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

WASTE WATER DISCHARGE LICENCE REGISTER NUMBER: D0346 AGGLOMERATION: Emyvale Village ANNUAL ENVIRONMENTAL REPORT 1st JANUARY 2013 - 31st DECEMBER 2013

County Manager: E Cummins
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Senior Engineer: C McCrossan

Emyvale Waste Water Treatment Plant – Annual Environmental Report 2013

Document Amendment Record

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Plant: Emyvale Waste Water Treatment Plant
Title: Annual Environmental Report 2013

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Table of Contents

Section 1. Executive Summary and Introduction to the 2013 AER

1.1 Summary report on 2013

This is the second Annual Environmental Report (AER) for Emyvale Village Wastewater Treatment Plant.

The Environmental Protection Agency granted a Waste Water Discharge Licence (Register No. D0346) in respect of the agglomeration named, to Monaghan County Council on the 23rd May 2012.

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 the Emyvale agglomeration includes the information specified in Schedule D of the Wastewater Discharge Licence D0346.

Emyvale is a village in County Monaghan and is located approximately 11km North of Monaghan town. Emyvale Wastewater treatment works underwent major extension and upgrading works completed in 2008, to expand the WWTP from 825 design P.E to 2,000 P.E. The Waste Water Works comprises of a gravity collection system with pumping stations due to the topography of the catchment area and a Waste Water Treatment Works with a design capacity of 2,000 P.E.

The plant provides secondary treatment with nutrient removal (phosphorus reduction) for the effluent. The Waste Water Treatment Plant (WWTP) comprises of primary settlement, rotating biological contactors, trickling filter towers, final settlement tanks, phosphorus reduction (ferric dosing), return sludge system and storm storage. Desludging of the primary settlement tanks is carried out periodically during the year and transferred by licensed haulier to Monaghan WWTP for further treatment. There is one storm water overflow (SWO) from a storm tank at the WWTP, this SWO is listed in the discharge licence as discharging via the primary discharge. Monaghan County Council wishes to clarify to the EPA that this SWO discharges separately to the Mountain Water River from the Primary Discharge location, upstream of the discharge point. A technical amendment is required to be submitted to the EPA regarding this matter.

The SWO would only activate during periods of prolonged rainfall or storm conditions at the plant.

The primary discharge of the Waste Water Works is to the Mountain Water River at 267964E, 343554N in the town land of Derrygasson Upper, Co. Monaghan.

The Mountain Water River is not a designated Salmonid Water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988) nor is it identified as sensitive water in terms of the Urban Waste Water Treatment Regulations 2001. The river is not designated as an SPA, SAC or NHA.

The Mountain Water River is in the Neagh Bann river basin district with overall status classified as '1a' –Poor status 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 Emyvale WWTP discharge on the river is categorised as '1a –at risk' and the combined storm overflows (CSOs) categorised as '2b – not at risk', however the Blackwater Water Management Unit Action Plan (WMU) states that EPA licence information suggests that Emyvale WWTP is not impacting on the receiving water as there is adequate dilution in the river, for the discharge (Ref. WFD website & reports).
There are no known combined sewer overflows on the Emyvale network.
The discharge from the Emyvale WWTP had two exceedances in 2013, one allowable exceedance (<150%) for Suspended Solids on 26/11/2013 at 36mg/l and one exceedance for Ammonia on 30/07/2013 above the allowable limit at 4.383mg/l, which was reported to the EPA under incident number INC002267. There was no obvious cause for this Ammonia exceedance at the Waste Water Treatment Plant (WWTP) and the trend prior to and after this exceedance for Ammonia is under the Emission Limit Value (ELV) for this parameter. The downstream result on the same date is under the 'mean' Surface Water Environmental Quality Standard (EQS) for ammonia in the receiving water.

The ambient monitoring results for 2013 indicate that the Environmental Quality Standards (Surface Water Reg's 2009) for BOD, Ortho P (MRP) and Total Ammonia are exceeded at times upstream and downstream of the WWTP, with little variation between upstream and downstream results thus indicating that there are other sources affecting the receiving water quality. The average BOD figures both upstream and downstream are under the EQS of 1.5mg/l. Ortho Phosphorus average results are under the 'mean' EQS both upstream and downstream, with one of the upstream and two of the downstream results above the EQS of 0.035mg/l. Total Ammonia average figures are under the 'mean' EQS both upstream and downstream of the WWTP, with one result upstream and downstream on different dates exceeding the 'mean' EQS (0.065mg/l).

