UISCE EIREANN: IRISH WATER **MONAGHAN COUNTY COUNCIL**

WASTE WATER DISCHARGE LICENCE REGISTER NUMBER: D0062 AGGLOMERATION: CarrickmacrossTown ANNUAL ENVIRONMENTAL REPORT 1st JANUARY 2013 - 31st DECEMBER 2013

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Carrickmacross Waste Water Treatment Plant – Annual Environmental Report 2013

Document Amendment Record

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Section 1. Executive Summary and Introduction to the 2013 AER

1.1 Summary report on 2013

This is the third Annual Environmental Report (AER) for Carrickmacross Wastewater Treatment Plant.

The Environmental Protection Agency granted a Waste Water Discharge Licence (Register No. D0062) in respect of the agglomeration named, to Monaghan County Council on the 8th November 2011.

The purpose of this Annual Environmental Report (AER) is to provide a summary of activities relevant to the discharges from 1st January 2013 to the 31st December 2013 as required under condition 6.8 of the discharge licence. The Annual Environmental Report (AER) for Carrickmacross Agglomeration includes the information specified in Schedule D of the Wastewater Discharge Licence D0062.

Carrickmacross town is a medium sized town located in the south of County Monaghan. The Waste Water treatment plant (WWTP) is located at a site adjacent to the Ardee Road in Carrickmacross town. The waste water works comprises of a gravity collection system with a high dependency on pumping stations due to the topography of the catchment area and a waste water treatment works with a design capacity of 12,150 P.E. The majority of waste water from the collection network is currently conveyed to the inlet works from a pump station located on the Oriel road.
The WWTP provides secondary and tertiary treatment with nutrient removal (phosphorus reduction) for the effluent. Treatment comprises of aeration, phosphorus removal (ferric dosing), anoxic tank, secondary settlement, clarification and rapid gravity sand filters. Sludge dewatering is provided by thickening the sludge in a picket fence thickener followed by dewatering on sludge belt presses. There is one storm water overflow (SWO) from a storm tank on site.
Major upgrading and improvement works have been completed to date on the Carrickmacross collection network as part of Contracts 1 and 2 for the WWTP. Proposed Contract 3, for the 'Treatment Plant Upgrade and Outfall' provides for the construction of infrastructure at the existing wastewater treatment plant and the relocation of the primary discharge point some 3.2km further downstream discharging into the Longfield River. Proposed contract 3 comprises of:

- Inlet Pumping Station
- Storm water Holding Facility
- Inlet Works
- Final Effluent Pumping Station
- 400mm diameter final effluent outfall pipeline & associated works

The estimated cost of Contract No. 3 is € 5.5M. Under Schedule C.1 of the licence, *'Specified Improvement Programme',* these 'Advance works at the waste water treatment plant' are specified with a completion date of 1st

January 2015. Under schedule C.3 of the licence, upgrading of the Storm Water Overflows to comply with the criteria outlined in the DoEHLG '*Procedures and Criteria in relation to Storm Water Overflows, 1995*' with completion date of 1st January 2015 is specified.
The progress of this contract will depend on Irish Water approval and funding.

The majority of the waste water from the collection network is currently collected and pumped to the inlet works at the treatment plant, from a small pump located at the Oriel road pump station. The Oriel road pump station was initially installed in 2005 as part of Contract 1 'Advanced Works' to cater for proposed industrial development lands, this industrial development has been partially completed. Contract 2 and Contract 3 for Carrickmacross WWTP were intended to be completed side by side, for the network upgrade and treatment works expansion, however, Contract 2 for the network upgrade was completed in 2011 with Contract 3 outstanding. As part of Contract 2 and as a temporary measure pending completion of Contract 3, the Oriel Road pump station was upgraded with one large pump in 2010/2011 to accommodate and pump the large flows from the upgraded collection network into the inlet works at the WWTP. There is no standby pump at the Oriel Road pump station, a dial out alarm facility was installed at the pump in 2012 to alert the caretaker in the event of pump malfunction/breakdown.

The WWTP is operating under capacity at 8,556 P.E., (well down on 2012 figures) based on 2013 flow/load figures (refer to table 1.2, appendix 1), however, 2013 was a relatively dry year. The WWTP was running at virtually full capacity based on 2012 figures, which is more the norm. Trends at the WWTP indicate that inflows into the WWTP increase greatly during periods of heavy rainfall, with excess flows diverted from the inlet works to the storm tank on site (600m3 capacity), flows from the storm tank return to the inlet works when normal operating conditions revert, or discharge is to the river Proules during periods of continual rainfall. There is no monitoring or measurement device on the storm tank overflow from the WWTP to the Proules River to measure overflows to the river.

The outfall from the Carrickmacross Waste Water Plant discharges to the River Proules at National Grid Reference 284624E 302833N in the town land of Magheross, Carrickmacross, Co Monaghan. The River Proules flows from the primary discharge of the WWTP downstream approximately 600m into Lough Naglack and then flows out as a river for approximately 600m and into Monalty Lough. The River Proules is identified as 'sensitive' water in terms of the Urban Waste Water Treatment Regulations 2001 from downstream of the Carrickmacross sewage outfall, to its confluence with River Glyde, Monalty Lough is also designated as sensitive under these Regulations. It is not designated Salmonid water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988) nor designated as an SPA, SAC or NHA.
The River Proules is in the Neagh Bann river basin district with overall status classified as 'Poor' and at risk of not meeting good status by 2015, with overall

objective to restore its status by 2021. The 'point risk source' and potential for impact from the Carrickmacross WWTP discharge on the river is categorised as '2b – not at risk' and the combined storm overflows (CSOs) categorised as '1b – probably at risk' (ref: WFD Ireland maps/website & reports.). This data for the CSOs and WWTP relates to the years pre 2008. Since then, as stated, major upgrading and refurbishment of the sewer collection network has been completed under Contract 2 for Carrickmacross in 2011. Ten no. combined storm overflows' (CSO's) have been decommissioned on the network under this Contract. There is one remaining storm water overflow (SW2) at the treatment plant site from the storm holding tank to the River Proules.

The discharge from the Carrickmacross WWTP had three allowable exceedances under condition two interpretation for ELV's in 2013, but no reportable incidents in this regard.
The discharge licence details lower ELV's for the parameters total phosphorus and orthophosphate and a new ELV for the discharge parameter ammonia from 1st January 2016, for the proposed new primary discharge point downstream.

Monaghan County Council's ambient results for the water quality in the receiving River Proules indicates that the upstream average result is under the 'mean' good status figure of 1.5mg/l for BOD, but is slightly over this figure with some exceedances downstream. Total ammonia and MRP (ortho P) average figures exceed the 'mean' good status figures (Surface Water Reg's 2009) of 0.065mg/l and 0.035mg/l respectively, both upstream and downstream of the primary discharge point, thus concurring with the designated 'poor status' of the River Proules (WFD website and reports). The downstream average figures for these two parameters are higher than the upstream averages by a factor of two. Given the fact that the River Proules upstream is already at 'poor' status, it is concluded that there is insufficient assimilative capacity in the River Proules for the discharge from the Carrickmacross WWTP, as the results are compliant with discharge licence ELV's for 2013. The proposed works for the WWTP include the relocation of the primary discharge some 3.2km downstream into the Longfield River, with timeframe dependent upon Irish Water approval and funding.

Currently Carrickmacross Town Council yard and the Carrickmacross WWTP are located on the one site and share an access road, owing to the establishment of Irish Water and for health and safety reasons, separation of these two sites is planned.
An Assets Needs Brief (ANB) is being prepared by Monaghan County Council for submission to Irish Water in March 2014, with identified improvement works for the WWTP to include, provision of separate access road and fencing at the WWTP, extension and upgrading aeration tank no. 1, addition of a standby pump and overhead lifting equipment and gantry at the Oriel Road pump station and provision of a flow measurement device on the SWO from the storm tank at the WWTP.

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Monaghan County Council's summary on influent monitoring for Carrickmacross WWTP is tabulated in tables 1, 1.1 and 2.2 attached in appendix 1. 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 tables 1 and 1.3. One influent sample collected in July 2013 was misplaced by the external laboratory, this result is therefore missing, and hence eleven samples are reported for influent for 2013. A summary of the removal efficiencies for the WWTP is as follows:

BOD – range 98 -99%, average 99%
COD – range 91 – 99%, average 96%
SS – range 93 – 99%, average 98%
TP – range 48 – 96%, average 90%
TN – range 42 – 84%, average 67%

Table 1.1

Influent monitoring summary table

	BOD mg/l	COD mg/l	SS mg/l	Total P mg/l P	Total N mg/l N	Volumetric Loading m3/day	Organic Loading PE/day
Number of samples	11	11	11	11	11	n/a	n/a
Maximum result	414.00	1179.00	600.00	11.90	76.21	4075	
Annual Mean	274.55	716.55	306.64	6.69	39.17	1870	8556

Table 1.2

Remaining Hydraulic & Organic treatment capacities summary table:	
Hydraulic Capacity - Design (M^3/day)	2734
Hydraulic Capacity - Current loading (M^3/day)	1870
Hydraulic Capacity - Remaining (M^3/day)	**864**
Organic Capacity - Design (PE)	12150
Organic Capacity - Current loading (PE)	8556
Organic Capacity - Remaining (PE)	**3594**
Will the capacity be exceeded in the next 3 years?	yes

The influent monitoring summary table 1.1 above details the number of influent samples taken, the maximum and mean results for each parameter specified, in 2013 and the organic and hydraulic loading based on 2013 figures for the WWTP. The design capacity of the Carrickmacross WWTP is detailed in table 1.2 above, there is adequate hydraulic and organic capacity available at the WWTP from average flow/load figures for 2013. The hydraulic capacity was exceeded using the maximum flow figures from the WWTP, (refer table 1.1, appendix 1) due to storm inflows. The Carrickmacross sewerage network experiences high inflows to the WWTP during prolonged periods of rainfall, there is one storm tank on site (capacity 600m3) to contain excess flows and return flows to inlet works or discharge to the Proules River during prolonged storm conditions. Additional storm storage is included in proposed contract 3 for the WWTP, depending on Irish Water approval and funding.

2.2 Discharges from the agglomeration

A summary presentation of monitoring results for the primary discharge (National Grid Reference 284624E 302833N) are tabulated in table 2.1 attached in appendix 1. The Emission Limit Value's (ELVs) where applicable are included in the heading columns in red text in accordance with schedule A.1 of the licence. Twelve samples are required under schedule B of the licence, thirteen samples were collected. pH monitoring is required daily for the effluent, this is recorded on site by the caretaker along with flow figures and visual inspection details. All pH values recorded for 2013 ranged between 6 and 9.

The discharge from the Carrickmacross WWTP had three allowable exceedances in 2013, two allowable exceedances (first and second failures allowable <20%,cond. 2 licence interpretation) for suspended solids on 27/01/2013 at 12mg/l and 24/06/2013 at 18mg/l respectively, and one exceedance for ortho phosphate at 1.902mg/l on 09/12/2013. There were no identifiable causes for these exceedances at the Waste Water Treatment Plant (WWTP) and the trend prior to and after them are under the Emission Limit Values (ELVs) for the parameters. There were no reportable incidents regarding ELVs in 2013.

Monaghan County Council's ambient results for the water quality in the receiving River Proules indicates that the upstream average result is under the 'mean' good status figure of 1.5mg/l for BOD, but is slightly over this figure with some exceedances downstream. Total ammonia and MRP (ortho P) average figures exceed the 'mean' good status figures (Surface Water Reg's 2009) of 0.065mg/l and 0.035mg/l respectively, both upstream and downstream of the primary discharge point, thus concurring with the designated 'poor status' of the River Proules (WFD website and reports). The downstream average figures for these two parameters are higher than the upstream averages by a factor of two. Given the fact that the River Proules upstream is already at 'poor' status, it is concluded that there is insufficient assimilative capacity in the River Proules for the discharge from the

Carrickmacross WWTP, as the results are compliant with discharge licence ELV's for 2013. The proposed works for the WWTP include the relocation of the primary discharge some 3.2km downstream into the Longfield River, with timeframe dependent upon Irish Water approval and funding.

The removal efficiencies for the WWTP for BOD, COD, SS, TN and TP are tabulated in table 1 attached in appendix 1 and summarised in section 2.1 of this document.

Priority Substance Assessment
Under Schedule B of the discharge licence, a priority substance assessment is required for the primary discharge effluent by undertaking a risk based assessment in accordance with the DoEHLG document 'Guidance on the Screening for Priority Substances for Waste Water Discharge Licences'. Screening of a representative sample of effluent was under taken, this assessment was submitted to the EPA with the 2012 AER for Carrickmacross. The result for one parameter namely, Chloride was reported as slightly over the surface water quality standard of 250mg/l with a result of 254.25mg/l, however, this standard is applicable to drinking water, not surface water. There is no available trigger Maximum Admissible Concentration (MAC) for Chloride for surface water from the information received from the EPA.

