitrogen | Total Phosphorus |
|---|---|---|---|---|---|---|---|---|---|---|
| Influent - Ballymore | 24/01/2013 | 144.00 | 234.80 | 459.00 | 948.00 | 7.59 | 116.00 | 8.20 | 61.00 | 6.80 |
| Influent - Ballymore | 27/02/2013 | 107.00 | 145.20 | 279.00 | 887.00 | 7.80 | 132.00 | 8.50 | 42.00 | 5.20 |
| Influent - Ballymore | 21/03/2013 | 159.00 | 104.10 | 352.00 | 888.00 | 7.62 | 473.00 | 7.90 | 49.00 | 6.50 |
| Influent - Ballymore | 10/04/2013 | 105.00 | 117.00 | 319.00 | 898.00 | 7.49 | 187.00 | 8.90 | 46.00 | 5.80 |
| Influent - Ballymore | 15/05/2013 | 119.00 | 158.90 | 337.00 | 889.00 | 7.29 | 73.00 | 14.40 | 43.00 | 5.90 |
| Influent - Ballymore | 27/06/2013 | 119.00 | 177.60 | 390.00 | 849.00 | 6.62 | 624.00 | 11.20 | 72.00 | 3.50 |
| Influent - Ballymore | 25/07/2013 | 119.00 | 154.00 | 143.00 | 425.00 | 7.56 | 254.00 | 10.40 | 33.00 | 3.90 |
| Influent - Ballymore | 21/08/2013 | 119.00 | 189.50 | 542.00 | 891.00 | 7.28 | 118.00 | 7.70 | 69.00 | 8.90 |
| Influent - Ballymore | 26/09/2013 | 104.00 | 145.80 | 390.00 | 913.00 | 7.37 | 325.00 | 15.40 | 74.00 | 9.00 |
| Influent - Ballymore | 17/10/2013 | 112.00 | 129.00 | 243.00 | 513.00 | 7.22 | 88.00 | 14.10 | 36.00 | 4.70 |
| Influent - Ballymore | 20/11/2013 | 103.00 | 128.00 | 405.00 | 699.00 | 7.68 | 106.00 | 14.30 | 52.00 | 5.10 |
| Influent - Ballymore | 12/12/2013 | 119.00 | 163.00 | 401.00 | 791.00 | 7.25 | 476.00 | 12.00 | 52.00 | 7.80 |
| **Average** | | 119.08 | 153.91 | **355.00** | **799.25** | **7.40** | **247.67** | **11.08** | **52.42** | **6.09** |
| **MEL kg/year** | | 43,465.42 | 56,176.54 | 129,575.00 | | | | | 19,132.08 | 2,223.46 |