Under Schedule C.1 of the licence, '*Specified Improvement Programme', 'Commissioning and operation of the ferric Sulphate dosing unit'* is specified with completion date of 1st January 2013. The ferric dosing unit has been commissioned and is operating at the Emyvale WWTP.

No other specified improvement works are specified for the Emyvale WWTP.

Section 2. Monitoring Reports Summary

2.1 Summary report on monthly influent monitoring

Monaghan County Council's summary on influent monitoring for Emyvale WWTP is tabulated in tables 1, 1.1 and 2.2 attached in appendix 1. As required under condition 4.15 of the licence, bi-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 table 1. A summary of the removal efficiencies for the WWTP is as follows:

BOD – range 97 -99%, average 99%
COD – range 88 – 96%, average 95%
SS – range 79 – 90%, average 95%
TP – range 88 – 96%, average 94%

Total Nitrogen results vary with one result dated 11/06/2013 detailing lower influent Total Nitrogen figures than effluent, thus giving a negative removal efficiency result. The remaining results give a TN range 22 – 81%, average removal efficiency of 51%. There is no specific removal facility at the WWTP for the removal of nitrogen such as an anoxic tank.

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	VolumetricLoading m3/day	Loading PE/day
Number of samples	8	8	8	8	8	n/a	n/a
Maximum result	600.00	1431.00	993.00	12.20	77.30	210	
Annual Mean	408.86	1062.29	348.43	9.089	53.47	123	836

Table 1.2

Remaining Hydraulic & Organic treatment capacities summary table:	
Hydraulic Capacity - Design (M^3/day)	360
Hydraulic Capacity - Current loading (M^3/day)	123
Hydraulic Capacity - Remaining (M^3/day)	**237**
Organic Capacity - Design (PE)	2000
Organic Capacity - Current loading (PE)	836
Organic Capacity - Remaining (PE)	**1164**
Will the capacity be exceeded in the next 3 years?	no

The influent monitoring summary table 1.1 above details the number of influent samples taken, the maximum and mean results for each parameter and the organic and hydraulic loading for the WWTP in 2013. The design capacity of the Emyvale 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.

2.2 Discharges from the agglomeration

A summary presentation of monitoring results for the primary discharge (National Grid Reference 267964E, 343554N) 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. Six samples are required under schedule B of the licence, nine samples were collected. pH monitoring is required daily for the effluent, this is recorded daily 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 lowest figure recorded 6.66 (14/06/2013) and the highest figure 8.19 (7/12/2013).

The discharge from the Emyvale WWTP had two exceedances in 2013, one allowable exceedance (<150%) for Suspended Solids on 26/11/2013 at 36mg/l and one exceedance for Ammonia on 30/07/2013 above the allowable limit at 4.383mg/l, which was reported to the EPA under incident number INC002267. There was no obvious cause for this Ammonia exceedance at the Waste Water Treatment Plant (WWTP) and the trend prior to and after this exceedance for Ammonia is under the Emission Limit Value (ELV) for this parameter. The downstream result on the same date is under the 'mean' Surface Water Environmental Quality Standard (EQS) for ammonia in the receiving water, thus indicating that there impact from this exceedance was minimal on the receiving water. This incident is closed.

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.1 of the licence, there is a requirement that, *Priority Substances that are identified by the licensee in the effluent after undertaking a 'risk based assessment in accordance with the Guidance on the screening for Priority Substances for Waste Water Discharge Licences'*, should be monitored at least annually, by the licensee. A desktop study is undertaken as follows:

The Emyvale WWTP catchment area serves a small rural village comprising primarily of domestic dwellings, along with a, community centre and local shops. There are no industrial inputs to the waste water works, or disposal of same at the waste water works. It can therefore be concluded from this desktop overview that there is no further screening necessary or required for organic compounds or metals. Furthermore, in 2009 when the initial discharge licence application for Emyvale was compiled, monitoring of the influent and

effluent discharges and upstream and downstream locations in the receiving Mountain River Water was undertaken and analysed for dangerous substances and submitted with the application. There were no elevated levels of these compounds in the discharge as reported. It is therefore concluded that no further screening is required for the Emyvale WWTP with regard to Priority substances.