2.3 Ambient monitoring summary

A summary presentation of the ambient monitoring results for the upstream (National grid reference 284561E 302882N) and downstream (National grid reference 284719E 302758N) receiving waters is tabulated in tables 2.3 and 2.4 attached in appendix 1. Under Schedule B of the licence, six samples are required per year, there were eleven sample analyses carried out in 2013 for the ambient monitoring.
The primary discharge is to the River Proules at National Grid Reference 284624E 302833N in the town land of Magheross, Carrickmacross, Co Monaghan. The River Proules flows from the primary discharge of the WWTP downstream approximately 600m into Lough Naglack and then flows out as a river for approximately 600m and into Monalty Lough. The River Proules is identified as 'sensitive' water in terms of the Urban Waste Water Treatment Regulations 2001 from downstream of the Carrickmacross sewage outfall, to its confluence with River Glyde, Monalty Lough is also designated as sensitive under these Regulations. It is not designated Salmonid water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988) nor designated as an SPA, SAC or NHA.
The River Proules is in the Neagh Bann river basin district with overall status classified as 'Poor' and at risk of not meeting good status by 2015, with overall objective to restore its status by 2021. The discharge licence details lower ELV's for the parameters total phosphorus and orthophosphate and a new ELV for the discharge parameter ammonia from 1st January 2016, for the proposed new primary discharge point downstream.

Dissolved Oxygen (DO) and pH results are recorded on site by the caretaker throughout the year and the results are tabulated in tables 2.3 and 2.4 in appendix 1. DO results recorded average at 9mg/l and pH results are between 6 and 9 in the receiving waters. Visual inspection records are recorded on site by the caretaker.
Monaghan County Council's ambient results for the water quality in the receiving River Proules indicates that the upstream average result is under the Surface Water Reg's 2009 'mean' good status figure of 1.5mg/l for BOD, but is slightly over this figure with some exceedances downstream. Total ammonia and MRP average figures exceed the Surface Water Reg's 2009 'mean' good status figures of 0.065mg/l and 0.035mg/l respectively, both upstream and downstream of the primary discharge point, thus concurring with the designated 'poor status' of the River Proules (WFD website and reports). The downstream average figures for these two parameters are higher than the upstream averages by a factor of two. Given the fact that the River Proules upstream is already at 'poor' status, it is concluded that there is insufficient assimilative capacity in the River Proules for the discharge from the Carrickmacross WWTP, as the results are compliant with discharge licence ELV's for 2013. The proposed works for the WWTP include the relocation of the primary discharge some 3.2km downstream into the Longfield River, with timeframe dependent upon Irish Water approval and funding.
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2.4 Data Collection and reporting requirements under the UWWT Directive.
This information will be submitted separately to the EPA through EDEN.

2.5 Pollutant Release and Transfer Register (PRTR).
This information is submitted electronically via the EPA website. Both the AER/PRTR Emissions Data information and the Excel calculation toolset are printed out and included at the end of this AER in Appendix 2.

Section 3. Operational Reports Summary

3.1 Treatment Efficiency Report

Table 1.3
Treatment Efficiency Report Summary Table

	cBOD mg/l (kg/day)	COD mg/l (kg/day)	SS mg/l (kg/day)	TP mg/l (kg/day)	TN mg/l (kg/day)	Comment
Influent mass loading (kg/day)	5603	14897	6284	134	850	
Effluent mass emission (kg/day)	41.36	598.63	145.88	13.64	280.37	
% Efficiency (% reduction of influent load)	99.26	95.98	97.68	89.84	67.03	

The Carrickmacross WWTP is generally considered to be operating efficiently, a summary of the removal efficiencies for the WWTP is as follows:

BOD – range 98 -99%, average 99%
COD – range 91 – 99%, average 96%
SS – range 93 – 99%, average 98%
TP – range 48 – 96%, average 90%
TN – range 42 – 84%, average 67%

3.2 Treatment Capacity Report

This assessment has been completed in section 2.1(table 1.2) of this report and concludes that there is adequate remaining capacity at the WWTP during normal operating conditions, however, during adverse weather conditions, there is inadequate storm storage at the WWTP.

3.3 Complaints Summary

There were no complaints of an environmental nature related to the discharge to waters from the Carrickmacross WWTP in 2013.

3.4 Reported Incidents Summary

The discharge from the Carrickmacross WWTP had three allowable exceedances in 2013, two allowable exceedances (first and second failures allowable <20%,cond. 2 licence interpretation) for suspended solids on 27/01/2013 at 12mg/l and 24/06/2013 at 18mg/l and one exceedance for ortho phosphate at 1.902mg/l on 09/12/2013. There were no identifiable causes for

these exceedances at the Waste Water Treatment Plant (WWTP) and the trend prior to and after them are under the Emission Limit Values (ELVs) for the parameters. There were no reportable incidents regarding ELVs in 2013.

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Summary tables are tabulated as follows:

Effluent Monitoring Summary Table								
	BOD mg/l	**COD mg/l**	**SS mg/l**	**Ammonia mg/l**	**Total P mg/l**	**Ortho P mg/l**	**Total Nitrogen mg/l**	**Comments**
WWDL ELV (schedule A)	**10**	**125**	**10**	**N/A**	**2**	**1**	**N/A**	
ELV with Cond. 2 interpretation	No result >100% ELV = 20mg/l	No result >100% ELV = 250mg/l	No result >150% ELV = 25mg/l	N/A	Annual mean shall not exceed ELV, no result shall exceed ELV by >20% = 2.4mg/l	8 out of 10 consec. samples shall not exceed ELV & 2 allowable failures provided under 100% of ELV (2.0mg/l)	N/A	13 samples taken, therefore 2 'allowable' failures
Number of sample results	13	13	13	13	13	13	13	
Number of sample results above WWDL ELV	0	0	2	N/A	0	1	N/A	
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	0.658	N/A	N/A	
Overall compliance (Pass/Fail)	Pass	Pass	Pass	N/A	Pass	Pass	N/A	

There were two other reported incidents reported in October and December regarding spillages to the River Proules due to the WWTP being inundated with high flows and rainfall during adverse weather conditions in 2013. The incident report numbers are INCI002607 and INCI003106 respectively, the first incident is closed, the second incident is open. These spillages occur during periods of adverse weather conditions at the WWTP when the storm tank overflows to the River Proules and in extreme prolonged storm conditions, the aeration tank becomes inundated and overflows the walls with

spillage to the River Proules. As stated, under proposed Contract 3 for the WWTP upgrade works, additional storm tank storage is included, and in the Assets Needs Brief (ANB) being prepared by Monaghan County Council for submission to Irish Water in March 2014, one of the identified improvement works for the WWTP is the extension and upgrading aeration tank no. 1 at the WWTP.

Summary of Incidents tables:

Incident Type	Incident description	Cause	No. of incidents	Corrective Action	Authorities Contacted	Reported to EPA	Closed
Spillages to the River Proules	Adverse weather causes overflows from WWTP to River	Adverse weather and inadequate storm storage facilities at the WWTP	2	Proposed additional storm storage and upgrade of aeration tank 1.	Yes – Inland Fisheries and Killanny GWS	Yes	1 closed. 1 open.

Number of Incidents in 2013	2
No. Incidents reported to EPA via EDEN in 2013	2
Explanation of any discrepancies between the two numbers above	N/A

Section 4. Infrastructural Assessment & Programme of Improvements

4.1 Storm water overflow identification and inspection report

As per condition 4.12.1 of the licence, a report on the identification and assessment of storm water overflows was submitted as required, as part of the second (2012) AER for Carrickmacross WWTP.
Under schedule C.3 '*Improvement Programme for Storm Water Overflows'* of the licence, upgrading of Storm Water Overflow, SW2, is required to comply with the criteria outlined in the DoECLG document, '*Procedures and Criteria in relation to Storm Water Overflows, 1995'.*

The storm water overflow is from a storm tank (600m3 capacity) at the WWTP. It was not designed to the criteria in the aforementioned DoECLG document, as it was constructed pre 1995. It would overflow to the River Proules during adverse weather conditions, however, there is no monitoring or flow measurement device on the SWO to record such overflows.
An assessment of this SWO in relation to the 'Procedures and criteria in relation to Storm Water Overflows', 1995 document is undertaken under the relevant sections as follows:

Section 4. '*Assessment Criteria for Existing SWO's':*

(1) It does not cause visual/aesthetic impact or public complaints.
(2) No analyses have been carried out on this SWO discharge.
(3) The receiving River Proules, is designated as 'sensitive water' under the Urban Wastewater Treatment Directive (UWWTD). The impact of the discharge from the SWO is unknown on the receiving water, as no analyses have been carried out when it operates.
(4) It does not operate in dry weather.

Section 5, '*Options following Assessment'*

The option following assessment considered is the 'use of storage' option as a storm tank is already employed at the WWTP. From the document, section 7 is the next relevant part for assessment.

Section 7, '*Use of Storage'*

The existing storm tank volume equates to approximately 600m3, the WWTP average flow figure for 2013 is 1,870m3, with a Dry Weather Flow (DFW) of 1,000m3. The capacity of the storm tank is therefore 0.6 times the DWF of the plant.

Appendix 1, Table 1:

A. *'Medium Significance SWOs'*

The Carrickmacross SW2 is in the 'Medium significance SWO' category as the p.e. is >2,000, dilution factor <8:1 and Cyprinid fishery (carp) criteria apply.

Appendix 2, A. *'Medium Significance SWOs'*

The document states that the use of hydraulic models for the sewer networks and 'Interim Procedure and CARP' would be appropriate for overflows of medium significance. There is no available data for the Carrickmacross SWO in this regard, therefore, no further calculations can be completed.

From the assessment of this SW2 in relation to the 'Procedures and criteria in relation to Storm Water Overflows', 1995 document, it is concluded that the SWO does not comply with the document as assessed under section 4.1 of this document.

SWO Identification and Inspection Summary Report Table A:

WWDL Name/Code for Storm Water Overflow	SW -2
IGR	284588E, 302860N
Included in Schedule A4 of the WWDL	Yes
Compliance with DoEHLG Criteria	Does not comply as assessed in Section 4.1 of this document
No. of times activated in 2013	20
Total volume discharged (m3)	Unknown
Total volume discharged in 2013 (P.E.)	Unknown
Estimated/Measured Data	Estimated

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

Under condition 5 of the discharge licence, *'a programme of infrastructural improvements to maximise the efficiency and effectiveness of the licence is required as part of the second AER'*. This report was submitted with the second 2012 AER for Carrickmacross. An update is required on the Improvement Programme for the years between reviews and is provided as follows:

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 1st January 2015.

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 1st January 2015.

Schedule C.1 and C.3 specified improvements form part of proposed Contract 3 for Carrickmacross WWTP as outlined in the executive summary of this report. 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	1st Jan. 2015	No	Not started	0%	Dependent on Irish Water approval & funding	
Upgrading of SWO to comply with criteria outlined in DoEHLG 'procedures and criteria in relation to SWO's, 1995'	C.3	1st Jan. 2015	No	Forms part of the 'Advance Works'	0%	Dependent on Irish Water approval & funding	

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
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% Town Council dependent.	2014/2015.
Overflows from tank during adverse weather.	Extension/upgrading of aeration tank no. 1.	Section 3.4	0%	Dependent on Irish Water approval and funding
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.	Executive summary	0%	Dependent on Irish Water approval and funding
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%	Dependent on Irish Water approval and funding

Section 5. Licence Specific Reports

Licence Specific Reports Summary Table

Licence Specific Report	Required in 2013 AER or outstanding from previous AER	Included in 2013 AER	Reference to relevant section of AER
Priority Substance Assessment	No	No	N/A
Drinking Water Abstraction Point Risk Assessment	Yes	Yes	Section 5
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

There is one licence specific report required under the Carrickmacross discharge licence:

Report 1: Drinking Water Abstraction Point Risk Assessment
Under condition 4.18 of the licence '*a risk assessment for the protection of the downstream drinking water abstraction point*' is required. This risk assessment is assessing the impact of the Carrickmacross waste water treatment plant and it's discharges on the receiving water, the River Proules, Lough Naglack and Monalty lake, as there is a drinking water abstraction point (Killanny/Reaghstown Group Water Supply Scheme (GWSS)) located in Monalty lake approximately 2.5km downstream of the primary discharge, supplying a substantial rural area in Monaghan and part of County Louth. Killanny/Reaghstown GWSS abstracts water from the Monalty Lake at Annacroff town land and treats the water at a treatment plant located approximately 300m from the intake. Killanny/Reaghstown GWSS are part of a Design, Build and Operate (DBO) bundle in County Monaghan, whereby a private contractor operates the treatment plant for the group scheme. The water treatment plant is a modern treatment plant using rapid gravity filtration

that was commissioned in 2006. The group scheme is presently producing an average of 1,600m3/day treated water for its consumers.

Carrickmacross WWTP discharge has the potential to impact on the downstream water abstraction point at Monalty Lake in relation to pollutant loading into the River Proules which flows to Monalty Lake. The risk from the Carrickmacross WWTP will be assessed under four separate headings with an overall risk ranking applied in a conclusion:

(1) Level of treatment and capacity of WWTP.
(2) Discharge compliance.
(3) River Fane quality and monitoring data.
(4) Discharges impact during periods of normal and abnormal operation and control measures.

