Annual Environmental Report 2015

Agglomeration Name:	**Glaslough**
Licence Register No.	**D0347-01**

Contents

Section 1. Executive Summary and Introduction to the 2015 AER

1.1 Summary Report on 2015

This Annual Environmental Report has been prepared for **D0347-01, Glaslough,** 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 Design PE of1750. The treatment process includes the following:-

- Primary Treatment (Sludge Settlement Pond)
- Secondary Treatment (Wetland Treatment System)
- Nutrient Removal (Wetland Treatment System)

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values in 2015.

The following parameters exceeded the emission limit values in 2015:-

- Ortho P (mg/l)
- Ammonia NH3 (mg/l)

0kgs sludge as dry solids was removed from the wastewater treatment plant in 2015 .

There were no major capital or operational changes undertaken in 2015.

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)	Organic Loading (PE/Day)
Number of Samples	8	8	8	8	8		
Annual Max.	1104	1920	3223	7.4	56.8	842.4	1,914
Annual Mean	316.62	647.70	398.42	3.79	31.91	137	681

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 annual mean organic loading is less than the Treatment Plant Capacity as detailed further in Section 3.2.

The annual maximum organic loading is greater than the Treatment Plant Capacity as detailed further in Section 3.2.

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 (mg/l)	Ammonia NH3 (mg/l)	pH
WWDL ELV (Schedule A) where applicable	10	75	15	0.5	1	6 to 8
ELV with Condition 2 Interpretation included	20	150	37.5	0.6	2	No allowable failures
Number of sample results	8	8	8	9	8	8
Number of sample results above WWDL ELV	0	0	0	6	5	0
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	6	4	0
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	N/A	N/A
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Fail	Fail	Pass

Significance of results

The WWTP was non- compliant with the ELV's for Ortho P and Ammonia. With condition 2 interpretation, there were 4 non-compliant samples for ammonia and 6 non-compliant samples for orthophosphate. The non-compliance for Ammonia is suspected to be due to vegetation decay in the wetland system. The impact on receiving waters is assessed further in Section 2.3.

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	Receiving Waters Designation (Y/N				WFD Status	Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?
			Bathing Water	Drinking Water	FWPM	Shellfish		
Upstream monitoring point	272001E 342192N	RS03M010670	N	N	N	N	Poor	
Downstream monitoring point	272357E 342273N	RS03M010680	N	N	N	N	Poor	Yes for Ammonia

The results for the upstream and downstream monitoring are included in Appendix 7. 2 Ambient Monitoring Results.

Significance of results

The WWTP was non-compliant with the ELVs set in the wastewater discharge licence as detailed in Section 2.2

The discharge from the wastewater treatment plant doesn't have an observable negative impact on the water quality.

The discharge from the wastewater treatment plant doesn't have an observable negative impact on the Water Framework Directive status.

2.4 Data collection and reporting requirements under the UWWTD

The electronic submission of data was completed on 15/01/2016

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

A PRTR is not required as the agglomeration is less than 2000 p.e..

Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)
Influent mass loading (kg/year)	14,908	30,497	18,760	178	1,503
Effluent mass emission (kg/year)	168	2,876	358	150	594
% Efficiency (% reduction of influent load)	99%	91%	98%	16%	60%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	153,300
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	459,900
Hydraulic Capacity – Current loading (m3/year)	50,178
Hydraulic Capacity – Remaining (m3/year)	409,722
Organic Capacity - Design / As Constructed (PE)	1,850
Organic Capacity - Current loading (PE)	681
Organic Capacity – Remaining (PE)	1,169
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 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 collected in the sewer network but discharges without treatment	0%

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.

The data in Table 3.3 is estimated based on the influent monitoring results and on the absence of storm water overflows within the agglomeration.