2.3 Ambient monitoring summary

A summary presentation of the ambient monitoring results for the upstream (National grid reference 267744E 343773N) and downstream (National grid reference 268460E 343137N) receiving waters is tabulated in tables 2.3 and 2.4 attached in appendix 1.

The primary discharge from the Waste Water Works is to the Mountain Water River at 267964E, 343554N in the town land of Derrygasson Upper, Co. Monaghan.

The Mountain Water River is not a designated Salmonid Water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988) nor is it identified as sensitive water in terms of the Urban Waste Water Treatment Regulations 2001. The river is not designated as an SPA, SAC or NHA.

The Mountain Water River is in the Neagh Bann river basin district with overall status classified as '1a' –Poor status 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 Emyvale WWTP discharge on the river is categorised as '1a –at risk' and the combined storm overflows (CSOs) categorised as '2b – not at risk', however the Blackwater Water Management Unit Action Plan (WMU) states that EPA licence information suggests that Emyvale WWTP is not impacting on the receiving water as there is adequate dilution in the river, for the discharge (Ref. WFD website & reports).

Six samples per year are required under schedule B.4 of the licence for the ambient monitoring for the receiving Mountain River water, eight sample analyses were carried out in 2013 (refer tables 2.3 and 2.4, Appendix 1). Dissolved Oxygen (DO) results recorded were all above 8mg/l and pH results between 6 and 9 in the receiving waters. The results are assessed against the Surface Water Quality Regulations 2009, Environmental Quality Standards (EQS) for BOD, Total Ammonia and MRP (Ortho P) for Good Status Rivers at 'mean' flows. BOD Environmental Quality Standards (EQS) (Surface Water Reg's 2009) (1.5mg/l) are exceeded upstream and downstream of the WWTP, with little variation between upstream and downstream results thus indicating that there are other sources affecting the receiving water quality in terms of BOD. Ortho Phosphorus average results are under the 'mean' EQS (<0.035mg/l) both upstream and downstream with two results slightly above the EQS downstream and one upstream, total Ammonia average figures are under the 'mean' EQS (0.065mg/l) both upstream and downstream of the WWTP, with some results higher upstream than downstream on the same dates, thus indicating that there are other sources affecting the receiving water quality in terms of Ortho P. From this assessment, it is concluded that

there is no significant impact from the discharge of the Emyvale agglomeration on the receiving water quality.

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).

The PRTR is not required for the Emyvale agglomeration as the p.e. is between 1,001 and 2,000.

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)	400	1037	344	9	44	
Effluent mass emission (kg/day)	4.80	47.86	17.63	0.58	21.72	
% Efficiency (% reduction of influent load)	98.80	95.38	94.87	93.55	50.53	

The Emyvale WWTP is generally considered to be operating efficiently as effluent results are compliant for 2013 with the exception of one reported incident for ammonia. The WWTP is achieving adequate removal efficiencies (average over 93%, ref. Table 1.3) for BOD, COD, TSS and TP.
Removal efficiencies for the parameter TN vary greatly throughout the year from 22% to 81%, averaging 51% over the year. There is no specific removal facility at the WWTP for the removal of nitrogen such as an anoxic tank.

3.2 Treatment Capacity Report

This assessment has been completed in section 2.1(table 1.2) of this report.

3.3 Complaints Summary

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

3.4 Reported Incidents Summary

The discharge from the Emyvale WWTP had two exceedances in 2013, one allowable exceedance (first failure allowable <150%, condition 2 licence) for Suspended Solids on 26/11/2013 at 36mg/l and one exceedance for Ammonia on 30/07/2013 above the allowable limit at 4.383mg/l, which was reported to the EPA under incident number INC002267. There was no obvious cause for this ammonia exceedance at the Waste Water Treatment Plant (WWTP) and the trend prior to and after this exceedance for ammonia is under the Emission Limit Value (ELV) for this parameter. The downstream result on the same date is under the 'mean' Surface Water Environmental Quality Standard (EQS) for ammonia in the receiving water, thus indicating

that the impact from this exceedance was minimal on the receiving water. This incident is closed.

