Annual Environmental Report 2014

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

Table of Contents

Section 1. Executive Summary and Introduction to the 2014 AER **1**
1.1 Summary report on 2014 1
Section 2. Monitoring Reports Summary **2**
2.1 Summary report on monthly influent monitoring 2
2.2 Discharges from the agglomeration 3
2.3 Ambient monitoring summary 5
2.4 Data collection and reporting requirements under the Urban Waste Water Treatment Directive 5
2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year 5
Section 3 Operational Reports Summary **6**
3.1 Treatment Efficiency Report 6
3.2 Treatment Capacity Report 6
3.3 Extent of Agglomeration Summary Report 6
3.4 Complaints Summary 7
3.5 Reported Incidents Summary 8
3.6 Sludge / Other inputs to the WWTP 9
Section 4. Infrastructural Assessments and Programme of Improvements **10**
4.1 Storm water overflow identification and inspection report 10
4.2 Report on progress made and proposals being developed to meet the improvement programme requirements. 10
Section 5. Licence Specific Reports **13**
5.1 Priority Substances Assessment 14
5.2 Drinking Water Abstraction Point Risk Assessment. 14
5.3 Shellfish Impact Assessment Report. 14
5.4 Toxicity / Leachate Management 14
5.5 Toxicity of the Final Effluent Report 14
5.6 Pearl Mussel Measures Report 15
5.7 Habitats Impact Assessment Report 15
Section 6. Certification and Sign Off **16**
Section 7. Appendix **18**

Section 1. Executive Summary and Introduction to the 2014 AER

1.1 Summary report on 2014

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 of 1750. The treatment process includes the following:-

- secondary treatment - ICW

The final effluent from the Primary Discharge Point was non-compliant with the Emission Limit Values for COD, Ortho-phosphate and Ammonia in 2014.

The following parameters exceeded the emission limit values in 2014:-

- COD
- Orthophosphate
- Ammonia

0 kgs sludge (total weight sludge) were removed from the wastewater treatment plant in 2014. Sludge was therefore NOT transferred to any other site.

The following improvement works were undertaken during 2014:

- Winter 2013/2014 - increased the final pond 5 by 300mm in depth, generating greater volume across pond 5 and further back as top water level is equal in ponds 3,4 and 5
- Recycling 150m^3/day of pond 3 effluent back to head of works, which commenced in September 2014

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

	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	12	12	12	12	12		
Annual Max.	549	2610	813	10.3	63.6	298	957
Annual Mean	251	507	344	4	34	132	550

Significance of results
The annual mean hydraulic loading is less than the Treatment Plant Capacity as detailed further in Section 3.2.

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

2.2 Discharges from the agglomeration

Table 2.2 - Effluent Monitoring Summary

	pH	cBOD (mg/l)	COD (mg/l)	SS (mg/l)	Total P (mg/l)	Ortho P (mg/l)	Total N (mg/l)	Ammonia (mg/l)	Comment
WWDL ELV (Schedule A)	6 - 9	10	75	15	N/A	0.5	N/A	1	
ELV with Condition 2 Interpretation included	No allowable failures – No deviation allowed	2 allowable failures provided under 100% of ELV (20 mg/l)	2 allowable failures provided under 100% of ELV (150 mg/l)	2 allowable failures provided under 150% of ELV (37.5 mg/l)	N/A	8 out of 10 consec. samples shall not exceed ELV, no result shall exceed ELV by >20% = 0.6 mg/l	N/A	8 out of 10 consec. samples shall not exceed ELV, no result shall exceed ELV by >100% = 2 mg/l	
Number of sample results	12	12	12	12	N/A	12	N/A	12	
Number of sample results above WWDL ELV	0	0	4	0	N/A	12	N/A	6	
Number of sample results above ELV with Condition 2 Interpretation included	0	0	2	0	N/A	12	N/A	6	
Annual Mean (for parameters where a mean	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

ELV applies)									
Overall Compliance (Pass/Fail)	PASS	PASS	FAIL	PASS	N/A	FAIL	N/A	FAIL	

Significance of results

The WWTP was non-compliant with the ELVs for COD, Ortho-phosphate and Ammonia set in the wastewater discharge licence. There were 20 results non-compliant with the ELVs in relation to COD, Ortho-phosphate and Ammonia. The non-compliance is due to ammonia and ortho-phosphate not been taken up in the winter months as plants stop growing and therefore do not take up these nutrients during plant die-back. The impact on receiving waters is assessed further in Section 2.3.