3.4 Complaints Summary

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

Table 3.4 - Complaints Summary Table

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
None					

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

3.5.1 Incident Type (e.g. Non-compliance, Emission, spillage, pollution incident)	Incident Description	Cause	No. of Incidents	Corrective Action	Authorities Contacted. Note 1	Reported to EPA (Yes/No)	Closed (Yes/No)
Emission	Breach of ELV - ammonia & ortho phosphate	Vegetation decay in Wetland system suspected	1	None	IFI	Yes	Yes
Emission	Breach of ELV - ammonia & ortho phosphate	Vegetation decay in Wetland system suspected	1	None	IFI	Yes	Yes
Emission	Breach of ELV - ammonia & ortho phosphate	Unknown	1	Lowering of pond level and some replanting in Wetland Treatment System	No	Yes	Yes
Emission	Breach of ELV - ammonia & ortho phosphate	Suspected vegetation decay in ponds	1	Effluent recirculation through ponds,	No	Yes	Yes

Note 1: For shellfish waters notify the Marine Institute (MI) Sea Fisheries Protection Authority (SFPA) Food Safety Authority (FSAI) and An Bord Iascaigh Mhara (BIM). This should also include any other authorities that should be contacted arising from the findings of any Licence Specific Reports also e.g. Drinking Water Abstraction Impact Risk Assessment, Fresh Water Pearl Mussel Impact Assessments etc.

Table 3.5.2 - Summary of Overall Incidents

Number of Incidents in 2015	4
Number of Incidents reported to the EPA via EDEN in 2015	4
Explanation of any discrepancies between the two numbers above	N/A

3.6 Sludge / Other inputs to the WWTP

Other inputs to the waste water treatment plant are summarised in Table 3.6 below.

Table 3.6 - Other Inputs

Input Type	m3/year	PE/year	% of load to WWTP	Included in Influent Monitoring (Y/N)?[3]	Is there a leachate/sludge acceptance procedure for the WWTP? (Y/N)	Is there a dedicated leachate/sludge acceptance facility for the WWTP? (Y/N)
Domestic /Septic Tank Sludge	0	0		N/A		
Industrial / Commercial Sludge	0	0		N/A		
Landfill Leachate (delivered by tanker)	0	0		N/A		
Landfill Leachate (delivered by sewer network)	0	0		N/A		
Other (specify)	0	0		N/A		

Notes:

1. Other Inputs include; septic tank sludge, industrial /commercial sludge, landfill leachate and any other sludge that is collected and added to the treatment plant.
2. Sludge that is added to a dedicated sludge reception facility at a waste water treatment plant not include d in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs.
3. If any inputs were introduced **prior** to influent monitoring point and therefore already reported in S.2.1 *Influent Monitoring Summary*, then clarify this to avoid duplication and over-reporting of PE.

Section 4. Infrastructure Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

There are no SWO's on the network.

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 2015 (No. of events)	Total volume discharged in 2015 (m3)	Total volume discharged in 2015 (P.E.)	Estimated / Measured data
None	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

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

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

The Improvement Programme is included in Appendix 7.3

The Improvement Programme report included in Appendix 7.3 addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It also details other improvements identified through assessments required under the licence

Table 4.2.1 - Specified Improvement Programme Summary

Specified Improvement Programmes	Licence Schedule	Licence Completion Date	Date Expired	Status of Works	% Construction Work Completed	Licensee Timeframe for Completing the Work	Comments
None	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

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
To improve Ortho P and Ammonia results	Implement a return of activated wastewater to the head of the works, from cell pond 3 to pumping station at head of works ACTION: Open existing valve between cell 3 and PS to return flows	WWTP assessment (Condition 5.2).	100%		
Flooding from storm water around pump station and	Flood control measure along river bank the storm water outflow pipe	WWTP assessment (Condition 5.2).			

compound area	into river, which collects surface water from around the control building and pumping station, needs to have rubber check valve fitted				
High inflows into the WWTP during storm conditions/periods of heavy rainfall	CCTV of network and establish where excess storm water ingression to collection network	WWTP assessment (Condition 5.2).			The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised
		Sewer Integrity Tool (Condition 5.2).			
		Secondary discharges assessment (Condition 5.2).			
	Process Control	Improved Operational Control	0%		An investigation should be carried out to determine if preferential flow paths have formed in some of the ponds. The development of preferential flow paths should be avoided on each pond.
	Process Control	Improved Operational Control	0%		It is recommended to determine the exact retention time in each pond
	Process Control	Improved Operational Control	0%		It is recommended that flow through the ponds should be a steady surface flow
	Process Control	Improved Operational Control	0%		The higher water levels in the ponds may be contributing to quick rapid flows through the ponds. It is recommended that the levels in the ponds should be decreased to increase the retention time and to prevent quick rapid flows

					through the ponds.
	Process Control	Improved Operational Control	0%		There is a possibility that during the winter period when the deciduous plants die back they may release ammonia back into the liquid. It is recommended that an investigation be carried out to determine if this is the case.