Summary of Incidents tables:

Incident Type	Incident description	Cause	No. of incidents	Corrective Action	Authorities Contacted	Reported to EPA	Closed
ELV exceedance	Ammonia ELV exceedance 4.383mg/l	No cause identified, normal WWTP activities	1	None, trend under ELV prior to and after exceedance	Yea, Inland Fisheries.	Yes	Yes

Number of Incidents in 2013	1
No. Incidents reported to EPA via EDEN in 2013	1
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 of the licence, a report on the investigation for the identification and assessment of storm water overflows is required to be submitted as part of the second AER, including a determination of compliance with the criteria for storm water overflows as set out in the DoECLG document '*procedures and Criteria in Relation to Storm Water Overflows,*' 1995.
There are no known storm water overflows (SWO) within the sewerage network of the Emyvale agglomeration. There is one storm water overflow (SWO) from a storm tank at the WWTP, this SWO is listed under schedule A.4 in the discharge licence as discharging via the primary discharge. Monaghan County Council wishes to clarify to the EPA that this SWO discharges separately to the Mountain Water River from the Primary Discharge location, upstream of the discharge point at IGS 267952E, 343568N. A technical amendment is required to be submitted to the EPA regarding this matter.
The existing storm tank at the Emyvale WWTP was an imhoff tank until upgrade works at the WWTP were completed in 2008 and it was modified with pumps fitted to work as a storm tank at the WWTP. In storm conditions excess flow from the inlet works flow into the storm tank until storm conditions subside, the stored storm water is pumped back to the inlet works when storm conditions subside. In extreme storm conditions whereby the storm tank fills to capacity and the treatment works is still operating at full capacity, the SWO will discharge to the Mountain River from the tank. The storm water overflow was therefore not designed to the criteria in the aforementioned DoECLG document, as it was an existing tank at the WWTP.
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 as it activates rarely, only in prolonged or storm conditions and there is no monitoring device on it. However, it is concluded that there would be minimal deterioration in water quality in the receiving water when it operates, as discharge would be diluted due to storm water inflows coinciding with high river flows, thus maximising the assimilative capacity of the receiving water.
(3) It does not give rise to failure in meeting the requirements of national Regulations on foot of EU Directives as it is not a bathing water, nor a designated River.
(4) It does not operate in dry weather.

Section 5, *'Options following Assessment'*

The 'use of storage' option is considered under this document as the SWO is from a storm tank.

Section 7, *'Use of Storage'*

The existing storm tank was not designed or sized for any specific storm return period or duration, as it is a modified imhoff tank. The storm tank volume equates to approximately 175m3, the WWTP average flow figure for 2013 is 122m3, with a Dry Weather Flow (DFW) of 70m3. The capacity of the storm tank is 1.7 times the DWF of the plant.

Appendix 1, Table 2:

A. *'Low Significance SWOs'*

The Emyvale SWO is in the 'Low significance SWO' category.

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

The volume of the storm tank is assessed using Appendix 2, Table 3 of the DoECLG document as follows:

The dilution factor is the river at 95 percentile river flows relative to the dry weather flow to the plant calculated as follows:

WWTP DWF =	70m3/day = 0.000810m3/s
Mountain Water River 95% flow =	0.051m3/s
Dilution Factor =	(0.0051/0.000810) = 6.3

The storm tank volume required based on a dilution factor > 6 is 'None' (ref Table 3, Appendix 2, DoECLG document). As there is a storage tank employed at the WWTP, it is deemed to comply with this part of the document.

From the assessment of this SWO in relation to the 'Procedures and criteria in relation to Storm Water Overflows', 1995 document, it is concluded that the SWO complies 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	SWO
IGR	267952E, 343568N
Included in Schedule A4 of the WWDL	Yes
Compliance with DoEHLG Criteria	Complies as assessed in Section 4.1 of this document
No. of times activated in 2013	2
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.

As per condition 5.1 of the licence, a programme of infrastructural improvements to maximise the efficiency and effectiveness of the waste water works shall be prepared and submitted:

The treatment capacity and removal efficiencies of the Emyvale WWTP are addressed in section 2.1 and 3.1 of this report.

Under Schedule C.1 of the licence, '*Specified Improvement Programme*', '*Commissioning and operation of the ferric Sulphate dosing unit*' is specified with completion date of 1st January 2013. The ferric dosing unit has been commissioned and is operating at the Emyvale WWTP.

