

Annual Environmental Report 2015

Agglomeration Name:	Carrickmacross
Licence Register No.	D0062-01



Contents

Section 1. Executive Summary and Introduction to the 2015 AER	3
1.1 Summary Report on 2015	3
Section 2. Monitoring Reports Summary	4
2.1 Summary report on monthly influent monitoring	4
2.2 Discharges from the agglomeration	5
2.3. Ambient Monitoring Summary	6
2.4 Data collection and reporting requirements under the UWWTD	7
2.5 Pollutant Release and Transfer Register (PRTR) - report for previous year	7
Section 3. Operational Reports Summary	8
3.1 Treatment Efficiency Report	8
3.2 Treatment Capacity Report	8
3.3 Extent of Agglomeration Summary Report	8
3.4 Complaints Summary	9
3.5 Reported Incidents Summary	11
3.6 Sludge / Other inputs to the WWTP	12
Section 4. Infrastructure Assessments and Programme of Improvements	13
4.1 Storm water overflow identification and inspection report	13
4.2 Report on progress made and proposals being developed to meet the improvement programme requirements.	14
Section 5. Licence Specific Reports	18
Section 6. Certification and Sign Off	21
Section 7. Appendix	22
Appendix 7.1 Statement of Measures	23
Appendix 7.2: Ambient Monitoring Results	24
Appendix 7.3 Improvement Programme	26

Section 1. Executive Summary and Introduction to the 2015 AER

1.1 Summary Report on 2015

This Annual Environmental Report has been prepared for D0062-01, Carrickmacross, in County Monaghan, in accordance with the requirements of the wastewater discharge licence for the agglomeration. No Specified report is included in this report.

The agglomeration is served by a wastewater treatment plant with a Plant Capacity PE of 12150. The treatment process includes the following:-

- Preliminary Treatment (Screening & Grit removal)
- Secondary Treatment (Aeration)
- Nutrient Removal (Ferric dosing and anoxic zone)
- Tertiary Treatment (Sand Filter)

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)

368,280 kgs (total weight sludge) was removed from the wastewater treatment plant in 2015. 160,000kgs (total weight sludge) was transferred as liquid sludge to Monaghan WWTP and 208,280kgs sludge (total weight sludge) as dewatered cake was transferred to Biocore Sludge Treatment Centre (lime stabilisation), Co. Meath (SSF-COR-MH-13-0001-02).

There were no major capital or operational changes undertaken in 2015

An Annual Statement of Measures is included in Appendix 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	12	12	12	12	12		
Annual Max.	564	1213	430	12.6	65.6	9,670	26,899
Annual Mean	262.54	538.07	176.00	4.98	34.40	2,615	10,034

Other inputs in the form of sludge / leachate are added to the WWTP *after* the influent monitoring point and are therefore not represented by influent monitoring. Other inputs are detailed in Section 3.6.

Significance of results

The annual mean hydraulic loading is less than the peak Treatment Plant Capacity as detailed further in Section 3.2

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

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)	Total P (mg/l)	Ortho P (mg/l)	Ammonia NH3 (mg/l)	pH	Total N mg/l
WWDL ELV (Schedule A) where applicable	10	125	10	1	0.4	0.75	6 to 9	N/A
ELV with Condition 2 Interpretation included	20	250	25	1.2	0.8	1.5	No allowable exceedances	N/A
Number of sample results	13	13	13	13	13	13	13	13
Number of sample results above WWDL ELV	1	0	0	0	1	2	0	N/A
Number of sample results above ELV with Condition 2 Interpretation	0	0	0	0	1	2	0	N/A
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	0.29 (Annual Mean shall not exceed ELV)	N/A	N/A	N/A	7.63
Overall Compliance (Pass/Fail)	Pass	Pass	Pass	Pass	Fail	Fail	Pass	Pass

Significance of results

The WWTP was non-compliant with the ELV's set in the wastewater discharge licence. There was 1 sample non-compliant with the ELV's in relation to Orthophosphate inadequate ferric dosing and there were 2 samples non-compliant with the ELVs in relation to Ammonia. The non-compliance was due to plant / equipment requiring maintenance. 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	284561E 302882N	RS06P01023 0	N	N	N	N	Poor	
Downstream monitoring point	284719E 302758N	RS06P01028 0	N	N	N	N	Poor	Yes, due to ammonia.