2.3 Ambient monitoring summary

Table 2.3 - Ambient Monitoring Report Summary

Ambient Monitoring Point from WWDL (or as agreed with EPA)	***Irish Grid Reference***	**EPA Feature Coding Tool code**	**Current EQS Status**	**Does assessment of the ambient monitoring results indicate that the discharge is impacting on water quality?**
Upstream monitoring point	272001E 342192N	RS03M010670	Good	n/a
Downstream monitoring point	272357E 342273N	RS03M010680	Good	No

The results for the upstream and downstream monitoring are included as in Appendix 7.2.

Significance of results

The WWTP was non-compliant with the ELVs for COD, Ortho-phosphate and Ammonia set in the wastewater discharge licence as detailed in Section 2.2.

The discharge from the wastewater treatment plant doesn't have an observable impact on the water quality status. See Appendix 7.2 for details.

2.4 Data collection and reporting requirements under the Urban Waste Water Treatment Directive

The electronic submission of data was completed on a monthly basis to EPA through MDS (EDEN) in xml format.

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

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

Table 3.1 - Treatment Efficiency Report Summary

	cBOD (kg/yr)	COD (kg/yr)	SS (kg/yr)	Total P (kg/yr)	Total N (kg/yr)	Comment
Influent mass loading (kg/year)	10035	20291	13778	167	1374	
Effluent mass emission (kg/year)	89	2,298	182	94	294	
% Efficiency (% reduction of influent load)	99%	89%	99%	44%	79%	

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	47,450
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	142,350
Hydraulic Capacity – Current loading (m3/year)	48,000
Hydraulic Capacity – Remaining (m3/year)	94,350
Organic Capacity - Design / As Constructed (PE)	1,750
Organic Capacity - Current loading (PE)	550
Organic Capacity – Remaining (PE)	1,200
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 treated in a private system and discharged to water under a Section 4 Licence issued under the Water Pollution Acts 1977 (as amended):

Table 3.3 - Extent of Agglomeration Summary Report

	% of p.e. load generated in the agglomeration
Load generated in the agglomeration that is collected in the sewer network	100%
Load collected in the agglomeration that enters treatment plant	100%
Load collected in the sewer network but discharged 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 above is based on influent monitoring as detailed in Section 2.1 above.

3.4 Complaints Summary

There were 2 No. complaints of an environmental nature related to the discharge(s) to waters from the Glaslough waste water works.

Table 3.4 - Complaints Summary Table:

Number	Date & Time	Nature of Complaint	Cause of Complaint	Actions taken to resolve issue	Closed (Y/N)
21355507	10/07/2014	Sewage Flooding	Blocked sewer with solids from domestic waste water	Rodded sewer to relieve blockage	Y
22007179	17/10/2014	Leak from the sewerage mains, overflowing from a manhole at the back of Barrack Hill estate.	Blocked sewer with solids from domestic waste water	Rodded sewer to relieve blockage	Y

3.5 Reported Incidents Summary

A summary of reported incidents is included below.

Table 3.5.1 - Summary of Incidents

Incident Type (e.g. Non-compliance, Emission, spillage, Emergency Overflow Activation)	Incident Description	Cause	No. of incidents	Corrective Action	Authorities Contacted Note 1	Reported to EPA (Yes/No)	Closed (Y/N)
Emission	Ammonia exceedence	Higher inflows to works; plant die-back over winter; lower pond water temperatures, lower Dissolved Oxygen in pond water?	6	None possible	EPA	Yes	Yes
Emission	Ortho-Phosphorus exceedence	Poor efficiency of 44% removal renders a higher level of ortho-p leaving wetland.	11	As evinced by impact assessment on receiving water in section 2.2.2.1, request ELV increase to 3mg/l	EPA	Yes	Yes
Emission	COD	Unknown.	2	None required	EPA	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 2014	No. of 19
Number of Incidents reported to the EPA via EDEN in 2014	No. of 17
Explanation of any discrepancies between the two numbers above	Condition 2 interpretation; 1No rogue result.

Irish Water are in continuous communication with Local Authorities reiterating the requirement to report incidents to the EPA as per Waste Water Discharge Licence Requirements. Discussions in relation to this matter are also progressing at senior management level between Irish Water and the Local Authorities. In addition to this Incident Management training will also be provided to Local Authorities in 2015 to address concerns associated with incident classification, reporting requirements and incident notification.