## Influent Monitoring Results

# Appendix 2: Effluent Monitoring Data

| StationName | SampleDate | Flows $m^3$ Manual | cBOD | Chemical Oxygen Demand | Conductivity @ 20°C | Ortho-phosphate | pH | Suspended Solids | Ammonia as N | Total Nitrogen | Total Phosphorus | Total Oxidised Nitrogen (N) mg/l | Nitrates(N) | Nitrites(N) | Kjeldahl nitrogen mg/l N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Licence Limits | | | 25 | 125 | | 2 | 6-9 | 35 | 3.5 | | | | | | |
| Effluent - Ballymore | 24/01/2013 | 144.00 | 17.32 | 41.00 | 752.00 | 0.36 | 7.56 | 14.40 | 2.95 | 19.50 | 0.52 | 18.73 | 18.60 | 0.12 | 0.78 |
| Effluent - Ballymore | 27/02/2013 | 107.00 | 6.52 | 37.00 | 774.00 | 0.49 | 7.49 | 11.00 | 6.63 | 23.50 | 0.54 | 20.87 | 20.60 | 0.27 | 2.63 |
| Effluent - Ballymore | 21/03/2013 | 159.00 | 7.40 | 41.00 | 779.00 | 0.55 | 7.54 | 24.80 | 1.74 | 17.90 | 0.58 | 17.73 | 17.40 | 0.33 | 0.17 |
| Effluent - Ballymore | 10/04/2013 | 105.00 | 7.51 | 25.00 | 801.00 | 0.40 | 7.46 | 68.40 | 2.54 | 21.80 | 0.43 | 21.60 | 21.10 | 0.50 | 0.20 |
| Effluent - Ballymore | 15/05/2013 | 89.00 | 2.04 | 26.00 | 697.00 | 2.00 | 7.14 | 1.00 | 0.35 | 20.00 | 2.14 | 19.43 | 19.20 | 0.23 | 0.57 |
| Effluent - Ballymore | 27/06/2013 | 90.00 | 1.96 | 31.00 | 725.00 | 0.31 | 7.04 | 1.60 | 1.39 | 6.40 | 0.37 | 3.72 | 3.70 | 0.02 | 2.68 |
| Effluent - Ballymore | 25/07/2013 | 93.00 | 6.90 | 54.00 | 525.00 | 0.56 | 7.51 | 2.00 | 2.85 | 4.30 | 0.64 | 1.65 | 1.40 | 0.25 | 2.65 |
| Effluent - Ballymore | 21/08/2013 | 66.00 | 7.18 | 37.00 | 536.00 | 1.30 | 6.83 | 4.00 | 1.52 | 13.70 | 1.56 | 11.28 | 10.80 | 0.48 | 2.42 |
| Effluent - Ballymore | 26/09/2013 | 104.00 | 3.54 | 31.00 | 538.00 | 0.92 | 7.04 | 5.20 | 0.55 | 2.80 | 1.45 | 1.46 | 1.20 | 0.26 | 1.37 |
| Effluent - Ballymore | 17/10/2013 | 112.00 | 16.00 | 52.00 | 451.00 | 1.00 | 7.06 | 67.60 | 1.88 | 9.30 | 1.12 | 8.84 | 8.40 | 0.44 | 0.46 |
| Effluent - Ballymore | 20/11/2013 | 103.00 | 8.60 | 31.00 | 541.00 | 1.90 | 7.47 | 30.00 | 0.44 | 14.90 | 2.20 | 13.57 | 13.20 | 0.37 | 1.33 |
| Effluent - Ballymore | 12/12/2013 | 82.00 | 4.64 | 25.00 | 599.00 | 0.42 | 7.18 | 13.20 | 0.65 | 12.80 | 0.54 | 9.55 | 9.10 | 0.45 | 5.25 |
| Average | | 104.50 | 7.47 | 35.92 | 643.17 | 0.85 | 7.28 | 20.27 | 1.96 | 13.91 | 1.01 | 12.37 | 12.06 | 0.31 | 1.71 |
| MEL kg/year | | 38,142.50 | 284.83 | 1,369.95 | | 32.45 | | 773.02 | 74.65 | 530.50 | 38.43 | 471.82 | 459.93 | 11.85 | 65.16 |
| Load Kg/year | | | | | | | | | | | | | | | |

**Effluent Monitoring Results**

# Appendix 3: Ambient Monitoring Data

| StationName | SampleDate | Ammonia(N) | BOD | Conductivity @ 20°C | Dissolved Oxygen % Saturation | Ortho-phosphate | pH | Temperature |
|---|---|---|---|---|---|---|---|---|
| U/S Ballymore STW | 24/01/2013 | 0.2 | 1.76 | 601 | 123.9 | 0.06 | 7.26 | 8.7 |
| U/S Ballymore STW | 27/02/2013 | 0.13 | 1.24 | 621 | 98.7 | 0.06 | 7.35 | 7.3 |
| U/S Ballymore STW | 21/03/2013 | 0.12 | 1.23 | 642 | 113.4 | 0.07 | 7.51 | 8.2 |
| U/S Ballymore STW | 10/04/2013 | 0.3 | 2.14 | 661 | | 0.08 | 7.42 | 9.3 |
| U/S Ballymore STW | 15/05/2013 | 1.88 | 1.88 | 604 | 107.7 | 0.05 | 7.66 | 14 |
| U/S Ballymore STW | 27/06/2013 | 0.13 | 2.46 | 523 | 99.8 | 0.07 | 7.02 | 11.6 |
| U/S Ballymore STW | 25/07/2013 | 0.41 | 3.6 | 506 | 96.2 | 0.16 | 7.46 | 11 |
| U/S Ballymore STW | 21/08/2013 | 0.15 | 1.47 | 447 | 67.3 | 0.08 | 6.85 | 4.2 |
| U/S Ballymore STW | 26/09/2013 | 0.11 | 1.69 | 524 | 92 | 0.06 | 7.14 | 14.6 |
| U/S Ballymore STW | 17/10/2013 | 0.22 | 2.51 | 573 | 100 | 0.09 | 7.14 | 15.3 |
| U/S Ballymore STW | 20/11/2013 | 0.11 | 1.02 | 533 | 95.6 | 0.02 | 7.4 | 13.4 |
| U/S Ballymore STW | 12/12/2013 | 0.14 | 1.11 | 568 | 103.1 | 0.06 | 7.41 | 14.3 |
| Mean | | **0.33** | **1.84** | **566.92** | **99.79** | **0.07** | **7.30** | **10.99** |
| **Surface Water Regulation 2009** | | 0.065 | 1.50 | | | 0.035 | | |
| 95 Percentile | | **1.07** | **3.00** | **650.55** | **118.65** | **0.12** | **7.58** | **14.92** |
| **Surface Water Regulation 2009** | | 0.14 | 2.6 | | 80%<95%<120% | 0.065 | | |
| Status Upstream | | **Poor** | **Poor** | | **Good** | **Poor** | | |