The results for the upstream and downstream monitoring are included in Appendix 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 plant may have an observable negative impact on the water quality status. There is a deterioration in the downstream concentrations of BOD and ammonia. The WWTP was compliant with the ELVs for BOD and therefore it is not considered that the WWTP is impacting on these concentrations downstream. The other potential causes of deterioration in water quality in the area are unknown.
- The discharge from the wastewater plant doesn't have an observable negative impact on the WFD status.

2.4 Data collection and reporting requirements under the UWWTD

The electronic data submission will be completed and uploaded to EDEN.

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

A PRTR report is not required.

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)	219,741	450,356	147,309	4,166	28,789
Effluent mass emission (kg/year)	2,385	17,533	4,385	219	5,762
% Efficiency (% reduction of influent load)	99%	96%	97%	95%	80%

3.2 Treatment Capacity Report

Table 3.2 - Treatment Capacity Report Summary

Hydraulic Capacity – Design / As Constructed (dry weather flow) (m3/year)	1,006,670
Hydraulic Capacity – Design / As Constructed (peak flow) (m3/year)	3,020,010
Hydraulic Capacity – Current loading (m3/year)	954,592
Hydraulic Capacity – Remaining (m3/year)	2,065,418
Organic Capacity - Design / As Constructed (PE)	12,150
Organic Capacity - Current loading (PE)	10,034
Organic Capacity – Remaining (PE)	2,116
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 influent monitoring as detailed in Section 2.1 above.

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)
32716147 74	15/01/2015 16:31:00	Blocked Sewer	Below Ground Waste Investigation Sewage Flooding	The main public sewer serving this property was inspected and it was not blocked. The house in question is vacant and we had no contact details to inform customer of same. To confirm the public sewer is not blocked	Yes
53554182 9	26/03/2015 10:16:00	Blocked Sewer	Below Ground Waste Investigation Sewage Flooding	Blockage cleared at rear of property on the 27th of March 2015 by JC Envrio.(Contractors)	Yes
29621329 71	09/04/2015 12:56:00	Blocked Sewer	Below Ground Waste Investigation Sewage Flooding		Yes
29621329	09/04/2015	Blocked Sewer	Below Ground		Yes

71	12:56:00		Waste Investigation Sewage Flooding		
----	----------	--	-------------------------------------------	--	--

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	Plant or equipment maintenance	1	Aeration equipment upgraded	EPA	Yes	No
Emission	Breach of ELV	Ferric dosing inadequate	1	Ferric dosing adjusted	IFI & 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 2015	2
Number of Incidents reported to the EPA via EDEN in 2015	2
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	210	1137	0.03	N	Y	N
Industrial / Commercial Sludge	1050	Unknown	Unknown	N	Y	N
Landfill Leachate (delivered by tanker)	0	0				
Landfill Leachate (delivered by sewer network)	0	0				
Other (specify)	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.
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

The Storm Water Overflow Identification & Inspection report is included in the 2013 AER. A summary of the significance and operation is included below.

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
SW-2	284588E 302860N	Yes	Medium	Not compliant	Unknown	Unknown	Unknown	E

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)?	Unknown
How much sewage was discharged via SWOs in the agglomeration in the year (p.e.)?	Unknown
What % of the total volume of sewage generated in the agglomeration was discharged via SWOs in the agglomeration in 2013?	Unknown
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 ?	Yes in previous AER

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 summary included below addresses the **Specified Improvement Programmes** as detailed in Schedules A3 and C of the WWDL. It should detail 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
Decommissioning of SW-1 (Existing)	A	31/12/2014	Yes	Project not started	0%	01/05/2018	On Capital Investment Programme.
Main upgrade: Works at waste water treatment plant, including (1) effluent outfall pipeline and associated works, (2) Pumping Station (inlet and outlet), (3) Storm tanks, and (4) Inlet works.	C	01/01/2015	Yes	Not Started	0%	01/05/2018	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
Upgrading of Storm Water Overflows to comply with the criteria outlined in the DoECLG "Procedures and Criteria in relation to Storm Water Overflows, 1995"	C	01/01/2015	Yes	Not Started	0%	01/05/2018	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a prioritised basis.
Discharges to be Discontinued	A	31/12/2011	Yes	Completed			SW-3 - SW-12