(1) Level of treatment and capacity of WWTP:
Carrickmacross WWTP provides tertiary treatment with nutrient removal (phosphorus reduction). The plant is operated and maintained to a good standard with a caretaker 8 hours per day Monday to Friday and 2 hours Saturdays and Sundays. The plant runs automatically with monitors and meters linked to a SCADA system on site. The design P.E. of the plant is 12,150 with it currently treating 8,556 P.E. based on average 2013 flow/load figures. An assessment of the remaining capacities at the plant is outlined in section 4.1 of this AER, (tabulated in table 1.2, appendix 1). From these calculations, there is available capacity at the WWTP.
The level of treatment at the plant is adequate with tertiary treatment provided. However, during adverse weather conditions, there is inadequate storm storage capacity at the treatment works with infrastructural capital works pending approval and funding from the Irish Water for additional storm storage, inlet works and outfall relocation. The risk ranking for this element of the discharge from the WWTP is therefore applied as '***medium risk***".

(2) Discharge Compliance:
Under Schedule B and condition 2 of the licence (ref. table 2.1, appendix 1 and section 2.2 of this AER report) the Carrickmacross WWTP discharges were compliant with the conditions of the discharge licence with no reportable incidents regarding ELVs in 2013. A regular monthly monitoring and sampling program is in place for analyses of the discharge at the Carrickmacross WWTP thus minimising the risk of pollution to the River Proules. The River Proules is identified as 'sensitive' water in terms of the Urban Waste Water Treatment Regulations 2001 from downstream of the Carrickmacross sewage outfall, to confluence with River Glyde, Monalty Lough is also designated as 'sensitive' under these Regulations. The River Proules is in the Neagh Bann river basin district with overall status classified as 'Poor' and at risk of not meeting good status by 2015, with overall objective to restore its status by 2021. The 'point risk source' and potential for impact from the Carrickmacross WWTP discharge on the river is categorised as '2b – not at risk' and the combined storm overflows (CSOs) categorised as '1b – probably at risk' 10

CSOs were decommissioning of as part of major upgrading on the entire collection network for the WWTP in 2011, leaving one remaining one from a storm tank at the WWTP. This SWO activates during periods of heavy rain, discharging to the River Proules. The ambient results for 2013 (refer tables 2.3 and 2.4, appendix 1) concur with the 'poor' status of the Proules River, with downstream results for ammonia and ortho phosphate higher than upstream results. The 'Advance works' under proposed Contract 3 for the Carrickmacross WWTP include the relocation of the primary discharge point some 3.2km further downstream to discharge to the Longfield River, this new discharge point would be downstream of the drinking water abstraction point and will eliminate the risk from the discharge on Monalty lake, when completed. Due to the operation of the SWO during periods of adverse weather, the risk ranking for this element of the discharge from the WWTP is applied as '***medium risk***".

(3)Proules river quality and monitoring data.

The Proules River and downstream Monalty Lake existing status has been discussed under item (2) above, and is designated 'poor' status. The ambient results for 2013 (refer tables 2.3 and 2.4, appendix 1) concur with the 'poor' status of the Proules River, with downstream results for ammonia and ortho phosphate higher than upstream results. To eliminate the impact of the discharge on the River Proules which has insufficient assimilative capacity for the discharge, there are improvement plans to extend/relocate the effluent pipeline approximately 3.2km further downstream from its existing location, to discharge into the Longfield River, pending approval and funding from Irish Water, which has a significantly larger catchment area than the Proules River and is downstream of the drinking water abstraction point in Monalty Lake. The risk ranking for this element of the discharge from the WWTP at its present location is therefore applied as '***medium risk'***.

(4) Discharges impact during periods of normal and abnormal operation and control measures.

The impact of the Carrickmacross discharge to the drinking water abstraction point at Monalty Lake is considered medium risk as discussed in points 1 to 3 above. Periods of abnormal operation at the plant would be considered to occur due to storm conditions, equipment malfunction or breakdown, power cut, or dumping of toxic waste e.g. diesel wash into the network. The impact to the treatment plant and discharge to the River Proules from these events occurring is minimised by having a plant operator on site every day at the plant, therefore identifying any abnormal events that occur and implementing control measures as necessary to alleviate them. There is a storm tank on site, which has a storage capacity of 600m3, which activates during storm conditions, however, effluent discharging from this SWO to the river would be considered highly diluted. The controls and monitors at the treatment works are linked to a SCADA system on site, which is continually monitored by the plant operator, which would highlight any problem with the treatment plant

equipment or treatment process. The risk of a chemical spill or overdose into the treatment system at the plant is minimised as the storage tanks for all chemicals are bunded and regular maintenance and calibration of the dosing pumps is undertaken. The dosing pumps settings are reviewed regularly by the plant operators and technician over the plant in conjunction with assessment of the effluent parameters. Regular monitoring of the effluent also ensures that any deviations in the effluent parameters resulting from problems with the treatment process are addressed. In the event of a power cut, the electricity supply company will be contacted to restore power and a diesel generator will be connected at the WWTP enabling the treatment plant to continue to operate. From past experience a power cut occurs twice per year and usually lasts 2 to 3 hours. There has been no incidents of illegal waste being dumped into the sewer network in Carrickmacross, however given the proximity of the plant to the border of Northern Ireland and that the dumping of illegal diesel wash is prevalent in the Monaghan/Louth border area, consideration is given to this event occurring. If this event occurred, it may lead to a worst case scenario of the Carrickmacross WWTP being effectively 'shut down' while a cleanup of the treatment plant is undertaken and removal of the toxic material and effected plant media to a licensed disposal facility in Germany. While the WWTP is unable to operate and treat the influent from the agglomeration, consideration would be given, to tanker some influent by a licensed haulier to a WWTP elsewhere in Monaghan with available capacity to treat it, until the WWTP is up and running again.
If there is an event at the plant that leads to a pollution incident in the River Proules, Monaghan County Council will immediately notify the downstream drinking water source, Killanny/Reaghstown GWSS who are responsible for the downstream water abstraction water supply scheme, the EPA and the Inland Fisheries Board and implement any control measures and necessary works to address the incident.
From the occurrence of these periods of abnormal operation and the control measures in place to deal with them should they occur, the risk ranking for this element of the discharge from the WWTP is applied as '***medium risk***'.

Conclusion:
From the risk ranking applied to the impacts of the Carrickmacross WWTP discharge on the downstream drinking water abstraction point at Monalty Lake in the four situations addressed previously in this section, it is concluded that the **overall risk is 'medium'**. All measures that can be implemented at the WWTP to control the discharges to the River Proules at present are being implemented.
The approval and completion of the proposal advanced works pending Irish Water approval and funding under 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, when completed.

Section 6. Certification and Sign Off

Annual Statement of measures

Annual Statement of Measures

Risk /Description of issue	Risk Score	Mitigation Measure to be taken	Outcome	Action	Date for Completion	Owner/ Contact Person
Shared access by Town Council and WWTP, no site boundaries.		Provision of separate access road to WWTP and fencing.	Separation of Town Council yard and WWTP		2014/2015	Carrickmacross Town Council
Overflows from tank during adverse weather.		Extension/upgrading of aeration tank no. 1.	Increase capacity of tank, prevent spillages to River.		Dependent on Irish Water approval and funding	C McCrossan
No standby pump or overhead lifting equipment or gantry at main inlet Oriel road pump station.		Provision and installation of standby pump and overhead lifting equipment and gantry at Oriel road inlet pump station.	Prevent spillage to River if duty pump fails. Enable pump to be lifted out with ease when required.		Dependent on Irish Water approval and funding	C McCrossan
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	Measure flows and activation of SWO to River.		Dependent on Irish Water approval and funding	C McCrossan

The above identified improvement measures will be undertaken subject to Irish Water approval and funding.

Signed: Con M' Crossan **Job Title:** A/SE

Name: Con M' Crossan **Date:** 27/2/2014

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/EQS)	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? (ref. cond. 1.7 & cond. 4)	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?	N/A
List outstanding reports	N/A

Signed by: Con M° Cossal Date: 27/2/2014

Position in Organisation: A/SE

Appendix 1

Table 1 & 1.1	Influent monthly monitoring summary tables
Table 1.2	Remaining Hydraulic & Organic treatment capacities
Table 1.3	Treatment Efficiency Report Summary Table
Table 2	Monitoring results for Carrickmacross WWTP
Table 2.1	Effluent monitoring results
Table 2.2	Influent monitoring results
Table 2.3	Upstream monitoring results
Table 2.4	Downstream monitoring results

Table 1

Carrickmacross Influent monthly monitoring template - as per condition 4.15 of licence.

Location	Daily Flow M3	Influent/ Effluent	Date of Sampling	Sample Type (C or G)	cBOD mg/l	cBOD Loading (Kg/day)	cBOD Removal Efficiency %	COD mg/l	COD Loading (Kg/day)	COD Removal Efficiency %	SS mg/l	SS Loading (Kg/day)	SS Removal Efficiency %	Total P mg/l P	Total P Loading (Kg/day)	Total P Removal Efficiency %	Total N mg/l N	Total N Loading (Kg/day)	Total N Removal Efficiency %
Carrickmacross	4075	Influent	27/01/2013	C	230.00	937.25		608.00	2477.60		298.00	1214.35		5.64	22.99		40.88	166.59	
	4012	Effluent	27/01/2013	C	2.00	8.02	99.14	19.00	76.23	96.92	12.00	48.14	96.04	0.56	2.23	90.30	12.94	51.92	68.84
Carrickmacross	1945	Influent	27/02/2013	C	390.00	758.55		1179.00	2293.16		411.00	799.40		5.68	11.05		59.47	115.67	
	1910	Effluent	27/02/2013	C	2.00	3.82	99.50	58.00	110.78	95.17	6.00	11.46	98.57	0.81	1.55	85.93	15.61	29.82	74.22
Carrickmacross	2612	Influent	21/03/2013	C	230.00	600.76		708.00	1849.30		330.00	861.96		9.20	24.03		76.21	199.06	
	2597	Effluent	21/03/2013	C	0.90	2.34	99.61	61.00	158.42	91.43	2.00	5.19	99.40	0.76	1.97	91.79	25.77	66.92	66.38
Carrickmacross	1843	Influent	24/04/2013	C	334.00	615.56		1158.00	2134.19		413.00	761.16		9.95	18.34		20.36	37.52	
	1829	Effluent	24/04/2013	C	2.00	3.66	99.41	29.00	53.04	97.51	1.00	1.83	99.76	1.12	2.05	88.83	12.79	23.39	37.66
Carrickmacross	1113	Influent	20/05/2013	C	333.00	370.63		650.00	723.45		158.00	175.85		5.34	5.94		42.68	47.50	
	1089	Effluent	20/05/2013	C	6.00	6.53	98.24	43.00	46.83	93.53	10.00	10.89	93.81	0.90	0.98	83.56	6.81	7.42	84.39
Carrickmacross	1308	Influent	24/06/2013	C	264.00	345.31		990.00	1294.92		600.00	784.80		11.90	15.57		34.32	44.89	
	1301	Effluent	24/06/2013	C	3.00	3.90	98.87	24.00	31.22	97.59	18.00	23.42	97.02	0.74	0.96	93.85	9.87	12.84	71.40
Carrickmacross	1701	Influent	26/07/2013	C	414.00	704.21		762.00	1296.16		205.00	348.71		7.50	12.76		41.75	71.02	
	1644	Effluent	26/07/2013	C	0.90	1.48	99.79	1.00	1.64	99.87	9.00	14.80	95.76	0.37	0.60	95.27	14.21	23.36	67.10
Carrickmacross	1161	Influent	24/09/2013	C	329.00	381.97		687.00	797.61		278.00	322.76		11.40	13.24		31.40	36.46	
	1064	Effluent	24/09/2013	C	0.90	0.96	99.75	29.00	30.86	96.13	7.00	7.45	97.69	0.53	0.56	95.73	9.94	10.57	71.00
Carrickmacross	1573	Influent	29/10/2013	C	98.00	154.15		159.00	250.11		53.00	83.37		0.31	0.49		16.80	26.43	
	1486	Effluent	29/10/2013	C	0.90	1.34	99.13	14.00	20.80	91.68	4.00	5.94	92.87	0.12	0.18	63.43	7.50	11.15	57.83
Carrickmacross	2228	Influent	19/11/2013	C	273.00	608.24		649.00	1445.97		245.00	545.86		2.63	5.86		30.77	68.56	
	2083	Effluent	19/11/2013	C	4.00	8.33	98.63	21.00	43.74	96.97	7.00	14.58	97.33	0.22	0.45	92.29	10.37	21.60	68.49
Carrickmacross	1009	Influent	09/12/2013	C	125.00	126.13		332.00	334.99		382.00	385.44		4.00	4.04		36.26	36.59	
	1090	Effluent	09/12/2013	C	0.90	0.98	99.22	23.00	25.07	92.52	2.00	2.18	99.43	1.93	2.10	47.88	19.62	21.39	41.55

Table 1.1

Influent monitoring summary table

	BOD mg/l	COD mg/l	SS mg/l	Total P mg/l P	Total N mg/l N	Volumetric Loading m3/day	Organic Loading PE/day
Number of samples	11	11	11	11	11	n/a	n/a
Maximum result	414.00	1179.00	600.00	11.90	76.21	4075	
Annual Mean	274.55	716.55	306.64	6.69	39.17	1870	8556

Table 1.2

Remaining Hydraulic & Organic treatment capacities summary table:	
Hydraulic Capacity - Design (M^3/day)	2734
Hydraulic Capacity - Current loading (M^3/day)	1870
Hydraulic Capacity - Remaining (M^3/day)	**864**
Organic Capacity - Design (PE)	12150
Organic Capacity - Current loading (PE)	8556
Organic Capacity - Remaining (PE)	**3594**
Will the capacity be exceeded in the next 3 years?	no