No other specified improvement works are specified for the Emyvale WWTP. There are no planned improvement works for the Emyvale WWTP.

Under condition 5.2 (a) of the licence, the programme of infrastructural improvements shall include an assessment of the waste water treatment plant having regard to the effectiveness of the treatment provided by reference to the following:

(i) The existing level of treatment, capacity of treatment plant and associated equipment:

As addressed in section 2.1 and 3.1 of this report the existing level of treatment at the plant is considered generally adequate based on ELV compliance and removal efficiencies. There is adequate capacity at the treatment plant (ref section 2.1, Table 1.2).

(ii) The emission limit values specified in Schedule A: Discharges, of this licence:

There were two exceedances of ELVs in 2013 with one of them a reportable incident to the EPA with no identified cause and following results under ELV. No improvements are deemed necessary with regard to ELVs.

(iii) The designations of the receiving water body:

The Mountain Water River is not a designated Salmonid Water (under the European Communities (Quality of Salmonid Waters) Regulations, 1988) nor is it identified as sensitive water in terms of the Urban Waste Water Treatment Regulations 2001. The river is not designated as an SPA, SAC or NHA.
The Mountain Water River is in the Neagh Bann river basin district with overall status classified as '1a' –Poor status 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 Emyvale WWTP discharge on the river is categorised as '1a –at risk' and the combined storm overflows (CSOs) categorised as '2b – not at risk', however the Blackwater Water Management Unit Action Plan (WMU) states that EPA licence information suggests that Emyvale WWTP is not impacting on the receiving water as there is adequate dilution in the river, for the discharge (Ref. WFD website & reports).
Ambient monitoring results were assessed in section 2.3 of this report and it is concluded that there is no significant impact from the discharge of the Emyvale agglomeration on the receiving water quality.

(iv) Water quality objective for the receiving water body:

This item is addressed in point no. 4.2 (iii) above.

(v) The standards and volumetric limitations applied to any industrial waste water that is licensed to discharge to the waste water works:

There are no industries licensed to discharge to the waste water works.

Under condition 5.2 (b) of the licence, the programme of infrastructural improvements shall include an assessment of the integrity of the waste water works having regard to:

(i) Capacity of the waste water works:

There is adequate capacity at the treatment plant (ref section 2.1, Table 1.2).

(ii) Leaks from the waste water works:

There are no known leaks at the WWTP site.

(iii) Misconnections between foul sewers and surface water drainage network:

There are no known misconnections on the Emyvale network.

(iv) (v) Infiltration by surface water/ground water:

Emyvale network is a combined system, during storm conditions/periods of extensive rainfall, inflows into the Emyvale WWTP increase greatly. It is unknown if there is infiltration by surface/ground water into the network. A CCTV survey of the network would identify any defects in the network and any remedial works required.

Under condition 5.2 (c) of the licence, the programme of infrastructural improvements shall include an assessment of all storm water overflows associated with the waste water works to determine the effectiveness of their operation and in particular identify improvements necessary to comply with the requirements of this licence:

There are no specified improvement works in the Emyvale discharge licence in relation to storm water overflows.

An assessment of the SWO from a storm tank at the WWTP in relation to the 'Procedures and criteria in relation to Storm Water Overflows', 1995 document, was addressed in section 4.1 of this report, it is concluded that the SWO complies with the document as assessed under section 4.1.

Condition 5.3 (a) and (b) of the licence, the programme of infrastructural improvements shall include a plan for implantation for each individual improvement identified:

Under Schedule C.1 of the licence, '*Specified Improvement Programme', 'Commissioning and operation of the ferric Sulphate dosing unit'* is specified with completion date of 1st January 2013. The ferric dosing unit has been commissioned and is operating at the Emyvale WWTP.

There are no other specified improvement works under schedule C of the discharge licence. One individual improvement identified for the Emyvale sewer network is to carry out a CCTV survey of the network to identify and carry out remedial works necessary on the network.