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	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	3200	50	7.1%	N	N
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		

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 included in Table 3.6. Only include sludge which is added to the waste water treatment process stream. Enter zero where there are no inputs

Section 4. Infrastructural Assessments and Programme of Improvements

4.1 Storm water overflow identification and inspection report

There are no SWOs 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 / Medium / Low)	Compliance with DoEHLG Criteria	No. of times activated in 2014 (No. of events)	Total volume discharged in 2014 (m3)	Total volume discharged in 2014 (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 2014?	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 Schedule A3 & C3	N/A
Have the EPA been advised of any additional SWOs / changes to Schedule C3 and A4 under Condition 1.7?	N/A

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

There are no other specified improvement works under schedule C, C2 or C3 of the discharge licence, see Appendix 7.3.

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

Table 4.2.1 - Specified Improvement Programme 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 ((i) Not Started; (ii) At planning stage; (iii) Work ongoing on-site; (iv) Commissioning Phase; (v) Completed; (vi) Delayed;)	% Construction Work Completed	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	Improvement Description	Improvement Source	Progress (% completed)	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 5.3)	75% As of Jan 2015, no significant reduction has been realised in terms of ammonia or Ortho-P reduction	Start Aug 14 Run to march 2015	
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	WWTP assessment (Condition 5.3)	10%	Q3 2014 This will prevent high level river water from back flowing into lower lying control building area.	

	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 5.3)	0%	Unknown	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis

Improvements identified above also include measures taken to prevent environmental damage anticipated following events or accidents/incidents associated with discharges or overflows from the waste water works and as such are considered to fulfil any Statement of Measures requirements. Refer also to Appendix 7.1 which summarises the Annual Statement of Measures.

<u>Sewer Integrity Risk Assessment Tool</u> Improvement Programme (Works) summary table: Incomplete as of Feb 2015.

Table 4.2.3 - Sewer Integrity Risk Assessment Tool (SIRAT) 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	Estimated Medium	unknown	*SIRAT not used in this assessment*
Environmental Risk Assessment Score	Estimated Medium	unknown	*SIRAT not used in this assessment*
Structural Risk Assessment Score	Estimated Medium	unknown	*SIRAT not used in this assessment*
Operation & Maintenance Risk Assessment Score	Estimated Medium	unknown	*SIRAT not used in this assessment*
Overall Risk Score for the agglomeration	Estimated Medium	unknown	*SIRAT not used in this assessment*

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in 2014 AER or outstanding from previous AER	Included in 2014 AER	*Reference to relevant section of AER (e.g. Appendix 2 Section4.*
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

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report
Priority Substances Assessment	N/A	N/A
Drinking Water Abstraction Point Risk Assessment	N/A	N/A
Habitats Impact Assessment	N/A	N/A
Shellfish Impact Assessment	N/A	N/A
Pearl Mussel Report	N/A	N/A
Toxicity/Leachate Management	N/A	N/A
Toxicity of Final Effluent Report	N/A	N/A

5.1 Priority Substances Assessment

The Priority Substances Assessment report is not required for Glaslough wastewater works.

Table 5.1 - Priority Substance Assessment Summary

	Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.
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 include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	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

5.2 Drinking Water Abstraction Point Risk Assessment.

The Drinking Water Abstraction Point Risk Assessment report is not required for Glaslough wastewater treatment works.

5.3 Shellfish Impact Assessment Report.

The Shellfish Impact Assessment report is not required for Glaslough wastewater treatment works.

5.4 Toxicity / Leachate Management

The Toxicity / Leachate Management Assessment report is not required for Glaslough wastewater treatment works.

5.5 Toxicity of the Final Effluent Report

The Toxicity of the Final Effluent Assessment report is not required for Glaslough wastewater treatment works.

5.6 Pearl Mussel Measures Report

A sub-basin management plan in relation to Pearl Mussels is not required for Glaslough wastewater treatment works.

5.7 Habitats Impact Assessment Report

The Habitats Impact Assessment Report is not required for Glaslough wastewater treatment works.

Section 6. Certification and Sign Off

Table 6.1 - Summary of AER Contents

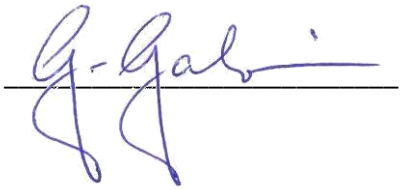
Does the AER include an executive summary?	Yes
Does the AER include an assessment of the performance of the Waste Water Works (i.e. have the results of assessments been interpreted against WWDL requirements and or Environmental Quality Standards)?	Yes
Is there a need to advise the EPA for consideration of a technical amendment / review of the licence?	Yes
List reason e.g. additional SWO identified *(insert lines as required)*	
REVIEW1 Ambient results show no impact on receiving river, therefore request EPA to review licence, i.e. the ELV for Ortho-P, increasing it to 3mg/l (*see Appendix 7.2*).	
REVIEW2 Ambient results show no impact on receiving river, therefore request EPA to review licence, i.e. the ELV for Ammonia to be increased to 10mg/l between 1st November and 15th March (*see Appendix 7.2*).	
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 *(insert lines as required)*	N/A
Have these processes commenced? (i.e. Request for Technical Amendment / Licence Review / Change Request)	N/A
Are all outstanding reports and assessments from previous AERs included as an appendix to this AER?	No
List outstanding reports *(insert lines as required)*	Sewer integrity reports of 2013 & 2014 AER