| StationName | SampleDate | Ammonia(N) | BOD | Conductivity @ 20°C | Dissolved Oxygen % Saturation | Ortho-phosphate | pH | Temperature |
|---|---|---|---|---|---|---|---|---|
| D/S Ballymore STW | 24/01/2013 | 0.19 | 1.43 | 591 | 122.7 | 0.05 | 7.29 | 9.1 |
| D/S Ballymore STW | 27/02/2013 | 0.2 | 1.14 | 629 | 98.9 | 0.04 | 7.39 | 7.5 |
| D/S Ballymore STW | 21/03/2013 | 0.16 | 1.77 | 647 | 113.9 | 0.09 | 7.58 | 8.9 |
| D/S Ballymore STW | 10/04/2013 | 0.19 | 1.8 | 658 | | 0.05 | 7.53 | 9.9 |
| D/S Ballymore STW | 15/05/2013 | 0.14 | 2.22 | 607 | 106 | 0.1 | 7.65 | 14 |
| D/S Ballymore STW | 27/06/2013 | 0.17 | 2.52 | 536 | 99.9 | 0.13 | 7.09 | 11.8 |
| D/S Ballymore STW | 25/07/2013 | 0.57 | 6.11 | 484 | 95.1 | 0.29 | 7.51 | 9.9 |
| D/S Ballymore STW | 21/08/2013 | 0.18 | 1.74 | 457 | 72.8 | 0.13 | 6.87 | 6.1 |
| D/S Ballymore STW | 26/09/2013 | 0.16 | 1.83 | 527 | 86.7 | 0.24 | 7.12 | 15.7 |
| D/S Ballymore STW | 17/10/2013 | 0.28 | 5.36 | 569 | 99.8 | 0.16 | 7.2 | 14.7 |
| D/S Ballymore STW | 20/11/2013 | 0.13 | 1.23 | 537 | 96.5 | 0.02 | 7.42 | 12.9 |
| D/S Ballymore STW | 12/12/2013 | 0.11 | 1.33 | 561 | 103.6 | 0.08 | 7.51 | 11.9 |
| Mean | | **0.21** | **2.37** | **566.92** | **99.63** | **0.12** | **7.35** | **11.03** |
| **Surface Water Regulation 2009** | | 0.065 | 1.50 | | | 0.035 | | |
| 95 Percentile | | **0.41** | **5.70** | **651.95** | **118.30** | **0.26** | **7.61** | **15.15** |
| **Surface Water Regulation 2009** | | 0.14 | 2.6 | | 80%<95%<120% | 0.065 | | |
| Status Downstream | | **Poor** | **Poor** | | **Good** | **Poor** | | |