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
Overflows from storm tank during adverse weather	Extension/Upgrade of aeration tank No 1	WWTP assessment (Condition 5.2).	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.
No standby pump at main inlet Oriel road pump station no overhead lifting equipment or gantry to lift pump when required	Provision and installation of standby pump and overhead lifting equipment and gantry at Oriel road inlet pump station.	WWTP assessment (Condition 5.2).	100%	April 2015	Completed 2015
		Sewer Integrity Tool (Condition 5.2).	0%	2015	Due to be completed 2016
	N/A	Secondary discharges assessment (Condition 5.2).	N/A	N/A	
No record of activation or flow measurement from SWO tank at the WWTP	Install SWO measurement/recorder device to measure flows/record no times it activates	SWO assessment (Condition 4 & 5.2).	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.

	N/A	Pearl Mussel Impact Assessment (Condition 4)	N/A	N/A	
Carrickmacross WWTP Ardee Road Programme Energy Efficiencies Programme	Preliminary Energy Efficiencies Assessments	Improved Operational Control	0%	01/07/2016	
Carrickmacross Sewerage Scheme Contract 3 (Treatment Plant Upgrade & Outfall)	Drinking Water Abstraction Risk Assessment	Improved Operational Control	0%	15/12/2017	Programme MN Carrickmacross SS
Flow Monitoring and Sampling MN	Flow Monitoring and Sampling MN	Improved Operational Control		01/06/2016	Critical Asset Programme

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:	<i>Risk Assessment Rating (High, Medium, Low)</i>	<i>Risk Assessment Score</i>	<i>Comment</i>
Hydraulic Assessment Score Risk	<i>Unknown</i>	<i>Unknown</i>	
Environmental Assessment Score Risk	<i>Unknown</i>	<i>Unknown</i>	
Structural Assessment Score Risk	<i>Unknown</i>	<i>Unknown</i>	
Operation & Maintenance Assessment Score Risk	<i>Unknown</i>	<i>Unknown</i>	
Overall Risk Score for the agglomeration	<i>Unknown</i>	<i>Unknown</i>	

The sewer network integrity risk assessment has not been completed and will be submitted this year at a later date following the submission of this AER.

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Never required by condition 5 in Licence	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	No	2012 AER
Drinking Water Abstraction Point Risk Assessment	No	No	No	2013 AER
Habitats Impact Assessment	Yes	N/A	N/A	N/A
Shellfish Impact Assessment	Yes	N/A	N/A	N/A
Pearl Mussel Report	Yes	N/A	N/A	N/A
Toxicity/Leachate Management	Yes	N/A	N/A	N/A
Toxicity of Final Effluent Report	Yes	N/A	N/A	N/A

Licence Specific Reports Summary of Findings

Licence Specific Report	Recommendations in Report	Summary of Recommendations in Report	Status of Recommendations
Priority Substances Assessment	No		N/A
Drinking Water Abstraction Point Risk Assessment	Yes	Contract 3 for Carrickmacross WWTP, to relocate/extend the outfall discharge pipe some 3.2km downstream to the Longfield River and for new storm storage, would eliminate the risk from the primary discharge and reduce the risk greatly from the SWO to the Killanny/Reaghstown drinking water abstraction point	Approved expected completion date 15/12/2017

5.1 Priority Substances Assessment

The Priority Substances Assessment report is included in the 2012 AER. A summary of the findings of this report is included below.

Table 5.1 - Priority Substance Assessment Summary

	<i>Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.</i>
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	Desk Top Study <i>and</i> Screening Analysis
Does the assessment include a review of Trade inputs to the works?	No
Does the assessment include a review of other inputs to the works?	No
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)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No
Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?	No

5.2 Drinking Water Abstraction Point Risk Assessment.

The Drinking Water Abstraction Point Risk Assessment report is included in the 2013 AER. A summary of the findings of this report is included below.