Declaration by Irish Water

The AER contains the following;

- Introduction and background to 2014 AER
- Monitoring reports summary.
- Operational reports summary.
- Infrastructural Assessment and Programme of Improvements.
- Licence specific reports.
- Certification and Sign Off
- Appendices

I certify that to the best of my knowledge the information given in this Annual Environmental Report is truthful, accurate and complete:

Signed:  Date: 08/04/2015

Gerry Galvin
Chief Technical Advisor

Section 7. Appendix

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

Annual Statement of Measures

Risk /Description of issue	Risk Score	Mitigation Measure to be taken	Outcome	Action	Date for Completion	Owner/ Contact Person
Exceedance of ELV under Ortho-P.	**5x1=5**	Ambient graphs in section 2.2.2.1 of AER show no impact on receiving river, therefore request EPA to review licence, i.e. the ELV for Ortho-P, increasing it to 3mg/l. OR, Install phosphorus reduction system: ferric dosing required.	TBC, but reduction in the ortho-phosphorus discharging form the wwtp is primary objective.	As noted in Table 5.2	Aug 2015	O Mulligan
Exceedance of ELV under Ortho-P.	**5x1=5**	Ambient graphs in section 2.2.2.2 of AER show no impact on receiving river, therefore request EPA to review licence, i.e. the ELV for Ammonia to be increased to 10mg/l between 1st November and 15th March.	If ELV is raised over the winter months than breach of licence is avoided.		Next licence review date in 2017 or before.	O Mulligan

Appendix 7.2 - Ambient monitoring summary

UPSTREAM MONITORING SUMMARY TABLE

date	BOD, 5 days with inhibition (CBOD)	Total Nitrogen (N)	Ammonia (N)	pH	Orthophosphate (P)
7-Jan-2014	< 1	2.2	0.038		0.027
4-Feb-2014	14	1.8	< 0.007	8	0.016
19-Mar-2014	< 1	1.7	0.055	8	0.023
22-Apr-2014	< 1	1.4	0.041	8.3	< 0.009
7-May-2014	2	1.9	0.042	8.2	0.024
9-June-2014	6	2.5	0.217	7.7	0.102
12-Aug-2014	< 1	1	0.056	8.2	0.06
1-Oct-2014	3	< 1	0.117	8.1	0.025
14-Oct-2014	< 1	1.5	0.047	8	0.029
29-Oct-2014	3	2.5	0.059	7.9	0.096
12-Nov-2014	4	2	0.08	7.5	0.145
10-Dec-2014	2	1.6	0.1	7.8	0.043

DOWNSTREAM MONITORING SUMMARY TABLE

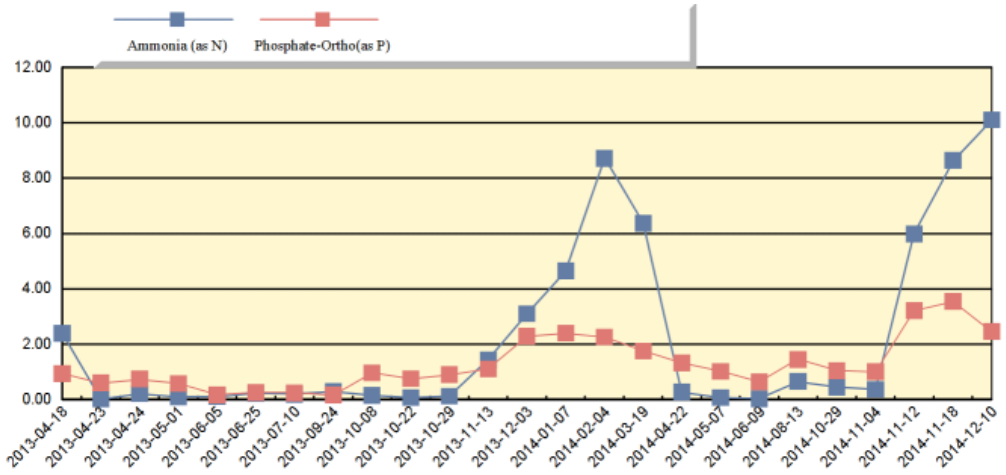
date	BOD, 5 days with inhibition (CBOD)	Total Nitrogen (N)	Ammonia (N)	pH	Orthophosphate (P)
7-Jan-2014	< 1	2.2	0.034		0.032
4-Feb-2014	< 1	2.1	0.045	8	0.028
19-Mar-2014	< 1	1.8	0.009	8	0.047
22-Apr-2014	< 1	1.5	0.053	8.2	< 0.009
7-May-2014	< 1	1.8	0.049	7.9	0.088
9-June-2014	6	2.4	0.229	7.8	0.103
12-Aug-2014	< 1	< 1	0.056	8.1	0.059
1-Oct-2014	< 1	< 1	0.09	8.2	0.025
14-Oct-2014	< 1	< 1	0.029	8.4	0.023
29-Oct-2014	2	2.3	0.064	7.9	0.055
12-Nov-2014	2	2	0.067	7.5	0.143
10-Dec-2014	< 1	1.6	0.098	7.8	0.043