## Ambient Monitoring Results

# Appendix 4: Mass Loading

| Station Name | Sample Date | Manual Flows $m^3$ | BOD Load Kg/d | Cod Load | SS Load | TP Load | TN Load | PE |
|---|---|---|---|---|---|---|---|---|
| Influent - Ballymore | 24/01/2013 | 144.00 | 33.81 | 66.10 | 16.70 | 0.98 | 8.78 | 563.52 |
| Influent - Ballymore | 27/02/2013 | 107.00 | 15.54 | 29.85 | 14.12 | 0.56 | 4.49 | 258.94 |
| Influent - Ballymore | 21/03/2013 | 159.00 | 16.55 | 55.97 | 75.21 | 1.03 | 7.79 | 275.87 |
| Influent - Ballymore | 10/04/2013 | 105.00 | 12.29 | 33.50 | 19.64 | 0.61 | 4.83 | 204.75 |
| Influent - Ballymore | 15/05/2013 | 119.00 | 18.91 | 40.10 | 8.69 | 0.70 | 5.12 | 315.15 |
| Influent - Ballymore | 27/06/2013 | 119.00 | 21.13 | 46.41 | 74.26 | 0.42 | 8.57 | 352.24 |
| Influent - Ballymore | 25/07/2013 | 119.00 | 18.33 | 17.02 | 30.23 | 0.46 | 3.93 | 305.43 |
| Influent - Ballymore | 21/08/2013 | 119.00 | 22.55 | 64.50 | 14.04 | 1.06 | 8.21 | 375.84 |
| Influent - Ballymore | 26/09/2013 | 104.00 | 15.16 | 40.56 | 33.80 | 0.94 | 7.70 | 252.72 |
| Influent - Ballymore | 17/10/2013 | 112.00 | 14.45 | 27.22 | 9.86 | 0.53 | 4.03 | 240.80 |
| Influent - Ballymore | 20/11/2013 | 103.00 | 13.18 | 41.72 | 10.92 | 0.53 | 5.36 | 219.73 |
| Influent - Ballymore | 12/12/2013 | 119.00 | 19.40 | 47.72 | 56.64 | 0.93 | 6.19 | 323.28 |
| **Average** | | 119.08 | **18.44** | **42.55** | **30.34** | **0.73** | **6.25** | **307.36** |
| **MEL kg/year** | | 43,465.42 | 6,731.11 | 15,532.27 | 11,074.68 | 265.71 | 2,281.07 | |

## Influent Mass Loading

| StationName | SampleDate | Flows $m^3$ Manual | BOD Load | COD Load | Ortho P load | SS Load | Ammonia load | TN Load | TP Load | TON Load | Nitrates load | Nitrites load | KN Load |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Licence Limits | | | | | | | | | | | | | |
| Effluent - Ballymore | 24/01/2013 | 144.00 | 2.49 | 5.90 | 0.05 | 2.07 | 0.42 | 2.81 | 0.07 | 2.70 | 0.32 | 0.02 | 0.11 |
| Effluent - Ballymore | 27/02/2013 | 107.00 | 0.70 | 3.96 | 0.05 | 1.18 | 0.71 | 2.51 | 0.06 | 2.23 | 0.13 | 0.03 | 0.28 |
| Effluent - Ballymore | 21/03/2013 | 159.00 | 1.18 | 6.52 | 0.09 | 3.94 | 0.28 | 2.85 | 0.09 | 2.82 | 0.13 | 0.05 | 0.03 |
| Effluent - Ballymore | 10/04/2013 | 105.00 | 0.79 | 2.63 | 0.04 | 7.18 | 0.27 | 2.29 | 0.05 | 2.27 | 0.16 | 0.05 | 0.02 |
| Effluent - Ballymore | 15/05/2013 | 89.00 | 0.18 | 2.31 | 0.18 | 0.09 | 0.03 | 1.78 | 0.19 | 1.73 | 0.04 | 0.02 | 0.05 |
| Effluent - Ballymore | 27/06/2013 | 90.00 | 0.18 | 2.79 | 0.03 | 0.14 | 0.13 | 0.58 | 0.03 | 0.33 | 0.01 | 0.00 | 0.24 |
| Effluent - Ballymore | 25/07/2013 | 93.00 | 0.64 | 5.02 | 0.05 | 0.19 | 0.27 | 0.40 | 0.06 | 0.15 | 0.01 | 0.02 | 0.25 |
| Effluent - Ballymore | 21/08/2013 | 66.00 | 0.47 | 2.44 | 0.09 | 0.26 | 0.10 | 0.90 | 0.10 | 0.74 | 0.08 | 0.03 | 0.16 |
| Effluent - Ballymore | 26/09/2013 | 104.00 | 0.37 | 3.22 | 0.10 | 0.54 | 0.06 | 0.29 | 0.15 | 0.15 | 0.00 | 0.03 | 0.14 |
| Effluent - Ballymore | 17/10/2013 | 112.00 | 1.79 | 5.82 | 0.11 | 7.57 | 0.21 | 1.04 | 0.13 | 0.99 | 0.13 | 0.05 | 0.05 |
| Effluent - Ballymore | 20/11/2013 | 103.00 | 0.89 | 3.19 | 0.20 | 3.09 | 0.05 | 1.53 | 0.23 | 1.40 | 0.11 | 0.04 | 0.14 |
| Effluent - Ballymore | 12/12/2013 | 82.00 | 0.38 | 2.05 | 0.03 | 1.08 | 0.05 | 1.05 | 0.04 | 0.78 | 0.04 | 0.04 | 0.43 |
| Average | | 104.50 | 0.84 | 3.82 | 0.08 | 2.28 | 0.21 | 1.50 | 0.10 | 1.36 | 0.10 | 0.03 | 0.16 |
| MEL kg/year | | 38,142.50 | | | | | | | | | | | |
| Load Kg/year | | | 305.90 | 1,395.09 | 30.88 | 831.69 | 78.02 | 548.56 | 36.60 | 495.88 | 35.64 | 11.57 | 57.81 |