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**	**Comment**
Hydraulic Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Environmental Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Structural Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Operation & Maintenance Risk Assessment Score	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.
Overall Risk Score for the agglomeration	Unknown	Unknown	SNIT has not been completed but will be submitted following submission of 2015 AER.

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in this AER or outstanding from previous AER	Included in this AER / Remains outstanding	Reference to previous AER containing report or relevant section of this AER
Priority Substances Assessment	No	No	N/A
Drinking Water Abstraction Point Risk Assessment	No	No	N/A
Habitats Impact Assessment	No	No	N/A
Shellfish Impact Assessment	No	No	N/A
Pearl Mussel Report	No	No	N/A
Toxicity/Leachate Management	No	No	N/A
Toxicity of Final Effluent Report	No	No	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?	Yes
List reason e.g. additional SWO identified	Request for increase of ELV for ortho phosphate to 3mg/l and for Ammonia to 10mg/l from the 1st of November to the 15th of March each year.
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)	No
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	No
List outstanding reports	Sewer Network Integrity Tool

Declaration by Irish Water

The AER contains the following:

- Introduction and background to 2015 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: 03/03/2016

Gerry Galvin
Chief Technical Advisor

Section 7. Appendix

In the appendix include all the detailed or site specific reports that are relevant to the AER. Reports omitted from previous AERs should also be appended here.

Appendix 7.1 - Annual Statement of Measures
Appendix 7.2 - Ambient monitoring summary
Appendix 7.3 – Specified Improvement Programme

a) Specified Improvement Programme
b) Programme of Improvements

Appendix 7.1 Annual Statement of Measures

Description of issue	Risk	Mitigation Measure to be taken	Date for Completion/Comment
Failure to meet ELV for Ammonia and Ortho P	Medium	Implement a return of activated wastewater to the head of the works, from cell pond 3 to pumping station at head of works ACTION: Open existing valve between cell 3 and PS to return flows	Project complete
Flooding from storm water around pump station and compound area	Medium	Flood control measure along river bank the storm water outflow pipe into river, which collects surface water from around the control building and pumping station, needs to have rubber check valve fitted	
High inflows into the WWTP during storm conditions/periods of heavy rainfall	Medium	CCTV of network and establish where excess storm water ingression to collection network	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised
Failure to meet ELV for Ammonia and Ortho P	Medium	Upgrade of ICW	Complete September 2015

Appendix 7.2 Ambient Monitoring Results

Upstream Monitoring Results									
Sampling Location	**Sample Date**	**Sample Type**	**Dissolved Oxygen mg/l**	**Temp o C**	**Ammonia N mg/l**	**BOD, 5 days with Inhibition (Carbonaceous) mg/l**	**Ortho Phosphate mg/l**	**pH units**	**Total Nitrogen N mg/l**
Glaslough WWTP Upstream	07/01/2015	Grab	11.02	8.4	0.043	< 1	<0.009	8	1.2
Glaslough WWTP Upstream	03/02/2015	Grab			0.069	< 1	0.028	8	1.6
Glaslough WWTP Upstream	14/04/2015	Grab	11.1	10.3	0.051	< 1	0.015	8.2	1.2
Glaslough WWTP Upstream	19/05/2015	Grab	9.86	12	0.066	< 1	0.021	8.2	< 1
Glaslough WWTP Upstream	08/07/2015	Grab	8.8	15.1	0.077	1	0.026	8.3	1.1
Glaslough WWTP Upstream	02/09/2015	Grab	10.09	13.3	0.065	1	0.057	8.4	< 1
Glaslough WWTP Upstream	13/10/2015	Grab	9.4	9.3	0.044	1	0.023	8.3	< 1
Glaslough WWTP Upstream	03/11/2015	Grab	13.38	11.5	0.048	< 1	0.049	8.2	< 1
Average			**10.52**	**11.41**	**0.058**	**1**	**0.029**	**8.2**	**1.13**