Table 1.3

Treatment Efficiency Report Summary Table

	cBOD mg/l (kg/day)	COD mg/l (kg/day)	SS mg/l (kg/day)	TP mg/l (kg/day)	TN mg/l (kg/day)	Comment
Influent mass loading (kg/day)	5603	14897	6284	134	850	
Effluent mass emission (kg/day)	41.36	598.63	145.88	13.64	280.37	
% Efficiency (% reduction of influent load)	99.26	95.98	97.68	89.84	67.03	

Carrickmacross Monitoring results

Location	Out Flow M3/day	Location	Date of Sampling	Sample Type (C or G)	Temp	pH	cBOD mg/l	COD mg/l	Suspended Solids mg/l	Ortho P mg/l	Total Phosphorus mg/l (as P)	Ammonia (as N)	Total Nitrogen mg/l (as N)
Carrickmacross		Influent	27/01/2013	C			230.00	608.00	298.00		5.641		40.88
Carrickmacross		Effluent	27/01/2013	C			2.00	19.00	12.00	0.404	0.556	0.937	12.94
Carrickmacross		Up Stream Of Works	27/01/2013	G			1.20			0.028		0.127	4.41
Carrickmacross		Down Stream of Works	27/01/2013	G			1.80			0.088		0.228	5.69
Carrickmacross		Influent	27/02/2013	C			390.00	1179.00	411.00		5.683		59.47
Carrickmacross		Effluent	27/02/2013	C			2.00	58.00	6.00	0.725	0.814	0.789	15.61
Carrickmacross		Up Stream Of Works	27/02/2013	G			1.20			0.023		0.059	4.34
Carrickmacross		Down Stream of Works	27/02/2013	G			1.60			0.116		0.098	6.40
Carrickmacross		Influent	21/03/2013	C			230.00	708.00	330.00		9.200		76.21
Carrickmacross		Effluent	21/03/2013	C			0.90	61.00	2.00	0.641	0.760	0.154	25.77
Carrickmacross		Up Stream Of Works	21/03/2013	G			2.00			0.041		0.139	2.88
Carrickmacross		Down Stream of Works	21/03/2013	G			4.00			0.182		0.075	6.38
Carrickmacross		Influent	24/04/2013	C			334.00	1158.00	413.00		9.950		20.36
Carrickmacross		Effluent	24/04/2013	C			2.00	29.00	1.00	0.902	1.120	0.142	12.79
Carrickmacross		Up Stream Of Works	24/04/2013	G			0.90			0.045		0.017	1.87
Carrickmacross		Down Stream of Works	24/04/2013	G			0.90			0.144		0.036	nm
Carrickmacross		Influent	20/05/2013	C			333.00	650.00	158.00		5..34		42.68
Carrickmacross		Effluent	20/05/2013	C			6.00	43.00	10.00	0.462	0.897	4.030	6.81
Carrickmacross		Up Stream Of Works	20/05/2013	G			0.90			0.005		0.014	2.24
Carrickmacross		Down Stream of Works	20/05/2013	G			0.90			0.021		0.052	2.39
Carrickmacross		Influent	24/06/2013	C			264.00	990.00	600.00		11.900		34.32
Carrickmacross		Effluent	24/06/2013	C			3.00	24.00	18.00	0.405	0.736	0.132	9.87
Carrickmacross		Up Stream Of Works	24/06/2013	G									
Carrickmacross		Down Stream of Works	24/06/2013	G									
Carrickmacross		Influent	26/07/2013	C			414.00	762.00	205.00		7.500		41.75
Carrickmacross		Effluent	26/07/2013	C			0.90	1.00	9.00	0.100	0.367	0.071	14.21
Carrickmacross		Up Stream Of Works	26/07/2013	G			0.90			0.032		0.035	3.36
Carrickmacross		Down Stream of Works	26/07/2013	G			0.90			0.000		0.444	1.29
Carrickmacross		Influent	14/08/2013	C									
Carrickmacross		Effluent	14/08/2013	C			0.90	25.00	6.00	0.123	0.233	0.037	21.98
Carrickmacross		Up Stream Of Works	14/08/2013	G									
Carrickmacross		Down Stream of Works	14/08/2013	G									
Carrickmacross		Influent	20/08/2013	C			sample misplaced	sample misplaced	sample misplaced	sample misplaced	sample misplaced	sample misplaced	sample misplaced
Carrickmacross		Effluent	20/08/2013	C			0.90	27.00	1.00	0.193	0.271	0.113	18.57
Carrickmacross		Up Stream Of Works	20/08/2013	G			0.90			0.607		0.212	2.37
Carrickmacross		Down Stream of Works	20/08/2013	G			0.90			0.002		0.050	0.50
Carrickmacross		Influent	24/09/2013	C			329.00	687.00	278.00		11.400		31.40
Carrickmacross		Effluent	24/09/2013	C			0.90	29.00	7.00	0.140	0.531	0.093	9.94
Carrickmacross		Up Stream Of Works	24/09/2013	G			0.90			0.034		0.037	2.79
Carrickmacross		Down Stream of Works	24/09/2013	G			0.90			0.000		0.241	0.65
Carrickmacross		Influent	29/10/2013	C			93.00	159.00	53.00		0.310		16.80
Carrickmacross		Effluent	29/10/2013	C			0.90	14.00	4.00	0.000	0.120	0.027	7.50
Carrickmacross		Up Stream Of Works	29/10/2013	G			0.90			0.020		0.000	3.98
Carrickmacross		Down Stream of Works	29/10/2013	G			0.90			1.311		0.149	2.44
Carrickmacross		Influent	19/11/2013	C			273.00	649.00	245.00		2.630		30.77
Carrickmacross		Effluent	19/11/2013	C			4.00	21.00	7.00	0.168	0.217	0.053	10.37
Carrickmacross		Up Stream Of Works	19/11/2013	G			0.90			0.029		0.142	1.37
Carrickmacross		Down Stream of Works	19/11/2013	G			3.00			0.038		0.003	2.29
Carrickmacross		Influent	09/12/2013	C			125.00	332.00	382.00		4.000		36.26
Carrickmacross		Effluent	09/12/2013	C			0.90	23.00	2.00	1.902	1.930	0.100	19.62
Carrickmacross		Up Stream Of Works	09/12/2013	G			0.90			0.081		0.027	2.62
Carrickmacross		Down Stream of Works	09/12/2013	G			0.90			0.063		0.115	0.93

Table 2.1													
NB NOTE** ELV's will change from Jan 1st 2015 to Blue limits:							10mg/l	125mg/l	10mg/l	0.4mg/l	1.0mg/l	0.75mg/l	
Carickmacross Effluent monitoring results: Note current ELV's in red text													
Location	Daily Flow M3/day	Effluent	Date of Sampling	Sample Type (C or G)	Temp	pH 6 - 9	cBOD mg/l 10mg/l	COD mg/l 125mg/l	Suspended Solids mg/l 10mg/l	Ortho Phosphorus mg/l 1.0mg/l	Total Phosphorus (as P) mg/l 2mg/l	Ammonia (as N)	Total Nitrogen mg/l (as N)
Carrickmacross	4012	Effluent	27/01/2013	C			2.00	19.00	12.00	0.404	0.556	0.937	12.94
Carrickmacross	1910	Effluent	27/02/2013	C			2.00	58.00	6.00	0.725	0.814	0.789	15.61
Carrickmacross	2597	Effluent	21/03/2013	C			0.90	61.00	2.00	0.641	0.760	0.154	25.77
Carrickmacross	1829	Effluent	24/04/2013	C			2.00	29.00	1.00	0.902	1.120	0.142	12.79
Carrickmacross	1089	Effluent	20/05/2013	C		7.13	6.00	43.00	10.00	0.462	0.897	4.030	6.81
Carrickmacross	1301	Effluent	24/06/2013	C		7.3	3.00	24.00	18.00	0.405	0.736	0.132	9.87
Carrickmacross	1644	Effluent	26/07/2013	C		7.18	0.90	1.00	9.00	0.100	0.367	0.071	14.21
Carrickmacross	1728	Effluent	14/08/2013	C		7.12	0.90	25.00	6.00	0.123	0.233	0.037	21.98
Carrickmacross	1441	Effluent	20/08/2013	C		7.32	0.90	27.00	1.00	0.193	0.271	0.113	18.57
Carrickmacross	1064	Effluent	24/09/2013	C		7.28	0.90	29.00	7.00	0.140	0.531	0.093	9.94
Carrickmacross	1486	Effluent	29/10/2013	C		7.77	0.90	14.00	4.00	0.000	0.120	0.027	7.50
Carrickmacross	2083	Effluent	19/11/2013	C		8.19	4.00	21.00	7.00	0.168	0.217	0.053	10.37
Carrickmacross	1090	Effluent	09/12/2013	C		8.28	0.90	23.00	2.00	1.902	1.930	0.100	19.62
Average	1790						1.95	28.77	6.54	0.474	0.658	0.514	14.31
Condition 2 Licence: Interpretation	Compliance analysis -13 samples taken - max. no samples that may exceed ELV = 2 no. (Schedule B.3)								12mg/l - 1st alowable failure <25mg/l, 18mg/l - 2nd allowable failure <25mg/l.	1.902mg/l - 1st alowable failure <2mg/l.			
Condition 2 Licence: Interpretation						No allowable failures, no deviation allowed	2 allowable failures provided under 100% of ELV (20mg/l)	2 allowable failures provided under 100% of ELV (250mg/l)	2 allowable failures provided under 150% of ELV (25mg/l)	8 out of 10 consec. samples shall not exceed ELV & 2 allowable failures provided under 100% of ELV (2.0mg/l)	The annual mean shall not exceed the ELV & 2 allowable failures provided under 20% of ELV (2.4mg/l)		
Total Incidents:						0	0	0	0	0	0	N/A	N/A

Effluent Monitoring Summary Table	BOD mg/l	COD mg/l	SS mg/l	Ammonia mg/l	Total P mg/l	Ortho P mg/l	Total Nitrogen mg/l	Comments
WWDL ELV (schedule A)	10	125	10	N/A	2	1	N/A	
ELV with Cond. 2 Interpretation	No result >100% ELV = 20mg/l	No result >100% ELV = 250mg/l	No result >150% ELV = 25mg/l	N/A	Annual mean shall not exceed ELV, no result shall exceed ELV by >20% = 2.4mg/l	8 out of 10 consec. samples shall not exceed ELV & 2 allowable failures provided under 100% of ELV (2.0mg/l)	N/A	13 samples taken, therefore 2 'allowable' failures
Number of sample results	13	13	13	13	13	13	13	
Number of sample results above WWDL ELV	0	0	2	N/A	0	1	N/A	
Annual Mean (for parameters where a mean ELV applies)	N/A	N/A	N/A	N/A	0.658	N/A	N/A	
Overall compliance (Pass/Fail)	Pass	Pass	Pass	N/A	Pass	Pass	N/A	

Table 2.2
Influent monitoring results

Location	Flow M3/day	Location	Date of Sampling	Sample Type (C or G)	Temp	pH	cBOD mg/l	COD mg/l	Suspended Solids mg/l	Ortho Phosphate mg/l	Total Phosphorus mg/l	Ammonia mg/l	Total Nitrogen mg/l
Carrickmacross	4075	Influent	27/01/2013	C			230.00	608.00	298.00		5.641		40.88
Carrickmacross	1945	Influent	27/02/2013	C			390.00	1179.00	411.00		5.683		59.47
Carrickmacross	2612	Influent	21/03/2013	C			230.00	708.00	330.00		9.200		76.21
Carrickmacross	1843	Influent	24/04/2013	C			334.00	1158.00	413.00		9.950		20.36
Carrickmacross	1113	Influent	20/05/2013	C			333.00	650.00	158.00		5.340		42.68
Carrickmacross	1308	Influent	24/06/2013	C			264.00	990.00	600.00		11.900		34.32
Carrickmacross	1701	Influent	26/07/2013	C			414.00	762.00	205.00		7.500		41.75
Carrickmacross	1161	Influent	24/09/2013	C			329.00	687.00	278.00		11.400		31.40
Carrickmacross	1573	Influent	29/10/2013	C			98.00	159.00	53.00		0.310		16.80
Carrickmacross	2228	Influent	19/11/2013	C			273.00	649.00	245.00		2.630		30.77
Carrickmacross	1009	Influent	09/12/2013	C			125.00	332.00	382.00		4.000		36.26
Average	1870						**274.55**	**716.55**	**306.64**		**6.69**		**39.17**