Specified Improvement Programme summary report

Specified Improvement Programmes	Licence Schedule (A or C)	Licence completion date	Date expired	Status of Works	% const. work completed	Licensee timeframe for completing the work	Comments
Commissioning and operation of ferric sulphate dosing unit	C	1st Jan 2013	Yes	complete	N/A	N/A	

Improvement Summary Table

Improvement Identifier	Improvement Description	Improvement Source	Progress (% completed)	Expected Completion Date
High inflows into the Emyvale WWTP during storm conditions/periods of heavy rainfall	CCTV survey of network & remedial measures identified carried out	WWTP assessment (Condition 5.3)	0%	Dependant on Irish Water Funding
No record of SWO activating or measurement or flows.	Install SWO measurement/recorder device to measure flows/record no. times it activates	Cond. 4.1 of this report	0%	Dependant on Irish Water 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	Yes	Yes	Section 2.2
Drinking Water Abstraction Point Risk Assessment	No	No	N/A
Habitats Impact Assessment	No	No	N/A
Shellfish Impact Assessment	No	No	N/A
Pearl Mussel Report	No	No	N/A
Toxicity/Leachate Management	No	No	N/A
Toxicity of Final Effluent Report	No	No	N/A

Section 6. Certification and Sign Off

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
High inflows into the Emyvale WWTP during storm conditions/periods of heavy rainfall		CCTV survey of network & remedial measures identified carried out			Dependant on Irish Water Funding	C McCrossan
No record of SWO activating or measurement or flows.		Install SWO measurement/recorder device to measure flows/record no. times it activates his report			Dependant on Irish Water Funding	C McCrossan

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

Signed: Con Mc Crossan **Job Title:** A/SE

Name: Con Mc Crossan **Date:** 17/2/2014

Certification and Sign Off

Does the AER include and executive summary	Yes
Does the AER include and 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?	Yes
List reason e.g. additional SWO identified	Existing SWO from storm tank – discharge point incorrect in licence.
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)	No
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 Mc Cossan Date: 17/2/2014

Position in Organisation: AISE

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 Emyvale 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

Emyvale Influent monthly monitoring template - as per condition 4.14 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 %
Emyvale	104.00	Influent	26/02/2013	C	205.00	21.32		665.00	69.16		178.00	18.51		5.635	0.59		59.92	6.23	
Emyvale	104.00	Effluent	26/02/2013	C	3.00	0.31	98.54	46.00	4.78	93.08	7.00	0.73	96.07	0.304	0.03	94.61	11.17	1.16	81.36
Emyvale	134.00	Influent	09/04/2013	C	527.00	70.62		1431.00	191.75		993.00	133.06		9.870	1.32		59.90	8.03	
Emyvale	134.00	Effluent	09/04/2013	C	6.00	0.80	98.86	47.00	6.30	96.72	35.00	4.69	96.48	0.419	0.06	95.75	23.11	3.10	61.42
Emyvale	84.00	Influent	30/04/2013	C	359.00	30.16		1095.00	91.98		250.00	21.00		10.200	0.86		77.30	6.49	
Emyvale	84.00	Effluent	30/04/2013	C	4.00	0.34	98.89	51.00	4.28	95.34	1.00	0.08	99.60	0.445	0.04	95.64	23.78	2.00	69.24
Emyvale	210.00	Influent	11/06/2013	C	483.00	101.43		1370.00	287.70		392.00	82.32		12.200	2.56		23.70	4.98	
Emyvale	210.00	Effluent	11/06/2013	C	9.00	1.89	98.14	68.00	14.28	95.04	23.00	4.83	94.13	0.860	0.18	92.95	28.81	6.05	-21.56
Emyvale	201.00	Influent	30/07/2013	C	392.00	78.79		901.00	181.10		200.00	40.20		7.620	1.53		43.40	8.72	
Emyvale	201.00	Effluent	30/07/2013	C	0.90	0.18	99.77	34.00	6.83	96.23	9.00	1.81	95.50	0.490	0.10	93.57	25.89	5.20	40.35
Emyvale	104.00	Influent	11/09/2013	C	296.00	30.78		819.00	85.18		154.00	16.02		8.100	0.84		39.50	4.11	
Emyvale	104.00	Effluent	11/09/2013	C	4.00	0.42	98.65	36.00	3.74	95.60	14.00	1.46	90.91	0.495	0.05	93.89	31.00	3.22	21.52
Emyvale	79.00	Influent	15/10/2013	C	600.00	47.40		1155.00	91.25		272.00	21.49		10.000	0.79		70.60	5.58	
Emyvale	79.00	Effluent	15/10/2013	C	5.00	0.40	99.17	39.00	3.08	96.62	21.00	1.66	92.28	0.820	0.06	91.80	51.80	4.09	26.63
Emyvale	66.00	Influent	26/11/2013	C	302.00	19.93		582.00	38.41		172.00	11.35		8.190	0.54		72.00	4.75	
Emyvale	66.00	Effluent	26/11/2013	C	7.00	0.46	97.68	69.00	4.55	88.14	36.00	2.38	79.07	0.941	0.06	88.51	44.65	2.95	37.99