**Effluent Mass Loading**

# Appendix 5: Sludge Production Register

| Exported Liquid Sludge Record | | | | | | |
|---|---|---|---|---|---|---|
| **Date** | **Origin of Product** | **Destination** | **Weight (Tonne)** | **% TDS** | **Delivered By** | **On behalf of** |
| 07/01/2013 | Ballymore | Mullingar WWTP Sludge Building | 27.02 | 3.3 | WCC | Westmeath Co. Council |
| 21/01/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.52 | 2.9 | WCC | Westmeath Co. Council |
| 04/02/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.08 | 3.6 | WCC | Westmeath Co. Council |
| 11/02/2013 | Ballymore | Mullingar WWTP Sludge Building | 23.48 | 1.9 | WCC | Westmeath Co. Council |
| 18/02/2013 | Ballymore | Mullingar WWTP Sludge Building | 17.54 | 1.9 | WCC | Westmeath Co. Council |
| 06/03/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.64 | 0.5 | WCC | Westmeath Co. Council |
| 20/03/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.24 | 1.6 | WCC | Westmeath Co. Council |
| 03/04/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.8 | 1.8 | WCC | Westmeath Co. Council |
| 15/04/2013 | Ballymore | Mullingar WWTP Sludge Building | 27 | 1.7 | WCC | Westmeath Co. Council |
| 13/05/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.24 | 5.2 | WCC | Westmeath Co. Council |
| 27/05/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.04 | 4.4 | WCC | Westmeath Co. Council |
| 11/06/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.12 | 1.8 | WCC | Westmeath Co. Council |
| 24/06/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.96 | 2.1 | WCC | Westmeath Co. Council |
| 08/07/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.02 | 3.4 | WCC | Westmeath Co. Council |
| 18/07/2013 | Ballymore | Mullingar WWTP Sludge Building | 16.18 | 0.2 | Longford Pipe & Drain | Westmeath Co. Council |
| 26/07/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.58 | 4.8 | WCC | Westmeath Co. Council |
| 09/08/2013 | Ballymore | Mullingar WWTP Sludge Building | 24.5 | 0.5 | WCC | Westmeath Co. Council |
| 26/08/2013 | Ballymore | Mullingar WWTP Sludge Building | 27.96 | 3.7 | WCC | Westmeath Co. Council |
| 04/09/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.36 | 4.1 | WCC | Westmeath Co. Council |
| 06/09/2013 | Ballymore | Mullingar WWTP Sludge Building | 23.26 | 3.1 | WCC | Westmeath Co. Council |
| 13/09/2013 | Ballymore | Mullingar WWTP Sludge Building | 27.08 | 2.2 | WCC | Westmeath Co. Council |
| 23/09/2013 | Ballymore | Mullingar WWTP Sludge Building | 27.1 | 2.1 | WCC | Westmeath Co. Council |
| 08/10/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.36 | 3.8 | WCC | Westmeath Co. Council |
| 18/10/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.96 | 4.4 | WCC | Westmeath Co. Council |
| 05/11/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.8 | 3.8 | WCC | Westmeath Co. Council |