Table 5.2 - Drinking Water Abstraction Point Risk Assessment Summary

	<i>Licensee self- assessment checks to determine whether all relevant information is included in the Assessment.</i>
Is a Drinking Water Abstraction Risk Assessment required in the AER (or outstanding from a previous AER)	No
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	Yes
Does the assessment identify if any other discharge(s) from the works pose a risk to a drinking water abstraction (includes emergency overflows)	Yes
What is the overall risk ranking applied by the licensee	M
Does the risk assessment consider the impacts of normal operation	Yes
Does the risk assessment consider the impacts of abnormal operation (e.g. incidents /overflows)	Yes
Does the risk assessment include control measures for each risk identified	Yes
Does the risk assessment consider operational control measures e.g? waste water incident notification to drinking water abstraction operator	Yes
Does the risk assessment include infrastructural control measures	Yes
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?	No

Findings from this assessment have been included under the Programme of Improvements required under Condition 5 as part of the Contract 3 for Carrickmacross.

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?	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? 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)	N/A
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: 08/03/2016

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 –Improvement Programme

- a) Specified Improvement Programme
- b) Programme of Improvements

Appendix 7.1 Statement of Measures

Description of issue	Risk	Mitigation Measure to be taken	Date for Completion/Comment
Improved Operational Control	Medium	Flow monitoring at WWTP	Contractor Appointed , Site Survey and Design Underway
No standby pump at main inlet Oriel road pump station, no overhead lifting equipment or gantry to lift pump when required.	High	Provision and installation of standby pump and overhead lifting equipment and gantry at Oriel road inlet pump station.	Complete 2015
No record of activation or flow measurement from SWO tank at the WWTP	Medium	Install SWO measurement/recorder device to measure flows/record no. times it activates	Approved for construction 2016
Overflows from tank during adverse weather.	High	Extension/upgrading of aeration tank no. 1.	Approved for 2016 / 2017
Failed Asset Replacement of venturi aerator pump in oxidation ditch no2. Pump has burned out and no longer operational.	High	Replacement of venturi aerator pump in oxidation ditch no2	2 replaced in 2015 and a further 2 will be replaced 2016

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
Carrickmacross WWTP Upstream	12/01/2015	Grab	11.19		0.023	< 1	< 0.009	7.9	2
Carrickmacross WWTP Upstream	02/02/2015	Grab	11.94		<0.007	< 1	0.025	8	2.6
Carrickmacross WWTP Upstream	09/03/2015	Grab	11.13		0.048	< 1	0.035	8.4	1.6
Carrickmacross WWTP Upstream	14/04/2015	Grab	10.87		0.04	< 1	0.018	8	1.9
Carrickmacross WWTP Upstream	11/05/2015	Grab	10.67		0.03	2.3	< 0.009	8.2	1.9
Carrickmacross WWTP Upstream	03/06/2015	Grab	10.67		0.03	1	< 0.009	8.1	1.8
Carrickmacross WWTP Upstream	14/07/2015	Grab	8.96		0.18	1	0.18	8.1	1.2
Carrickmacross WWTP Upstream	05/08/2015	Grab	9.57		0.066	1	0.197	8.2	< 1
Carrickmacross WWTP Upstream	02/09/2015	Grab	10.17		0.04	1	0.038	8.3	1.3
Carrickmacross WWTP Upstream	08/10/2015	Grab	10.28		0.022	1	0.027	8.2	1.3
Carrickmacross WWTP Upstream	04/11/2015	Grab	10.32		0.21		0.112	8	< 1
Carrickmacross WWTP Upstream	08/12/2015	Grab	10.35		0.027	< 2	0.048	7.8	1.6
Average			10.51		0.06	1.20	0.059	8.1	1.6