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	VolumetricLoading m3/day	Organic Loading PE/day
Number of samples	8	8	8	8	8	n/a	n/a
Maximum result	600.00	1431.00	993.00	12.20	77.30	210	
Annual Mean	408.86	1062.29	348.43	9.089	53.47	123	836

Table 1.2

Remaining Hydraulic & Organic treatment capacities summary table:	
Hydraulic Capacity - Design (M^3/day)	360
Hydraulic Capacity - Current loading (M^3/day)	123
Hydraulic Capacity - Remaining (M^3/day)	237
Organic Capacity - Design (PE)	2000
Organic Capacity - Current loading (PE)	836
Organic Capacity - Remaining (PE)	1164
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)	400	1037	344	9	44	
Effluent mass emission (kg/day)	4.80	47.86	17.63	0.58	21.72	
% Efficiency (% reduction of influent load)	98.80	95.38	94.87	93.55	50.53	

Table 1 Monitoring Results for Emyvale WWTP

Locatin	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 Phosphorus (as P) mg/l	Ammonia (as N)	Total Nitrogen mg/l (as N)	Total Phosphorus mg/l (as P)	Dissolved Oxygen (DO)
Emyvale		Influent	26/02/2013	C			205.00	665.00	178.00			59.92	5.635	
Emyvale		Effluent	26/02/2013	C	6.3	7.28	3.00	46.00	7.00	0.092	0.305	11.17	0.304	
Emyvale		Up Stream Of Works	26/02/2013	G	5.6	7.62	1.90			0.007	0.065			13.010
Emyvale		Down Stream of Works	26/02/2013	G	5.6	7.5	1.40			0.054	0.076			12.500
Emyvale		Influent	09/04/2013	C			527.00	1431.00	993.00			59.90	9.870	
Emyvale		Effluent	09/04/2013	C	8.1	7.39	6.00	47.00	35.00	0.125	0.068	23.11	0.419	
Emyvale		Up Stream Of Works	09/04/2013	G	7.4	7.59	0.90			0.015	0.057			13.070
Emyvale		Down Stream of Works	09/04/2013	G	7.2	7.2	0.90			0.013	0.060			12.700
Emyvale		Influent	24/04/2013	C										
Emyvale		Effluent	24/04/2013	C			4.00	39.00	13.00	0.088	0.145	17.24	0.496	
Emyvale		Up Stream Of Works	24/04/2013	G										
Emyvale		Down Stream of Works	24/04/2013	G										
Emyvale		Influent	30/04/2013	C			359.00	1095.00	250.00			77.30	10.200	
Emyvale		Effluent	30/04/2013	C	10.1	7.25	4.00	51.00	1.00	0.120	0.147	23.78	0.445	
Emyvale		Up Stream Of Works	30/04/2013	G	9.6	7.42	2.00			0.018	0.024			12.160
Emyvale		Down Stream of Works	30/04/2013	G	9.7	7.4	3.00			0.037	0.046			12.380
Emyvale		Influent	11/06/2013	C			483.00	1370.00	392.00			23.70	12.200	
Emyvale		Effluent	11/06/2013	C	14	6.25	9.00	68.00	23.00	0.143	0.257	28.81	0.860	
Emyvale		Up Stream Of Works	11/06/2013	G	13.7	7.39	3.00			0.009	0.051			9.160
Emyvale		Down Stream of Works	11/06/2013	G	13.5	7.41	3.00			0.009	0.065			9.220
Emyvale		Influent	30/07/2013	C			392.00	901.00	200.00			43.40	7.620	
Emyvale		Effluent	30/07/2013	C	19.8	6.73	0.90	34.00	9.00	0.045	4.383	25.89	0.490	
Emyvale		Up Stream Of Works	30/07/2013	G	17.3	7.84	0.90			0.009	0.093			8.210
Emyvale		Down Stream of Works	30/07/2013	G	17.4	7.8	0.90			0.024	0.047			8.190
Emyvale		Influent	11/09/2013	C			296.00	819.00	154.00			39.50	8.100	
Emyvale		Effluent	11/09/2013	C	16.5	6.64	4.00	36.00	14.00	0.136	0.915	31.00	0.495	
Emyvale		Up Stream Of Works	11/09/2013	G	14.3	7.5	0.90			0.061	0.012			11.440
Emyvale		Down Stream of Works	11/09/2013	G	14.0	7.46	0.90			0.018	0.031			11.300
Emyvale		Influent	15/10/2013	C			600.00	1155.00	272.00			70.60	10.000	
Emyvale		Effluent	15/10/2013	C	10.8	6.58	5.00	39.00	21.00	0.138	0.641	51.80	0.820	
Emyvale		Up Stream Of Works	15/10/2013	G	11.3	7.89	0.90			0.018	0.023			10.900
Emyvale		Down Stream of Works	15/10/2013	G	11.6	8.04	0.90			0.013	0.041			11.060
Emyvale		Influent	26/11/2013	C			302.00	582.00	172.00			72.00	8.190	
Emyvale		Effluent	26/11/2013	C			7.00	69.00	36.00	0.113	0.955	44.65	0.941	
Emyvale		Up Stream Of Works	26/11/2013	G			0.90			0.015	0.036			
Emyvale		Down Stream of Works	26/11/2013	G			0.90			0.015	0.030			