Table 2.3
Upstream monitoring results

Location	Flow M3/day	Location	Date of Sampling	Sample Type (C or G)	Temp	pH	cBOD mg/l	COD mg/l	Suspended Solids mg/l	Ortho P mg/l (as P)	Total Phosphorus mg/l (as P)	Ammonia (as N)	Total Nitrogen mg/l (as N)	Dissolved Oxygen (DO) mg/l
Carrickmacross		Up Stream Of Works	27/01/2013	G			1.20			0.028		0.127	4.41	
Carrickmacross		Up Stream Of Works	27/02/2013	G			1.20			0.023		0.059	4.34	
Carrickmacross		Up Stream Of Works	21/03/2013	G			2.00			0.041		0.139	2.88	
Carrickmacross		Up Stream Of Works	24/04/2013	G			0.90			0.045		0.017	1.87	
Carrickmacross		Up Stream Of Works	20/05/2013	G		7.76	0.90			0.005		0.014	2.24	10.82
Carrickmacross		Up Stream Of Works	26/07/2013	G		6.96	0.90			0.032		0.035	3.36	8.69
Carrickmacross		Up Stream Of Works	20/08/2013	G		7.11	0.90			0.607		0.212	2.37	9.49
Carrickmacross		Up Stream Of Works	24/09/2013	G		7.74	0.90			0.034		0.037	2.79	9.4
Carrickmacross		Up Stream Of Works	29/10/2013	G		7.7	0.90			0.020		0.000	3.98	10.31
Carrickmacross		Up Stream Of Works	19/11/2013	G			0.90			0.029		0.142	1.37	
Carrickmacross		Up Stream Of Works	09/12/2013	G		8.48	0.90			0.081		0.027	2.62	10.28
Average							**1.05**			**0.086**		**0.074**	**2.93**	

Table 2.4
Downstream monitoring results

Location	Flow M3/day	Location	Date of Sampling	Sample Type (C or G)	Temp	pH	cBOD mg/l	COD mg/l	Suspended Solids mg/l	Ortho P mg/l (as P)	Total Phosphorus mg/l (as P)	Ammonia (as N)	Total Nitrogen mg/l (as N)	Dissolved Oxygen (DO) mg/l
Carrickmacross		Down Stream of Works	27/01/2013	G			1.80			0.088		0.228	5.69	
Carrickmacross		Down Stream of Works	27/02/2013	G			1.60			0.116		0.098	6.40	
Carrickmacross		Down Stream of Works	21/03/2013	G			4.00			0.182		0.075	6.38	
Carrickmacross		Down Stream of Works	24/04/2013	G			0.90			0.144		0.036	nm	
Carrickmacross		Down Stream of Works	20/05/2013	G		7.46	0.90			0.021		0.052	2.39	9.88
Carrickmacross		Down Stream of Works	26/07/2013	G		6.98	0.90			0.000		0.444	1.29	7.92
Carrickmacross		Down Stream of Works	20/08/2013	G		6.12	0.90			0.002		0.050	0.50	9.08
Carrickmacross		Down Stream of Works	24/09/2013	G		7.61	0.90			0.000		0.241	0.65	9.21
Carrickmacross		Down Stream of Works	29/10/2013	G		7.24	0.90			1.311		0.149	2.44	9.09
Carrickmacross		Down Stream of Works	19/11/2013	G		8.35	3.00			0.038		0.003	2.29	10.65
Carrickmacross		Down Stream of Works	09/12/2013	G		7.73	0.90			0.063		0.115	0.93	8.62
Average							**1.52**			**0.179**		**0.136**	**2.90**	

Appendix 2

Pollutant Release and transfer Register
Excel calculation toolset
Flow Weighted Mass emissions calculations

Air Emission - Inputs

CELL COLOUR KEY	
	INPUT - type in your facility value in cell
	OUTPUT - automatically generated cell value

RELEASES TO AIR

Air: Emissions from WWTP Works

Data Entry Table: Characteristics of the WWTP

For use where no data from on-site monitoring of air emissions from the plant are available.
Nitrous Oxide (N2O) calculated directly for actual p.e. data

For information only:
Calculated Values (see Calculations Worksheet)

1 Loadings and Works		
A Facility Loadings Data for Reporting Year	**Value**	
Total p.e. served	8,556	*Enter Actual Population Equivalent of catchment*
Design p.e.	12,150	*Enter Design Population Equivalent of facility*
Total influent BOD kg/annum (measured)	184,766	*Enter total annual quantity;* ***NB note units: kg/annum***
Total Sludge removed offsite kg Dry Matter / annum	189,561	*Enter total annual quantity;* ***NB note units: kg/annum***
Total Sludge digested on-site kg Dry Matter / annum	0	*Enter total annual quantity;* ***NB note units: kg/annum***

TOW kg BOD / annum	*TOW = "Total Organically biodegradable material in domestic (=municipal) Wastewater"*
187,505	Total p.e. served TOW equivalent
266,267	Design p.e. TOW equivalent
8,432	**Quality check: p.e. of influent BOD kg/annum**
75,824	*BOD content of sludge removed kg/annum*
0	*BOD content of sludge digested kg/annum*
108,962	Residual BOD net of sludge removed/digested kg/annum

B Characteristics of the Works	Status	
B1 Aerobic plant		
Does the aerobic section of the plant contain dissolved oxygen?	Y	*Y / N (default is "Y")* **Methane Conversion factor for the aerobic plant will be determined by this answer**
All tanks covered and extracted to on-site flare?	N	*Y / N (default is "N")* **Releases will be reported as "Fugitive"**
% of Headspace biogas utilised on site (0 - 100)	0	*Only required if Headspace extraction on site; Calculate by % operation of engine. Default assumption is Zero utilisation*
% of Headspace biogas flared (0 - 100)	0	*Only required if Headspace extraction on site; Calculate by % operation of flare. Default assumption is Zero flaring*
Total % biogas utilised or flared onsite		

B2 Onsite Anaerobic Digestion for sludge treatment	Status	
Anaerobic digestion on site?	N	*Y / N (default is "N")* **Releases will be reported as "Emission Point 1"**
% of Digester biogas utilised on site (0 - 100)	0	*Only required if Anaerobic digestion on site; Calculate by % operation of engine. Default assumption is Zero utilisation*
% of Digester biogas flared (0 - 100)	0	*Only required if Anaerobic digestion on site; Calculate by % operation of flare. Default assumption is Zero flaring*
Total % biogas utilised or flared onsite		

2 Estimated Fuel use at the UWWTP	Diesel Usage Tonnes/annum	
Total Diesel Use on site in the year	0	***Tonne / annum*** **Releases will be reported as "Fugitive"**

The output data is presented on this worksheet in the precise format for transfer directly into the **"Releases to Air"** Worksheet of your AER/PRTR Emissions Reporting Workbook

PRTR No. Annex II	Name	ESTIMATED QUANTITIES			
		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
1	Methane (CH4)	0	0	0	0
2	Carbon Monoxide (CO)	0	0	0	0
3	Carbon Dioxide (CO2)	0	136,233	0	136,233
5	Nitrous oxide (N2O)		1	0	1
7	Non-methane volatile organic compounds (NMVOC)		0	0	0
8	Nitrogen oxides (NOx/NO2)	0	0	0	0
11	Sulphur oxides (SOx/SO2)		0	0	0

Wastewater Treatment Data Input

CELL COLOUR KEY:

- **INPUT** - Select value from drop down list
- **INPUT** - type in your facility value in cell
- **OUTPUT** - automaticaly generated cell value

Facility Name	Carrickmacross Waste Water Treatment Works	← *Enter Facility Details*
Address	Magheross, Carrickmacross, Co. Monaghan.	
Reporting Year	2013	
Licence Reg. No.	D0062	

P.E. (Actual Treated)	<10000 p.e.	← *These parameters are required to generate estimated PRTR mass emission values. Click on the cell and select from the drop down menu. Refer to the Definitions below for further information.*
Saline Intrusion	No saline intrusion	
Type of Treatment	Tertiary Treatment - Filtration	
Nutrient Removal	Phosphorous and Nitrogen Removal	

Please enter Total Annual Flow (m³/annum):

Treated (Predominant/Main Emission):	673060 m3/annum	← *Final effluent volume released via the main emission point*
Fugitive Emissions:	3300 m3/annum	← *Additional estimated volume released in storm bypasses*
TOTAL:	676360 m3/annum	

Definition of Input Requirements

P.E. (Actual Treated): P.E. (population equivalent) is a measurement of the average organic biodegradable load received daily at the treatment plant. A population equivalent of 1 (1 p.e.) means the organic biodegradable load having a five-day biochemical oxygen demand (BOD5) of 60g of oxygen per day. Select a P.E. band (**<10,000 p.e., 10,000 - 50,000 p.e., >50,000 p.e.**) into which the actual operating P.E. of the treatment plant falls. (Please note: the operating P.E. is based on the existing population served and not the design population size of the UWWTP).

Saline Intrusion: Identify whether saline intrusion is known to occur within the sewage network serving the treatment plant. This will be the case for some coastally located UWWTPs.

Type of Treatment: Identify the type of treatment provided at the plant. Treatment options are "No Treatment", "Primary Treatment Only", "Secondary Treatment - Activated Sludge", "Secondary Treatment - Attached Growth", "Tertiary Treatment - Filtration", and "Tertiary Treatment - Disinfection".

Nutrient Removal: Identify whether nutrient removal is employed at the treatment plant. Nutrient removal options are "Phosphorus Removal Only - Biological/Chemical/Wetland", "Nitrogen Removal Only", "Phosphorous and Nitrogen Removal", and "No Nutrient Removal".

Measured Values

CELL COLOUR	
INPUT - type in your facility value in cell	
OUTPUT - automatically generated cell value	

Enter all measured values in this sheet

Note: If you do not have measured values then LEAVE THE CELL BLANK

Measured values reported in this worksheet should be the average concentration of the pollutant measured over the previous reporting year. Measured values should be used when they are available rather than estimated values from the Toolset. Measured values relate to parameters that are analysed in a laboratory. Please enter the measured values to the orange cells in mg/l for the year.

Note: the unit of measurement must be in mg/l for all parameters entered on this sheet.

Where measured values are reported, the Method Code must be indicated in the "Method of Measurement" column. The method code used shall be in accordance with the internationally approved measurement methods - please refer to the UWW PRTR Electronic Toolset Guidance Document on the EPA website. The method description should also be provided as indicated below.

Note: Wastewater licensed pollutants such as BOD and COD, Ortho- P are included at the bottom of this sheet - please enter annual measured data in mg/l for these.

Method Codes

ISO/CEN Standard - If the laboratory is working to an ISO/CEN standard that is on the approved list of standards, you should use this as the method code. Example for Total Nitrogen is EN ISO 11905-1:1998. Leave the Description Field Blank in the PRTR Workbook.	Example for Total Nitrogen	EN ISO 11905-1:1998	Method Description: Blank
OTH - If the method you are using is not an ISO/CEN standard or does not fall under any of the other method codes then use OTH. This method code would apply when using methods from the Standard Methods for the Analysis of Water and Wastewater series or when using a Hach Spectrophotometric Method for Total Nitrogen, for example. Use the method code OTH and please put a description of the method in the method description field in the PRTR Emissions Reporting Workbook.	Example for Total Phosphorus	OTH	Method Description: Standard Methods for the Analysis of Water and Wastewater - Total P Analysis

UWWT Facility Details:	>10000 p.e. No saline intrusion, Tertiary Treatment - Filtration, Phosphorus and Nitrogen Removal

PRTR Substances:

PRTR No	CAS No	Parameter	Treated Effluent Concentration (mg/l)	Fugitive Emission Concentration (mg/l)	Treated Effluent Mass emission (kg/annum)	Fugitive Emission Mass emission (kg/annum)	Method of Measurement (Method Code)	Method Description (Analytical Method)
12		Total nitrogen (as N)	14.312		9521.400	0.000	ALT	...(2005) by TN analyser. EW 143
13		Total phosphorus (as P)	0.958		442.873	0.000	ALT	...Total Phosphorus by Ganimede. EW 148
76		Total organic carbon			0.000	0.000		
79		Chlorides (as total Cl)			0.000	0.000		
82		Cyanides (as total CN)			0.000	0.000		
83		Fluorides (as total F)			0.000	0.000		
17		Arsenic and compounds (as As)			0.000	0.000		
18		Cadmium and compounds (as Cd)			0.000	0.000		
19		Chromium and compounds (as Cr)			0.000	0.000		
20		Copper and compounds (as Cu)			0.000	0.000		
21		Mercury and compounds (as Hg)			0.000	0.000		
22		Nickel and compounds (as Ni)			0.000	0.000		
23		Lead and compounds (as Pb)			0.000	0.000		
24		Zinc and compounds (as Zn)			0.000	0.000		
31	85535-84-8	Chloroalkanes (C10-C13)			0.000	0.000		
25	15972-60-8	Alachlor			0.000	0.000		
26	309-00-2	Aldrin			0.000	0.000		
35	60-57-1	Dieldrin			0.000	0.000		
39	72-20-8	Endrin			0.000	0.000		
41	76-44-8	Heptachlor			0.000	0.000		
28	57-74-9	Chlordane			0.000	0.000		
29	143-50-0	Chlordecone			0.000	0.000		
40	2385-85-5	Mirex			0.000	0.000		
38	115-29-7	Endosulphan			0.000	0.000		
45	58-89-9	Lindane (1,2,3,4,5,6-hexachlorocyclohexane)			0.000	0.000		
89	465-73-6	Isodrin			0.000	0.000		
33	50-29-3	DDT - sum of all isomers			0.000	0.000		
77	1582-09-8	Trifluralin			0.000	0.000		
42	118-74-1	Hexachlorobenzene (HCB)			0.000	0.000		
43	87-68-3	Hexachlorobutadiene (HCBD)			0.000	0.000		
30	470-90-6	Chlorfenvinphos			0.000	0.000		
32	2921-88-2	Chlorpyrifos			0.000	0.000		
27	1912-24-9	Atrazine			0.000	0.000		
51	122-34-9	Simazine			0.000	0.000		
37	330-54-1	Diuron			0.000	0.000		
67	34123-59-6	Isoproturon			0.000	0.000		
75		Triphenyltin			0.000	0.000		
69		Organotin			0.000	0.000		
74		Tributyltin			0.000	0.000		
72		PAH, Total			0.000	0.000		
91	191-24-2	Benzo(ghi)perylene			0.000	0.000		
61	120-12-7	Anthracene			0.000	0.000		
68	91-20-3	Naphthalene			0.000	0.000		
84	206-44-0	Fluoranthene			0.000	0.000		
50	1336-36-3	Polychlorinated biphenyls (PCBs) - sum of 11 congeners			0.000	0.000		
40		Halogenated organic compounds (as AOX)			0.000	0.000		
52	127-18-4	Tetrachloroethylene (PER)			0.000	0.000		
53	56-23-5	Tetrachloromethane (TCM)			0.000	0.000		
57	79-01-6	Trichloroethylene			0.000	0.000		
60	75-01-4	Vinyl chloride			0.000	0.000		
34	107-06-2	1,2-dichloroethane (EDC)			0.000	0.000		
36	75-09-2	Dichloromethane (DCM)			0.000	0.000		
71	108-95-2	Phenols (as total C)			0.000	0.000		
87	1806-26-4	Octylphenols and Octylphenol Ethoxylates			0.000	0.000		
64		Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)			0.000	0.000		
54	12002-48-1	Trichlorobenzenes (TCBs) (all isomers)			0.000	0.000		
49	87-86-5	Pentachlorophenol (PCP)			0.000	0.000		
43	608-93-5	Pentachlorobenzene			0.000	0.000		
62	71-43-2	Benzene as BTEX			0.000	0.000		
73	108-88-3	Toluene as BTEX			0.000	0.000		
79	1330-20-7	Xylenes (total mass of ortho, para and meta-xylene BTEX			0.000	0.000		
81	100-41-4	Ethyl benzene (BTEX)			0.000	0.000		
70	117-81-7	Di-2-ethylhexylphthalate			0.000	0.000		
59	8001-35-2	Toxaphene			0.000	0.000		
90	36355-1-8	Hexabromobiphenyl			0.000	0.000		
63		Brominated diphenylethers (PBDE)			0.000	0.000		