Downstream Monitoring Results									
Sample Location	Sample Date	Sample Method	Dissolved Oxygen mg/l	Temp o C	Ammonia N mg/l	BOD, 5 days with Inhibition (Carbonaceous) mg/l	Ortho-Phosphate P mg/l	pH units	Total Nitrogen N mg/l
Carrickmacross WWTP Downstream	12/01/2015	Grab	10.76		0.038	< 1	< 0.009	7.8	2.4
Carrickmacross WWTP Downstream	02/02/2015	Grab	11.45		0.04	< 1	0.24	7.8	3.2
Carrickmacross WWTP Downstream	09/03/2015	Grab	10.98		0.064	< 1	0.042	8.4	1.8
Carrickmacross WWTP Downstream	14/04/2015	Grab	10.28		0.08	< 1	0.131	7.8	2.2
Carrickmacross WWTP Downstream	11/05/2015	Grab	10.31		0.28	2.3	0.017	8.1	2.2
Carrickmacross WWTP Downstream	03/06/2015	Grab	10.36		0.032	2	0.029	8	2.1
Carrickmacross WWTP Downstream	14/07/2015	Grab	8.80		0.13	2	0.111	8	5.8
Carrickmacross WWTP Downstream	05/08/2015	Grab	9.45		0.082	3	0.133	8	5.1
Carrickmacross WWTP Downstream	02/09/2015	Grab	9.87		0.055	2	0.293	8.1	4
Carrickmacross WWTP Downstream	08/10/2015	Grab	9.77		0.045	1	0.319	8	6
Carrickmacross WWTP Downstream	04/11/2015	Grab	10.02		0.086		0.01	8	2.7
Carrickmacross WWTP Downstream	08/12/2015	Grab	10.22		0.05	< 2	0.058	7.8	2
Average			10.19		0.082	1.66	0.116	7.98	3.29

Appendix 7.3 Improvement Programme

a) Specified Improvement Programme

Under Schedule C.1 'Improvement Programme for Primary Discharge' of the licence, 'Advance Works' are specified at the WWTP, including,

- Storm tanks
- Inlet Works
- Pumping Station (inlet and outlet)
- Effluent outfall pipeline and associated works.

The completion date specified for these works is unknown and subject to approval by Irish Water.

Schedule C.3 'Specified Improvement for Storm Water Overflows' of the licence, upgrading of Storm Water Overflow, SW-2, is required to comply with the criteria outlined in the DoECLG, 'Procedures and Criteria in relation to Storm Water Overflows, 1995'.

The completion date specified for these works is unknown..

Schedule C.1 and C.3 specified improvements form part of proposed Contract 3 for Carrickmacross WWTP. The estimated cost of Contract No. 3 is € 5.5M. Progress of these works will depend on Irish Water approval and funding.

Specified Improvement Programmes	Licence Schedule	Licence Completion date	Date Expired	Status of works	% Construction work completed	Licensee timeframe for completing work	Comments
Advance works at the WWTP	C.1	1/1/2015	Y	At Planning	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
Upgrading of SWO to comply with criteria outlined in DoEHLG	C.3	1/1/2015	Y	Forms part of the 'Advance Works'	0%		The improvement programme will be reviewed by Irish Water

'procedures and criteria in relation to SWO's, 1995'							to assess the works required to comply with the licence condition on a prioritised basis
------------------------------------------------------	--	--	--	--	--	--	------------------------------------------------------------------------------------------

b) Programme of Improvements

Other identified improvement works by for the WWTP are summarised in the following table:

Improvement Summary Table

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date	Comments
Shared access by Town Council and WWTP, no site boundaries.	Provision of separate access road to WWTP and fencing.	Irish Water establishment and for H & S reasons	0% Municipal district dependent.	Unknown	
Overflows from tank during adverse weather.	Extension/upgrading of aeration tank no. 1.	WWTP assessment (Condition 5.2)	0%	Dependent on Irish Water approval and funding	The improvement programme will be reviewed by Irish Water to assess the works required to comply with the licence condition on a priorities basis
No standby pump at main inlet Oriel road pump station, no overhead lifting equipment or gantry to lift pump when required.	Provision and installation of standby pump and overhead lifting equipment and gantry at Oriel road inlet pump station.	WWTP assessment (Condition 5.2)	100%	April 2015	Completed 2015
No record of activation or flow measurement from SWO tank at the WWTP.	Install SWO measurement/recorder device to measure flows/record no. times it activates	Cond. 4.1 of this report	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
Carrickmacross WWTP Ardee Road Programme Energy Efficiencies Programme	Preliminary Energy Efficiencies Assessments	Improved Operational Control	0%	01/07/2016	
Carrickmacross Sewerage Scheme Contract 3 (Treatment Plant Upgrade & Outfall)	Drinking Water Abstraction Risk Assessment	Improved Operational Control	0%	15/12/2017	Programme MN Carrickmacross SS
Flow Monitoring and Sampling MN	Flow Monitoring and Sampling MN	Improved Operational Control		01/06/2016	Critical Asset Programme