Impact on receiving waters

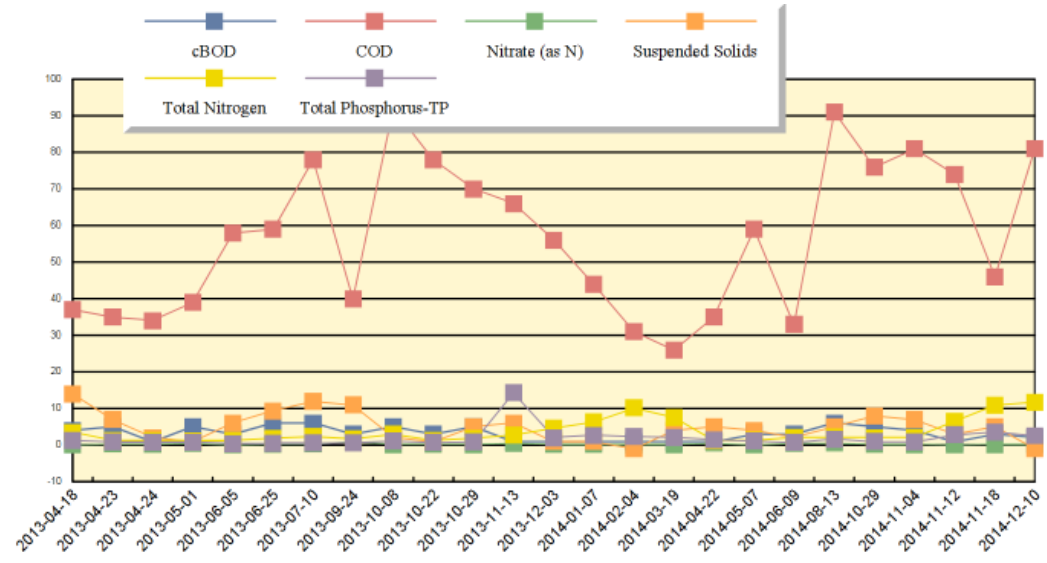
There were 12No upstream (US) and downstream (DS) samples taken at the WWTP to measure the impact of the effluent discharge on the receiving river (Mountain water river). These US and DS samples are taken on the same date as influent and effluent is also sampled. Therefore an accurate comparison can be made between the effluent, the US and DS.

The 'mean' Surface Water Environmental Quality Standard (EQS) for ammonia in the receiving water is 0.065; the equivalent for ortho-P is 0.035mg/l.

The results for the ambient US and DS are graphically represented below; the upper graph is for ammonia and ortho-p only, whereas the lower graph is all parameters tested:



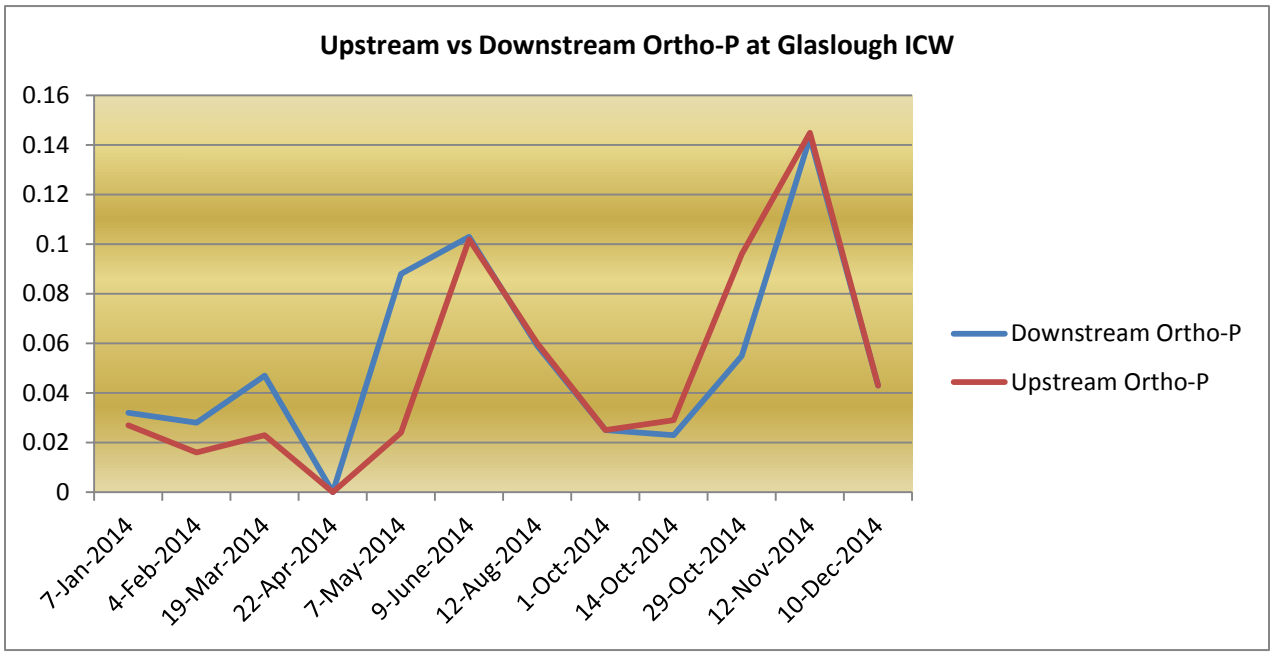
Above: Primary Discharge (Effluent) Monitoring- ammonia and Ortho_P.



Above: Primary Discharge (Effluent) Monitoring- all parameters.

Ortho-P

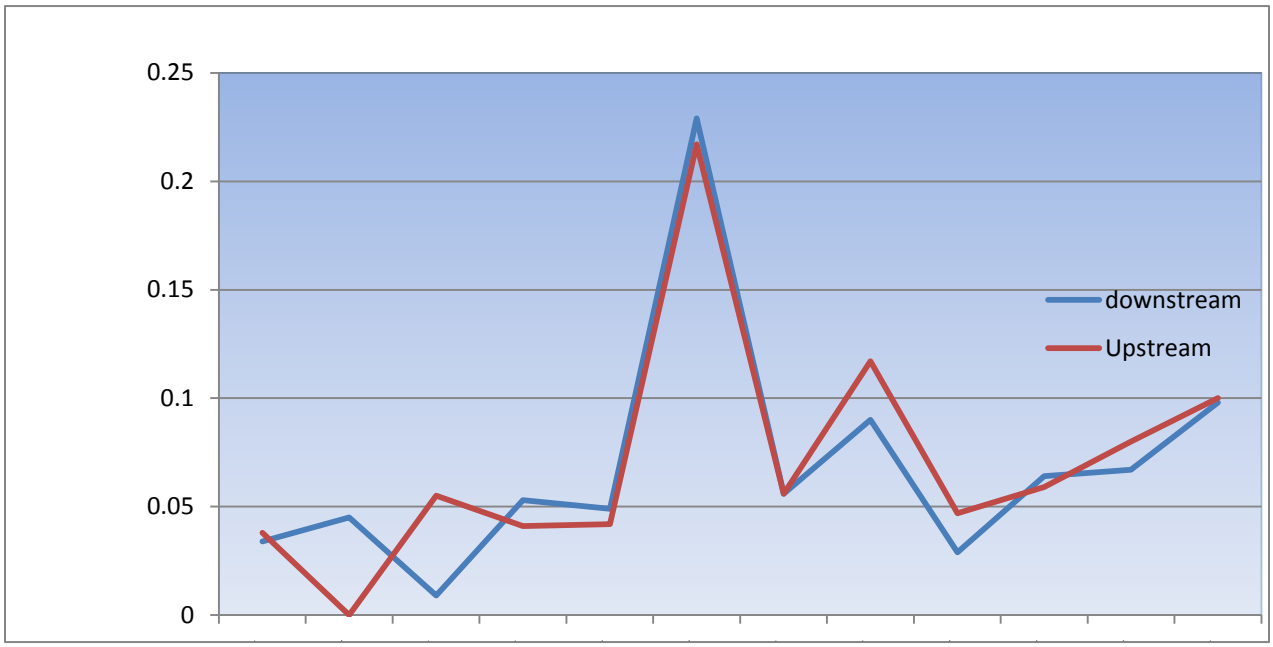
The discharge, in terms of Ortho-P concentration, is not impacting on the water quality of the river. The downstream result is not significantly higher than upstream and the trend often illustrates the inverse of this, as shown in the graph below. The statistical variation in these results would indicate that there is no discernible impact on the river.