Non-PRTR Substances

PRTR No	CAS No	Parameter	Treated Effluent Concentration (mg/l)	Fugitive Emission Concentration (mg/l)	Treated Effluent Mass emission (kg/annum)	Fugitive Emission Mass emission (kg/annum)	Method of Measurement (Method Code)	Method Description (Analytical Method)
370		Selenium			0.000	0.000		
205		Antimony (as Sb)			0.000	0.000		
368		Molybdenum			0.000	0.000		
316		Tin			0.000	0.000		
373		Barium			0.000	0.000		
374		Boron			0.000	0.000		
356		Cobalt			0.000	0.000		
358		Vanadium			0.000	0.000		
388		Dichlobenil			0.000	0.000		
383		Linuron			0.000	0.000		
387		Mecoprop Total			0.000	0.000		
380		2,4 Dichlorophenol (2,4 D)			0.000	0.000		
384		MCPA			0.000	0.000		
382		Glyphosate			0.000	0.000		
319		Benzo(a)pyrene			0.000	0.000		
390		Benzo(b)fluoranthene			0.000	0.000		
391		Benzo(k)fluoranthene			0.000	0.000		
392		Indeno(1,2,3-c,d)pyrene			0.000	0.000		
393		Carbon tetrachloride			0.000	0.000		
394		2,6-Dichlorobenzamide			0.000	0.000		
395		Dicofol			0.000	0.000		
396		Hexabromocyclododecane (HBCD)			0.000	0.000		
397		PFOS			0.000	0.000		
238		Ammonia (as N)	0.514		345.953	0.000	ALT	...mmonia by Autoanalyser Spectrophotometry EW154
303		BOD	1.930		1312.457	0.000	ALT	...(2005) EN1899-1:1998 BOD EW001
306		COD	25.770		16363.956	0.000	ALT	...COD closed Reflux Colorimetric EW004
363		Kjeldahl Nitrogen			0.000	0.000		
227		Nitrate (as N)			0.000	0.000		
272		Nitrite (as N)			0.000	0.000		
332		Ortho-phosphate (as PO4)	0.474		318.030	0.000	ALT	...hate by Autoanalyser Spectrophotometry EW154
240		Suspended Solids	6.540		4401.812	0.000	ALT	...Dissolved oxygen measurement EW013

Licensed Pollutants listed above

Note: There are no user input requirements in this worksheet

These values are generated in the Toolset based on the data filled in on the Waste Water Treatment Data Input Sheet (i.e. Generated by the Estimation Toolset)

UWWT Facility Details:	<10000 p.e., No saline intrusion, Tertiary Treatment - Filtration, Phosphorous and Nitrogen Removal

PRTR substances estimated by tool:

PRTR Nr.	CAS No.	Parameter	Treated Effluent Concentration (mg/l)	Fugitive Emission Concentration (mg/l)	Treated Effluent Mass emission (kg/annum)	Fugitive Emission Mass emission (kg/annum)	Total Mass Emission (kg/annum)
12		Total nitrogen (as N)	14.280	23.480	9611.297	77.484	9688.781
13		Total phosphorus (as P)	0.970	4.295	653.121	14.174	667.294
76		Total organic carbon	9.220	13.102	6205.460	43.237	6248.697
79		Chlorides (as total Cl)	54.120	64.800	36426.007	213.840	36639.847
82		Cyanides (as total CN)	0.003	0.003	1.973	0.009	1.983
83		Fluorides (as total F)	0.235	0.221	158.169	0.731	158.900
17		Arsenic and compounds (as As)	0.001	0.001	0.381	0.004	0.385
18		Cadmium and compounds (as Cd)	0.000	0.000	0.179	0.001	0.180
19		Chromium and compounds (as Cr)	0.001	0.000	0.538	0.000	0.539
20		Copper and compounds (as Cu)	0.003	0.006	2.019	0.019	2.038
21		Mercury and compounds (as Hg)	0.000	0.000	0.000	0.000	0.000
22		Nickel and compounds (as Ni)	0.004	0.004	2.866	0.012	2.877
23		Lead and compounds (as Pb)	0.003	0.011	2.046	0.036	2.081
24		Zinc and compounds (as Zn)	0.049	0.122	33.225	0.402	33.627
31	85535-84-8	Chloroalkanes (C10-C13)	0.000	0.000	0.141	0.001	0.142
25	15972-60-8	Alachlor	0.000	0.000	0.000	0.000	0.000
26	309-00-2	Aldrin	0.000	0.000	0.000	0.000	0.000
36	60-57-1	Dieldrin	0.000	0.000	0.000	0.000	0.000
39	72-20-8	Endrin	0.000	0.000	0.000	0.000	0.000
41	76-44-8	Heptachlor	0.000	0.000	0.000	0.000	0.000
28	57-74-9	Chlordane	0.000	0.000	0.000	0.000	0.000
29	143-50-0	Chlordecone	0.000	0.000	0.000	0.000	0.000
46	2385-85-5	Mirex	0.000	0.000	0.000	0.000	0.000
38	115-29-7	Endosulphan	0.000	0.000	0.000	0.000	0.000
45	58-89-9	Lindane (1,2,3,4,5, 6 -hexachlorocyclohexane)	0.000	0.000	0.000	0.000	0.000
89	465-73-6	Isodrin	0.000	0.000	0.000	0.000	0.000
33	50-29-3	DDT - sum of all isomers	0.000	0.000	0.000	0.000	0.000
77	1582-09-8	Trifluralin	0.000	0.000	0.000	0.000	0.000
42	118-74-1	Hexachlorobenzene (HCB)	0.000	0.000	0.000	0.000	0.000
43	87-68-3	Hexachlorobutadiene (HCBD)	0.000	0.000	0.000	0.000	0.000
30	470-90-6	Chlorfenvinphos	0.000	0.000	0.000	0.000	0.000
32	2921-88-2	Chlorpyrifos	0.000	0.000	0.000	0.000	0.000
27	1912-24-9	Atrazine	0.000	0.000	0.007	0.000	0.007
51	122-34-9	Simazine	0.000	0.000	0.009	0.000	0.010
37	330-54-1	Diuron	0.000	0.000	0.018	0.000	0.018
67	34123-59-6	Isoproturon	0.000	0.000	0.005	0.000	0.005
75		Triphenyltin	0.000	0.000	0.000	0.000	0.000
69		Organotin	0.000	0.000	0.000	0.000	0.000
74		Tributyltin	0.000	0.000	0.000	0.000	0.000
72		PAH, Total	0.000	0.000	0.008	0.001	0.008
91	191-24-2	Benzo[ghi]perylene	0.000	0.000	0.001	0.000	0.001
61	120-12-7	Anthracene	0.000	0.000	0.002	0.000	0.002
68	91-20-3	Naphthalene	0.000	0.000	0.003	0.000	0.003
88	206-44-0	Flouranthene	0.000	0.000	0.002	0.000	0.002
50	1336-36-3	Polychlorinated biphenyls (PCBs) - sum of 11 cong	0.000	0.000	0.000	0.000	0.000
40		Halogenated organic compounds (as AOX)	0.002	0.002	1.606	0.008	1.614
52	127-18-4	Tetrachloroethylene (PER)	0.000	0.000	0.040	0.000	0.040
53	56-23-5	Tetrachloromethane (TCM)	0.000	0.000	0.000	0.000	0.000
57	79-01-6	Trichloroethylene	0.000	0.000	0.000	0.000	0.000
60	75-01-4	Vinyl chloride	0.000	0.000	0.000	0.000	0.000
34	107-06-2	1,2-dichloroethane (EDC)	0.000	0.000	0.000	0.000	0.000
35	75-09-2	Dichloromethane (DCM)	0.000	0.000	0.031	0.000	0.031

71	108-95-2	Phenols (as total C)	0.001	0.081	0.612	0.267	0.879
87	1806-26-4	Octylphenols and Octylphenol Ethoxylates	0.000	0.000	0.000	0.000	0.000
64		Nonylphenol and Nonylphenol ethoxylates (NP/NPI	0.000	0.001	0.056	0.004	0.059
54	12002-48-1	Trichlorobenzenes (TCBs) (all isomers)	0.000	0.000	0.000	0.000	0.000
49	87-86-5	Pentachlorophenol (PCP)	0.000	0.000	0.000	0.000	0.000
48	608-93-5	Pentachlorobenzene	0.000	0.000	0.000	0.000	0.000
62	71-43-2	Benzene as BTEX	0.000	0.000	0.011	0.001	0.012
73	108-88-3	Toluene as BTEX	0.000	0.014	0.332	0.046	0.378
78	1330-20-7	Xylenes (total mass of ortho, para and meta-xylene	0.000	0.002	0.078	0.005	0.083
65	100-41-4	Ethyl benzene (BTEX)	0.000	0.000	0.011	0.000	0.012
70	117-81-7	Di(2-ethylhexyl)phthalate	0.001	0.003	0.617	0.010	0.627
59	8001-35-2	Toxaphene	0.000	0.000	0.000	0.000	0.000
90	36355-1-8	Hexabromobiphenyl	0.000	0.000	0.000	0.000	0.000
63		Brominated diphenylethers (PBDE)	0.000	0.000	0.000	0.000	0.000
non PRTR substances estimated by tool:							
PRTR Nr.	**CAS No.**	**Parameter**	**Treated Effluent Concentration (mg/l)**	**Fugitive Emission Concentration (mg/l)**	**Treated Effluent Mass emission (kg/annum)**	**Fugitive Emission Mass emission (kg/annum)**	**Total Mass Emission (kg/annum)**
N/A		Total Hardness (mg/l CaCO3)	201.750	291.000	135789.855	960.300	136750.155
N/A		Selenium	0.000	0.000	0.000	0.000	0.000
N/A		Antimony	0.000	0.000	0.104	0.002	0.106
N/A		Molybdenum	0.000	0.001	0.000	0.005	0.005
N/A		Tin	0.000	0.000	0.097	0.000	0.097
N/A		Barium	0.013	0.036	8.914	0.119	9.033
N/A		Boron	0.061	0.089	41.131	0.294	41.425
N/A		Cobalt	0.000	0.000	0.118	0.001	0.119
N/A		Vanadium	0.003	0.005	1.836	0.017	1.853
N/A		Dichlobenil	0.000	0.000	0.003	0.000	0.003
N/A		Linuron	0.000	0.000	0.000	0.000	0.000
N/A		Mecoprop	0.000	0.000	0.072	0.000	0.072
N/A		2,4-D	0.000	0.000	0.034	0.000	0.034
N/A		MCPA	0.000	0.000	0.060	0.000	0.060
N/A		Glyphosate	0.002	0.000	1.032	0.001	1.033
N/A		Benzo[a]pyrene	0.000	0.000	0.001	0.000	0.001
N/A		Benzo[b]fluoranthene	0.000	0.000	0.001	0.000	0.001
N/A		Benzo[k]fluoranthene	0.000	0.000	0.001	0.000	0.001
N/A		Indeno[1,2,3-c,d]pyrene	0.000	0.000	0.001	0.000	0.001
N/A		Carbon tetrachloride	0.000	0.000	0.000	0.000	0.000
N/A		2,6-Dichlorobenzamide	0.000	0.000	0.054	0.000	0.054
N/A		Dicofol	-	-	#VALUE!	#VALUE!	#VALUE!
N/A		Hexabromocyclododecane (HBCD)	0.000	0.000	0.000	0.000	0.000
N/A		PFOS	0.000	0.000	0.000	0.000	0.000