| Exported Liquid Sludge Record | | | | | | |
|---|---|---|---|---|---|---|
| **Date** | **Origin of Product** | **Destination** | **Weight (Tonne)** | **% TDS** | **Delivered By** | **On behalf of** |
| 08/11/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.74 | 3.5 | WCC | Westmeath Co. Council |
| 20/11/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.34 | 5.2 | WCC | Westmeath Co. Council |
| 26/11/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.96 | 4.7 | WCC | Westmeath Co. Council |
| 03/12/2013 | Ballymore | Mullingar WWTP Sludge Building | 26.26 | 2.8 | WCC | Westmeath Co. Council |
| 12/12/2013 | Ballymore | Mullingar WWTP Sludge Building | 25.34 | 2.8 | WCC | Westmeath Co. Council |
| 31/12/2013 | Ballymore | Mullingar WWTP Sludge Building | 24.55 | 4 | WCC | Westmeath Co. Council |

# Appendix 6:

# Removal Efficiency Report

| 2013 | In | Out | cBOD | In | Out | COD | In | Out | S.S. | In | Out | T.N. | In | Out | T.P. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | cBOD | cBOD | Removal | COD | COD | Removal | S.S | S.S | Removal | TN | TN | Removal | TP | TP | Removal |
| | mg/l | mg/l | Efficiency % | mg/l | mg/l | Efficiency % | mg/l | mg/l | Efficiency % | mg/lN | mg/lN | Efficiency % | mg/lP | mg/lP | Efficiency % |
| **Jan** | 234.8 | 17.32 | **93** | 459 | 41 | **91** | 116 | 14.4 | **88** | 61 | 19.5 | **68** | 6.8 | 0.52 | **92** |
| **Feb** | 145.2 | 6.52 | **96** | 279 | 37 | **87** | 132 | 11 | **92** | 42 | 23.5 | **44** | 5.2 | 0.54 | **90** |
| **Mar** | 104.1 | 7.4 | **93** | 352 | 41 | **88** | 473 | 24.8 | **95** | 49 | 17.9 | **63** | 6.5 | 0.58 | **91** |
| **Apr** | 117 | 7.51 | **94** | 319 | 25 | **92** | 187 | 68.4 | **63** | 46 | 21.8 | **53** | 5.8 | 0.43 | **93** |
| **May** | 158.9 | 2.04 | **99** | 337 | 26 | **92** | 73 | 1 | **99** | 43 | 20 | **53** | 5.9 | 2.14 | **64** |
| **Jun** | 177.6 | 1.96 | **99** | 390 | 31 | **92** | 624 | 1.6 | **100** | 72 | 6.4 | **91** | 3.5 | 0.37 | **89** |
| **Jul** | 35 | 6.9 | **80** | 143 | 54 | **62** | 254 | 2 | **99** | 33 | 4.3 | **87** | 3.9 | 0.64 | **84** |
| **Aug** | 189.5 | 7.18 | **96** | 542 | 37 | **93** | 118 | 4 | **97** | 69 | 13.7 | **80** | 8.9 | 1.56 | **82** |
| **Sep** | 145.8 | 3.54 | **98** | 390 | 31 | **92** | 325 | 5.2 | **98** | 74 | 2.8 | **96** | 9 | 1.45 | **84** |
| **Oct** | 129 | 16 | **88** | 243 | 52 | **79** | 88 | 67.6 | **23** | 36 | 9.3 | **74** | 4.7 | 1.12 | **76** |
| **Nov** | 128 | 8.6 | **93** | 405 | 31 | **92** | 106 | 30 | **72** | 52 | 14.9 | **71** | 5.1 | 2.2 | **57** |
| **Dec** | 163 | 4.64 | **97** | 401 | 25 | **94** | 476 | 13.2 | **97** | 52 | 12.8 | **75** | 7.8 | 0.54 | **93** |
| **SI 254 of 2001 minimum % reduction** | **70-90** | | | **75** | | | **90** | | | **70-80** | | | **80** | | |
| **Average Removal Efficiency** | **94** | | | **88** | | | **85** | | | **71** | | | **83** | | |
| **Results** | **Pass** | | | **Pass** | | | **Pass** | | | **Pass** | | | **Pass** | | |

Pass
Fail

**Ballymore WWTPTreatment Removal Efficiemcy**