Above: Upstream vs Downstream results for Ortho-P in Mountain water receiving water to Glaslough ICW

AMMONIA

The discharge, in terms of Total Ammonia concentration, is not impacting on the water quality of the Mountain Water river as shown in graph below. Indeed the upstream results can often be higher than the corresponding downstream result! The statistical variation within these results would indicate that there is no discernible impact on the river as DS mirrors US levels of ammonia.



Above: Upstream vs Downstream results for ammonia in Mountain water receiving water to Glaslough ICW

Ambient monitoring summary- Upstream & Downstream

A summary presentation of the ambient monitoring results for the upstream and downstream receiving waters is tabulated above. There were 12 No. samples analyses carried out in 2014 for the ambient monitoring. The monitoring was conducted at the following locations:

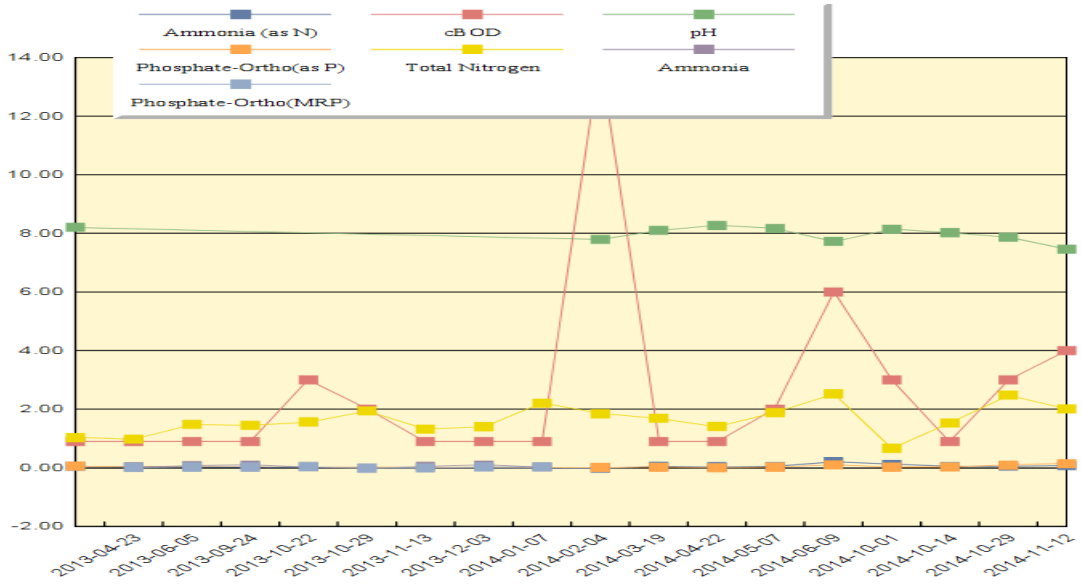
ambient monitoring point from WWDL	IG co-ords	FCT Station Code	Discharge impacting on water quality?	Sample Template
aSW1(P)u	272001E, 342192N	RS03M010670	No	Upstream
aSW1(P)d	272357E, 342273N	RS03M010680	No	Downstream

The average results in the river are under the surface water regulations Environmental Quality Standards (EQS) for Ammonia and Ortho Phosphorus. The BOD results are higher than the 'mean' status surface water figure of 1.5mg/l both upstream of the discharge, but oddly downstream average lower at 1.1mg/l in 2014. The Mountain water River is neither sensitive water nor designated as Salmonid water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988, or designated as an SPA, SAC or NHA. It is classified as 'good status' with overall objective to 'protect' it. The impact of the discharge from the agglomeration on the Mountain water River is assessed with regard to the Environmental Quality Standards (EQS), (Surface Water Regulations 2009) for BOD and total Ammonia.