Facility Name:	Carrickmacross Waste Water Treatment Works
Address:	Magheross, Carrickmacross, Co. Monaghan.
Reporting year:	2013

Treated: Final effluent volume released via main emission point	673,060
Fugitive: Estimated additional volume released in storm bypasses	3,300
Total Annual Flow (m³/annum):	*676360*

SECTION A : WWTP SPECIFIC PRTR POLLUTANTS

Note '#VALUE!' error messages will disappear when flow data are entered above

POLLUTANT			Method Used		QUANTITY				E-PRTR reporting threshold kg/annum
No. Annex II	Name	M/E	Method of Measurement	Designation or Description	SW-1 Emission Point 1	F (Fugitive) kg/year	A (Accidental) kg/year *(Enter site specific data)*	T (Total) kg/year	
12	Total nitrogen	M	ALT	APHA 2320 (2005) by TN analyser. EW 140	9,631.489	77.484		9,708.973	50,000
13	Total phosphorus	M	ALT	APHA 4500 PJ (2005) Total Phosphorus by Ganimede. EW 146	442.873	14.174		457.047	5,000
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	6,205.460	43.237		6,248.697	50,000
79	Chlorides (as total Cl)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	36,426.007	213.840		36,639.847	2,000,000
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.973	0.009		1.983	50
83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	158.169	0.731		158.900	2,000
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.381	0.004		0.385	5
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.179	0.001		0.180	5
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.538	0.000		0.539	50
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.019	0.019		2.038	50
21	Mercury and compounds (as Hg)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.866	0.012		2.877	20
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.046	0.036		2.081	20
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	33.225	0.402		33.627	100
31	Chloroalkanes (C10-C13)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.141	0.001		0.142	1
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
26	Aldrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
35	Dieldrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
39	Endrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
41	Heptachlor	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
28	Chlordane	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
29	Chlordecone	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
46	Mirex	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
38	Endosulphan	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
45	Lindane	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
69	Isodrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
33	DDT	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
42	Hexachlorobenzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
43	Hexachlorobutadiene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
32	Chlorpyrifos	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.007	0.000		0.007	1
51	Simazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.009	0.000		0.010	1
37	Diuron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.018	0.000		0.018	1
67	Isoproturon	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.005	0.000		0.005	1
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
69	Organotin compounds(as total Sn)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	50
74	Tributyltin and compounds	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.008	0.001		0.008	5
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.000		0.001	1
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.002	0.000		0.002	1
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.003	0.000		0.003	10
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.002	0.000		0.002	1
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	0,1
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.606	0.008		1.614	1,000
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.040	0.000		0.040	10
53	Tetrachloromethane (TCM)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	10
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	10
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	10
35	Dichloromethane (DCM)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.031	0.000		0.031	10
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.612	0.267		0.879	20
87	Octylphenols and Octylphenol ethoxylates	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.056	0.004		0.059	1
54	Trichlorobenzenes (TCBs) (all isomers)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
49	Pentachlorophenol (PCP)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
62	Benzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.011	0.001		0.012	200
73	Toluene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.332	0.046		0.378	200
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.078	0.005		0.083	200
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.011	0.000		0.012	200
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.617	0.010		0.627	1
59	Toxaphene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1
90	Hexabromobiphenyl	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	0,1
63	Brominated diphenylethers (PBDE)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000	1

SECTION C : REMAINING NON-PRTR SUBSTANCES AND POLLUTANT EMISSIONS AS REQUIRED IN YOUR LICENCE

POLLUTANT			Method Used		QUANTITY			
					SW-1			
No. Annex II	Name	M/E	Method Code	Designation or Description *(Note: replace with site-specific data if applicable)*	Emission Point 1	F (Fugitive) kg/year	A (Accidental) kg/year *(Enter site specific data)*	T (Total) kg/year
370	Selenium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
205	Antimony (as Sb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.104	0.002		0.106
368	Molybdenum	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.005		0.005
358	Tin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.097	0.000		0.097
373	Barium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	8.914	0.119		9.033
374	Boron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	41.131	0.294		41.425
356	Cobalt	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.118	0.001		0.119
366	Vanadium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.836	0.017		1.853
388	Dichlobenil	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.003	0.000		0.003
383	Linuron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
385	Mecoprop Total	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.072	0.000		0.072
380	2,4 Dichlorophenol (2,4 D)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.034	0.000		0.034
384	MCPA	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.060	0.000		0.060
382	Glyphosate	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.032	0.001		1.033
389	Benzo(a)pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.000		0.001
390	Benzo(b)fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.000		0.001
391	Benzo(k)fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.000		0.001
392	Indeno(1,2,3-c,d)pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.000		0.001
393	Carbon tetrachloride	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
394	2,6-Dichlorobenzamide	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.054	0.000		0.054
395	Dicofol	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
396	Hexabromocyclodecane (HBCD)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
397	PFOS	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
238	Ammonia (as N)	M	ALT	APHA 4500NH3G (2005) Ammonia by Autoanalyser Spectrophotometry EW154	345.953	0.000		345.953
303	BOD	M	ALT	APHA 5210B (2005) EN1899-1:1998 BOD EW001	1,312.467	0.000		1,312.467
306	COD	M	ALT	APHA 5220D (2005) closed Reflux Colorimectric EW094	19,363.936	0.000		19,363.936
362	Kjeldahl Nitrogen	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
327	Nitrate (as N)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
372	Nitrite (as N)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.000	0.000		0.000
332	Ortho-phosphate (as PO4)	M	ALT	USEPA 365.1 (1983) Phodphate by Autoanalyser Spectrophotometry EW154	319.030	0.000		319.030
240	Suspended Solids	M	ALT	APHA 4500G (2005) Dissolved oxygen measurement EW013	4,401.812	0.000		4,401.812

Environmental Protection Agency- UWW PRTR Estimation Tool V5.0 Background Calculations Sheet

This sheet is where the actual calculations of the emissions take place, based on the data entered by the operator
THIS SHEET IS FOR REFERENCE PURPOSES ONLY

RELEASES TO AIR

1: Loadings and Works: Fugitive and Emission Point Releases

This section provides methods for estimating Fugitive and Emission Point (point source) emissions to air from UWWTPs based on the loadings to the plant and the details of the onsite works.
Enter details of the loading to the plant and the quantities and composition of sludge treated onsite or transferred offsite.

A Facility Loadings Data for Reporting Year	Value	TOW kg BOD / annum	TOW = "Total Organically biodegradable material in domestic (=municipal) Wastewater"
Total p.e. served	8,556	187,505	
Design p.e.	12,150	266,287	
Total influent BOD kg/annum (measured)	184,766	184,766	
Total Sludge removed offsite kg Dry Matter / annum	189,561	75,824	BOD content of sludge estimated at 40% of dry matter (NIR 2006, p103)
Total Sludge digested on-site kg Dry Matter / annum	0	0	BOD content of sludge estimated at 40% of dry matter (NIR 2006, p103)
Residual BOD net of sludge removed/digested kg/annum		108,962	This amount assumed to pass through the plant and to give rise to Fugitive CH4 and CO2 emissions via "Aerobic Plant"
p.e of residual BOD		4,972	For Plant CO2 generation estimate

8,432	Quality check p.e. of influent

B Works

- Indicate whether all tankage and associated works are covered and extracted to an on-site methane utilisation engine and / or to an on-site flare.
- Indicate whether sludge is treated on site by Anaerobic Digestion, and, if so, what is the annual proportion of offgas combusted in an on-site utilisation engine and / or flare (the remainder is assumed to be lost to atmosphere)

METHANE (CH4): Fugitive and emitted gas

B1 Aerobic plant	Status	MCF	Emission Factor (Bo x MCF)	CH4 calculations raw	CH4 calculations final	
Is the aerobic section of your plant fully aerobic?	Yes	0.00	0.00	0	0	Fugitive
All tanks covered and extracted to on-site flare?	No	0.00		0		
Residual BOD net of sludge removed kg/annum	0	1.00	proportion remaining after utilisation			
% of Headspace biogas flared (0 - 100)	0	1.00	proportion remaining after flaring			
Plant capacity overloaded?	No					
				Plant CO2 generation	136,233	Fugitive

B2 Onsite sludge treatment						
Anaerobic digestion on site?	N	0.00	0.00	0	0	Emission Point
% of Digester biogas utilised on site (0 - 100)	0	1.00	proportion remaining after utilisation			
% of Digester biogas flared (0 - 100)	0	1.00	proportion remaining after flaring			
TOTAL						

CARBON MONOXIDE (CO): Utilised / flared gas	Total CO			0	EMISSION POINT: (Very approxi
CARBON DIOXIDE (CO2): Utilised / flared gas AD	Total CO2	0.00	0	0	EMISSION POINT: This amount c
Nitrogen Oxides (NOx): Utilised / flared gas	Total NOx			0	EMISSION POINT: (Very approxi

Note: CO and NOx figures based on stoichiolometric relationships with CO2 - this is a preliminary measure and requires to be improved

		via p.e.	via influent BOD	Final	
NITROUS OXIDE (N2O)	Total N2O	1	1	1	Fugitive

C: Fuel Usage at the UWWTP

- Indicate overall annual diesel fuel use on the plant.

Total Diesel Use in the year	Tonne / year	0

Calculations relative to diesel used

PRTR Pollutant Number	Pollutant	Pollutant Emissions kg/Annum	
1	Methane (CH4)	0	
2	Carbon monoxide (CO)	0	
3	Carbon dioxide (CO2)	0	
5	Nitrous oxide (N2O)	0	
7	Non-methane volatile organic compounds (NMVC	0	
8	Nitrogen oxides (NOx/NO2)	0	
11	Sulphur oxides (SOx/SO2)	0	

Emission Factors

PRTR No	Pollutant		E.F kg/Tonne
1	Methane (CH4)	Air	0.055
2	Carbon monoxide (CO)	Air	10.722
3	Carbon dioxide (CO2)	Air	3160
5	Nitrous oxide (N2O)	Air	0.135
7	Non-methane volatile organic compounds (NMVOC)	Air	3.385
8	Nitrogen oxides (NOx/NO2)	Air	32.792
11	Sulphur oxides (SOx/SO2)	Air	3.2

RELEASES TO WATER

The data used in this **Toolset V5.0** for the **Estimation of the Releases to Water** of pollutants from UWWTPs is based real monitoring data from **11 Irish UWWTPs**.
This work was carried out as part of the **EPA's Effluent Characterisation Study** between June 2011 and July 2012.

A copy of the **Effluent Characterisation Study Final Report** can be found on the EPA website at the following link: http://www.epa.ie/downloads/pubs/water/wastewater/name,33984,en.html
Please refer to **Appendix C** of this Final Report for the **Validation of Emission Concentrations**.

Background to the Water Emissions Concentration Data in the Toolset V5.0
Effluent monitoring results from 4 Sampling Rounds were extracted from the study database and the average emission values were calculated for each parameter.
Some parametes were found to follow trends with the UWWTP catchment characteristics examined in this study. The extraction of results took the following approach:

No Trend Observed
Where no trend was observed for a parameter with the catchment characteristics, the full range of effluent monitoring results associated with that parameter from all waste water treatment plants was extracted and the average emission value was calculated.

Population Equivalent Trend
Certain parameters were identified as occurring more frequently and/or at higher concentrations in association with particular population equivalent bands. The PE bands allocated to the Tool are **<10,000PE', '10,000PE – 50,000PE', and '>50,000PE.**

Level of Treatment Trend
Certain parameters were identified as occurring more frequently and/or at higher concentrations in association with plants providing different types of treatment.
The treatment options allocated to the Toolset fall into two categories:
(a) Nutrient Removal, (b) Type of Treatment.
Effluent monitoring results for the parameters associated with treatment plants falling into each treatment category were extracted and the average value calculated to generate the emission concentration.

Inland / Coastal Location Trend
Certain parameters were identified as occurring more frequently and/or at higher concentrations depending on the location of the treatment plants.
The location options allocated to the Toolset are related to the **inland or coastal location** of the UWWTP, referred to as **saline intrusion or no saline intrusion** in the Toolset.
Effluent monitoring results for the parameters associated with treatment plants located coastally were extracted and the average emission value calculated to generate the emission concentrations.

Fugitive Emissions
Influent monitoring results from Sampling Round 2 were used to generate emission concentrations to be applied to fugitive emissions from storm overflows in the the Toolset.
Round 2 sampling was conducted in storm conditions. It was considered that the Round 2 influent monitoring is closely representative of typical fugitive emissions from storm overflows, following first flush.