Downstream Monitoring Results									
Sample Location	**Sample Date**	**Sample Method**	**Dissolved Oxygen mg/l**	**Temp oC**	**Ammonia N mg/l**	**BOD, 5 days with Inhibition (Carbonaceous) mg/l**	**Ortho-Phosphate P mg/l**	**pH units**	**Total Nitrogen N mg/l**
Glaslough WWTP Downstream	07/01/2015	Grab	11.1	8.2	0.15	< 1	0.018	8	1.1
Glaslough WWTP Downstream	03/02/2015	Grab			0.065	< 1	0.032	8	1.7
Glaslough WWTP Downstream	14/04/2015	Grab	11.2	10.3	0.14	< 1	0.028	8.2	1.2
Glaslough WWTP Downstream	19/05/2015	Grab	9.91	12	0.067	< 1	0.019	8.2	< 1
Glaslough WWTP Downstream	08/07/2015	Grab	8.86	15.1	0.083	1	0.013	8.2	< 1
Glaslough WWTP Downstream	02/09/2015	Grab	10.22	12.8	0.061	1	0.059	8.4	< 1
Glaslough WWTP Downstream	13/10/2015	Grab	9.5	9.3	0.049	1	0.024	8.3	< 1
Glaslough WWTP Downstream	03/11/2015	Grab	13.93	10.5	0.046	< 1	0.049	8.2	< 1
Average			**10.67**	**11.17**	**0.083**	**1**	**0.03**	**8.19**	**1.125**

Appendix 7.3 Specified Improvement Programmes

Appendix 7.3 – Specified Improvement Programme

a) Specified Improvement Programme

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

Under the terms of Condition 5 of the licence, the licensee shall submit to the Agency a programme of infrastructural improvements to maximize the effectiveness and efficiency of the waste water works.

Condition 5.1 relates to Infrastructural Improvements:

*"The licensee shall, as a part of the **second AER** (required under Condition 6.11), prepare and submit to the Agency a programme of infrastructural improvements to maximise the effectiveness and efficiency of the waste water works in order to:*

a) achieve improvements in the quality of all discharges from the works;

b) meet the emission limit values specified in Schedule A; Discharges, of this licence;

c) give effect to Regulation 2 of the Waste Water Discharge (Authorisation) Regulations 2007 (S.I. No. 684 of 2007);

d) reduce total phosphorous loadings in the discharge to the maximum practicable extent;

e) reduce Total Phosphorus loadings in the discharge to the maximum practicable extent;

f) meet the obligations of Condition 1.7".

Submission

No Major infrastructural improvements pending, but some optimisation improvements specified.

There are no other specified improvement works under schedule C, C2 or C3 of the discharge licence.

b) Programme of Improvements

Improvement programme Summary Table

Table 4.2.2 - Improvement Programme Summary

Improvement Identifier / Name	Improvement Description	Improvement Source	Progress (% complete)	Expected Completion Date	Comments
To improve Ortho P and Ammonia results	Implement a return of activated wastewater to the head of the works, from cell pond 3 to pumping station at head of	WWTP assessment (Condition 5.2).	100%		

	works ACTION: Open existing valve between cell 3 and PS to return flows				
Flooding from storm water around pump station and compound area	Flood control measure along river bank the storm water outflow pipe into river, which collects surface water from around the control building and pumping station, needs to have rubber check valve fitted	WWTP assessment (Condition 5.2).			
High inflows into the WWTP during storm conditions/periods of heavy rainfall	CCTV of network and establish where excess storm water ingression to collection network	WWTP assessment (Condition 5.2).			The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised
	Process Control	Improved Operational Control	0%		An investigation should be carried out to determine if preferential flow paths have formed in some of the ponds. The development of preferential flow paths should be avoided on each pond.
	Process Control	Improved Operational Control	0%		It is recommended to determine the exact retention time in each pond
	Process Control	Improved Operational Control	0%		It is recommended that flow through the ponds should be a steady surface flow
	Process	Improved	0%		The higher water levels in the

	Control	Operational Control			ponds may be contributing to quick rapid flows through the ponds. It is recommended that the levels in the ponds should be decreased to increase the retention time and to prevent quick rapid flows through the ponds.
	Process Control	Improved Operational Control	0%		There is a possibility that during the winter period when the deciduous plants die back they may release ammonia back into the liquid. It is recommended that an investigation be carried out to determine if this is the case.