As required under condition 4.15 of the licence, monthly monitoring of the influent stream to the WWTP for BOD, COD, Suspended Solids, Total Nitrogen and Total Phosphorus measuring mass loadings and removal efficiencies has been calculated and tabulated in the aforementioned table. The removal efficiencies for BOD, COD, Total N and SS within the treatment plant are adequate achieving good reductions for the parameters listed in Table 3.1.

Ambient Monitoring – Receiving Water Upstream- see graph below

The upstream monitoring summary table in Appendix 7.2 details the monitoring results for Receiving Water Upstream grab samples taken in 2014, 50m upstream of Outfall.

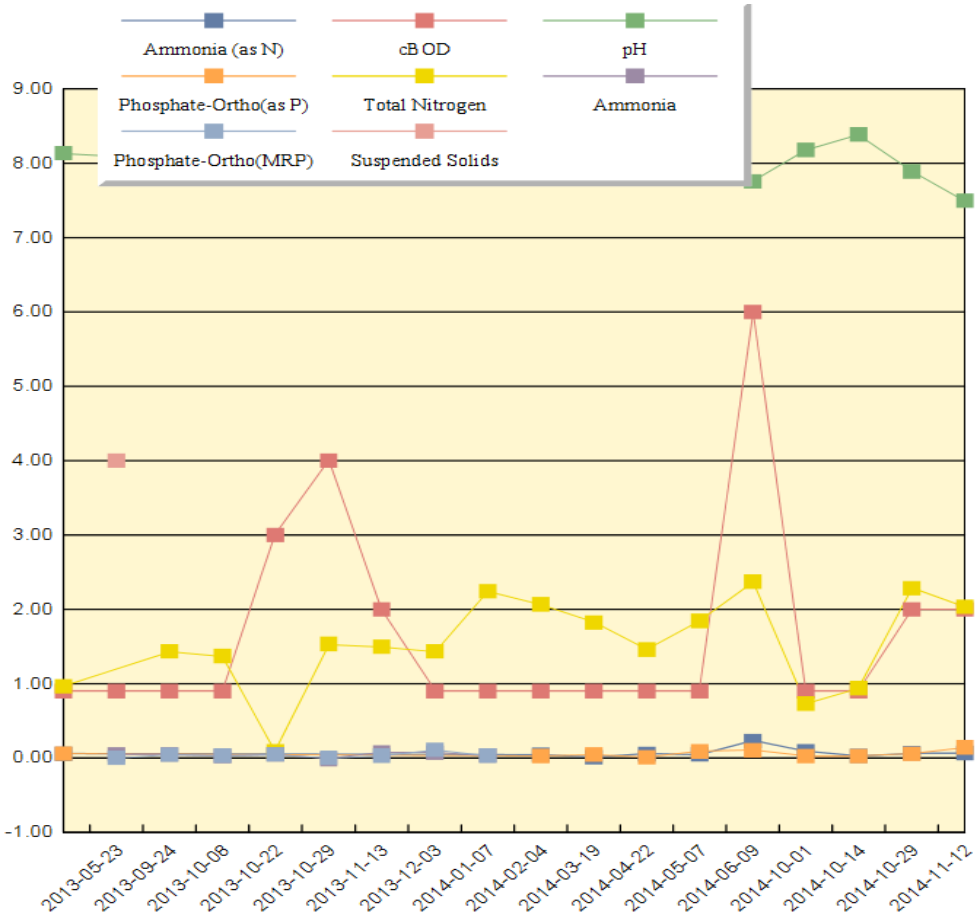


Above: Ambient Monitoring – Receiving Water Upstream

Ambient Monitoring – Receiving Water Downstream- see graph below

The downstream monitoring summary table in Appendix 7.2 details the monitoring results for Receiving Water Downstream samples taken in 2014, 75m downstream of outfall.

Bacteria in the Influent & Effluent for Upstream (US) & Downstream (DS) results also listed.



Above: Ambient Monitoring – Receiving Water Downstream

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.

Specified Improvement Programme summary report:

Specified Improvement Programmes	**Licence Schedule (A or C)**	**Licence completion date**	**Date expired**	**Status of Works**	**% const. work completed**	**Licensee timeframe for completing the work**	**Comments**
NONE specified	n/a	n/a	n/a	n/a	n/a	n/a	**n/a**

b) Programme of Improvements

Improvement programme Summary Table

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date
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 5.3)	75% As of jan 2015, no significant reduction has been realised in terms of ammonia or Ortho-P reduction	Start aug. 14 Run to march 2015
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 5.3)	10%	Q3 2014 This will prevent high level river water from back flowing into lower lying control building area.
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 5.3)	0%	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.