Environmental Protection Agency

Guidance to completing the PRTR workbook

AER Returns Workbook

Version 1.1.17

REFERENCE YEAR	2013

1. FACILITY IDENTIFICATION

Parent Company Name	Monaghan County Council
Facility Name	Carrickmacross Waste Water Treatment Plant
PRTR Identification Number	D0062
Licence Number	D0062-01

Waste or IPPC Classes of Activity

No.	class_name
30.4	General

Address 1	County Offices
Address 2	The Glen
Address 3	Monaghan
Address 4	
Country	Ireland
Coordinates of Location	-6.711 53.968
River Basin District	GBNIIENB
NACE Code	3700
Main Economic Activity	Sewerage
AER Returns Contact Name	Siobhan Mallon
AER Returns Contact Email Address	smallon@monaghancoco.ie
AER Returns Contact Position	A. Engineer
AER Returns Contact Telephone Number	047 30574
AER Returns Contact Mobile Phone Number	
AER Returns Contact Fax Number	047 82739
Production Volume	673060.0
Production Volume Units	M3/year
Number of Installations	1
Number of Operating Hours in Year	8736
Number of Employees	1
User Feedback/Comments	2013 was a relatively dry year, whereas 2012 had more rainfall and thus inflows to the WWTP were higher. Average flows to the WWTP in 2013 were lower as a result of this.
Web Address	

2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
5(f)	Urban waste-water treatment plants

3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

4. WASTE IMPORTED/ACCEPTED ONTO SITE

Guidance on waste imported/accepted onto site

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	

This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR

Link to previous years emissions data

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
01	Methane (CH4)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
02	Carbon monoxide (CO)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
03	Carbon dioxide (CO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	136233.0	0.0	136233.0
05	Nitrous oxide (N2O)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	1.0	0.0	1.0
07	Non-methane volatile organic compounds (NMVOC)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
08	Nitrogen oxides (NOx/NO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
11	Sulphur oxides (SOx/SO2)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)

RELEASES TO AIR					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD				QUANTITY		
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

Additional Data Requested from Landfill operators

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill:
Please enter summary data on the quantities of methane flared and / or utilised

Carrickmacross Waste Water Treatment Plant

	T (Total) kg/Year	M/C/E	Method Used: Method Code	Method Used: Designation or Description	Facility Total Capacity m3 per hour	
Total estimated methane generation (as per site model)	0.0				N/A	
Methane flared	0.0				0.0	(Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0	(Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A	

4.2 RELEASES TO WATERS

Link to previous years emissions data

| PRTR# : D0062 | Facility Name : Carrickmacross Waste Water Treatment Plant | Filename : D0062_2013.xls | Return Year : 2013 | 27/02/2014 12:39

SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this on

RELEASES TO WATERS — Please enter all quantities in this section in KGs

POLLUTANT			Method Used		QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
34	1,2-dichloroethane (EDC)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
25	Alachlor	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
26	Aldrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
61	Anthracene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.002	0.002	0.0	0.0
17	Arsenic and compounds (as As)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.381	0.385	0.0	0.004
27	Atrazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.007	0.007	0.0	0.0
62	Benzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.011	0.012	0.0	0.001
91	Benzo(g,h,i)perylene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.001	0.0	0.0
63	Brominated diphenylethers (PBDE)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
18	Cadmium and compounds (as Cd)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.179	0.18	0.0	0.001
28	Chlordane	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
29	Chlordecone	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
30	Chlorfenvinphos	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
79	Chlorides (as Cl)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	36426.007	36639.847	0.0	213.84
31	Chloro-alkanes, C10-C13	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.141	0.142	0.0	0.001
32	Chlorpyrifos	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
19	Chromium and compounds (as Cr)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.538	0.538	0.0	0.0
20	Copper and compounds (as Cu)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.019	2.038	0.0	0.019
82	Cyanides (as total CN)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.973	1.982	0.0	0.009
33	DDT	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
70	Di-(2-ethyl hexyl) phthalate (DEHP)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.617	0.627	0.0	0.01
35	Dichloromethane (DCM)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.031	0.031	0.0	0.0
36	Dieldrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
37	Diuron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.018	0.018	0.0	0.0
38	Endosulphan	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
39	Endrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
65	Ethyl benzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.011	0.011	0.0	0.0
88	Fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.002	0.002	0.0	0.0

83	Fluorides (as total F)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	158.169	158.9	0.0	0.731
40	Halogenated organic compounds (as AOX)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.606	1.614	0.0	0.008
41	Heptachlor	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
90	Hexabromobiphenyl	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
42	Hexachlorobenzene (HCB)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
43	Hexachlorobutadiene (HCBD)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
89	Isodrin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
67	Isoproturon	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.005	0.005	0.0	0.0
23	Lead and compounds (as Pb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.046	2.082	0.0	0.036
45	Lindane	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
21	Mercury and compounds (as Hg)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
46	Mirex	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
68	Naphthalene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.003	0.003	0.0	0.0
22	Nickel and compounds (as Ni)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	2.866	2.878	0.0	0.012
64	Nonylphenol and Nonylphenol ethoxylates (NP/NPEs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.056	0.06	0.0	0.004
87	Octylphenols and Octylphenol ethoxylates	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
69	Organotin compounds (as total Sn)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
48	Pentachlorobenzene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
49	Pentachlorophenol (PCP)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
71	Phenols (as total C)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.612	0.879	0.0	0.267
50	Polychlorinated biphenyls (PCBs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
72	Polycyclic aromatic hydrocarbons (PAHs)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.008	0.009	0.0	0.001
51	Simazine	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.009	0.009	0.0	0.0
52	Tetrachloroethylene (PER)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.04	0.04	0.0	0.0
53	Tetrachloromethane (TCM)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
73	Toluene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.332	0.378	0.0	0.046
12	Total nitrogen	M	ALT	APHA 2320 (2005) by TN analyser. EW 140	9631.489	9708.973	0.0	77.484
76	Total organic carbon (TOC) (as total C or COD/3)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	6205.46	6248.697	0.0	43.237
13	Total phosphorus	M	ALT	APHA 4500 PJ (2005) Total Phosphorus by Ganimede. EW 146	442.873	457.047	0.0	14.174
59	Toxaphene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
74	Tributyltin and compounds	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0

54	Trichlorobenzenes (TCBs)(all isomers)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
57	Trichloroethylene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
77	Trifluralin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
75	Triphenyltin and compounds	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
60	Vinyl chloride	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
78	Xylenes	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.078	0.083	0.0	0.005
24	Zinc and compounds (as Zn)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	33.225	33.627	0.0	0.402

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING PRTR POLLUTANTS

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT					QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
370	Selenium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
205	Antimony (as Sb)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.104	0.106	0.0	0.002
368	Molybdenum	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.005	0.0	0.005
358	Tin	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.097	0.097	0.0	0.0
373	Barium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	8.914	9.033	0.0	0.119
374	Boron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	41.131	41.425	0.0	0.294
356	Cobalt	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.118	0.119	0.0	0.001
386	Vanadium	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.836	1.853	0.0	0.017
388	Dichlobenil	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.003	0.003	0.0	0.0
383	Linuron	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
385	Mecoprop Total	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.072	0.072	0.0	0.0
380	2,4 Dichlorophenol (2,4 D)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.034	0.034	0.0	0.0
384	MCPA	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.06	0.06	0.0	0.0
382	Glyphosate	E	ESTIMATE	EPA UWWTP Tool Version 5.0	1.032	1.033	0.0	0.001
389	Benzo[a]pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.001	0.0	0.0
390	Benzo[b]fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.001	0.0	0.0
391	Benzo[k]fluoranthene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.001	0.0	0.0

392	Indeno[1,2,3-c,d]pyrene	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.001	0.001	0.0	0.0
393	Carbon tetrachloride	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
394	2,6-Dichlorobenzamide	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.054	0.054	0.0	0.0
395	Dicofol	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
396	Hexabromocyclodecane (HBCD)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
397	PFOS	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
238	Ammonia (as N)	M	ALT	APHA 4500NH3G (2005) Ammonia by Autoanalyser Spectrophotometry EW154	345.953	345.953	0.0	0.0
303	BOD	M	ALT	APHA 5210B (2005) EN1899-1:1998 BOD EW001	1312.467	1312.467	0.0	0.0
306	COD	M	ALT	APHA 5220D (2005) closed Reflux Colorimectric. EW094	19363.936	19363.936	0.0	0.0
362	Kjeldahl Nitrogen	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
327	Nitrate (as N)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
372	Nitrite (as N)	E	ESTIMATE	EPA UWWTP Tool Version 5.0	0.0	0.0	0.0	0.0
332	Ortho-phosphate (as PO4)	M	ALT	USEPA 365.1 (1983) Phodphate by Autoanalyser Spectrophotometry EW154	319.03	319.03	0.0	0.0
240	Suspended Solids	M	ALT	APHA 4500G (2005) Dissolved oxygen measurement EW013	4401.812	4401.812	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

Link to previous years emissions data

| PRTR# : D0002 | Facility Name : Carrickmacross Waste Water Treatment Plant | Filename : D0002 27/02/2014 12:40

SECTION A : PRTR POLLUTANTS

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
			Method Used					
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

Link to previous years emissions data

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND					Please enter all quantities in this section in KGs		
POLLUTANT		METHOD			QUANTITY		
			Method Used				
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

| PRTR# : D0062 | Facility Name : Carrickmacross Waste Water Treatment Plant | Filename : D0062_2013.xls | Return Year : 2013 |

27/02/2014 12:40

3

Please enter all quantities on this sheet in Tonnes

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Haz Waste : Name and Licence/Permit No of Next Destination Facility Non Haz Waste: Name and Licence/Permit No of Recover/Disposer	Haz Waste : Address of Next Destination Facility Non Haz Waste: Address of Recover/Disposer	Name and License / Permit No. and Address of Final Recoverer / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
Within the Country	19 08 01	No	10.9	screenings	D5	M	Weighed	Offsite in Ireland	Euromex T/A McElvaney's Waste & Recycling.,WCP/MH/2005/89B	Corcaghan,.,.,Co. Monaghan,Ireland		
Within the Country	19 08 05	No	1263.74	sludges from treatment of urban waste water	R10	M	Weighed	Offsite in Ireland	BioCore Environmental Ltd ,WCP/DC/11/1342/01	Clarity House,Belgard Road,Tallaght,Dublin 24,Ireland		

* Select a row by double-clicking the Description of Waste then click the delete button

Carrickmacross	Flow Weighted Mass Emission Calculations													
Effluent			BOD		COD		TSS		Total P		Total N		Ammonia	
Location	Date of Sampling	Daily Outflow M3	BOD mg/l	Daily mass load (kg/day)	COD mg/l	Daily mass load (kg/day)	TSS mg/l	Daily mass load (kg/day)	Total P mg/l P	Daily mass load (kg/day)	Total N mg/l N	Daily mass load (kg/day)	Ammonia NH4	Daily mass load (kg/day)
Carrickmacross	27/01/2013	4012	2.00	8.02	19.00	76.23	12.00	48.14	0.556	2.23	12.94	51.92	0.937	3.76
Carrickmacross	27/02/2013	1910	2.00	3.82	58.00	110.78	6.00	11.46	0.814	1.55	15.61	29.82	0.789	1.51
Carrickmacross	21/03/2013	2597	0.90	2.34	61.00	158.42	2.00	5.19	0.760	1.97	25.77	66.92	0.154	0.40
Carrickmacross	24/04/2013	1829	2.00	3.66	29.00	53.04	1.00	1.83	1.120	2.05	12.79	23.39	0.142	0.26
Carrickmacross	20/05/2013	1089	6.00	6.53	43.00	46.83	10.00	10.89	0.897	0.98	6.81	7.42	4.030	4.39
Carrickmacross	24/06/2013	1301	3.00	3.90	24.00	31.22	18.00	23.42	0.736	0.96	9.87	12.84	0.132	0.17
Carrickmacross	26/07/2013	1644	0.90	1.48	1.00	1.64	9.00	14.80	0.367	0.60	14.21	23.36	0.071	0.12
Carrickmacross	14/08/2013	1728	0.90	1.56	25.00	43.20	6.00	10.37	0.233	0.40	21.98	37.98	0.037	0.06
Carrickmacross	20/08/2013	1441	0.90	1.30	27.00	38.91	1.00	1.44	0.271	0.39	18.57	26.76	0.113	0.16
Carrickmacross	24/09/2013	1064	0.90	0.96	29.00	30.86	7.00	7.45	0.531	0.56	9.94	10.58	0.093	0.10
Carrickmacross	29/10/2013	1486	0.90	1.34	14.00	20.80	4.00	5.94	0.120	0.18	7.50	11.15	0.027	0.04
Carrickmacross	19/11/2013	2083	4.00	8.33	21.00	43.74	7.00	14.58	0.217	0.45	10.37	21.60	0.053	0.11
Carrickmacross	09/12/2013	1090	0.90	0.98	23.00	25.07	2.00	2.18	1.930	2.10	19.62	21.39	0.100	0.11
	Total	23,274												
A - Sum of Daily Mass Loads (Kg/day)				44.22		680.74		157.69		14.44		345.11		11.19
B - Sum of Daily Flows for which Mass loadings are available (m3/day)				23274		23274		23,274		23,274		23,274		23,274
C - Flow weighted average concentration (A/B) -kg/m3				0.00190		0.029249		0.0067755		0.00062		0.01483		0.00048072
D - Total annual Flow M3				673060		673060		673060		673060		673060		673060
E - Flow weighted Mass emmission for 2013 (CxD) -kg/annum				**1278.68**		**19686.33**		**4560.32**		**417.52**		**9980.36**		**323.55**
				BOD		COD		TSS		Total P		Total N		Ammonia