Table 2.1

Effluent monitoring results: Note 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 (25mg/l	COD mg/l 125mg/l	Suspended Solids mg/l (35mg/l	Ortho Phosphate (as P) mg/l 0.3(5mg/l	Ammonia (as N) (1mg/l	Total Nitrogen mg/l (as N)	Total Phosphorus mg/l (as N)	Dissolved Oxygen (DO)
Emyvale	104	Effluent	26/02/2013	C	6.3	7.28	3.00	46.00	7.00	0.092	0.305	11.17	0.304	
Emyvale	134	Effluent	09/04/2013	C	8.1	7.39	6.00	47.00	35.00	0.125	0.068	23.11	0.419	
Emyvale	120	Effluent	24/04/2013	C			4.00	39.00	13.00	0.088	0.145	17.24	0.496	
Emyvale	84	Effluent	30/04/2013	C	10.1	7.25	4.00	51.00	1.00	0.120	0.147	23.78	0.445	
Emyvale	210	Effluent	11/06/2013	C	14	6.25	9.00	68.00	23.00	0.143	0.257	28.81	0.860	
Emyvale	201	Effluent	30/07/2013	C	19.8	6.73	0.90	34.00	9.00	0.045	4.383	25.89	0.490	
Emyvale	104	Effluent	11/09/2013	C	16.5	6.64	4.00	36.00	14.00	0.136	0.915	31.00	0.495	
Emyvale	79	Effluent	15/10/2013	C	10.8	6.58	5.00	39.00	21.00	0.138	0.641	51.80	0.820	
Emyvale	66	Effluent	26/11/2013	C			7.00	69.00	36.00	0.113	0.955	44.65	0.941	
Average	122						4.77	47.67	17.67	0.111	0.868	28.61	0.586	
Condition 2 Licence: Interpretion									1st allow. Failure < 87.5mg/l (cond. 2) = 36mg/l		4.383 > 1.2mg/l therefore reportable incident INC002287			
Condition 2 Licence: Interpretion						No allowable failures. No deviation allowed	1 allowable failure provided under 100% of ELV (28mg/l)	1 allowable failure provided under 100% of ELV (250mg/l)	1 allowable failure provided under 150% of ELV (87.5mg/l)	Eight out of ten consecutive samples shall not exceed ELV. No individual result shall exceed ELV by more than 20% = (Ortho P 0.9mg/l & Ammonia 1.2mg/l)				
Total incidents:							0	0	0	0	1			

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 Phosphorus (as P) mg/l	Ammonia (as N)	Total Nitrogen mg/l (as N)	Total Phosphorus mg/l (as P)	Dissolved Oxygen (DO)
Emyvale	104	Influent	26/02/2013	C			205.00	665.00	178.00			59.92	5.635	
Emyvale	134	Influent	09/04/2013	C			527.00	1431.00	993.00			59.90	9.870	
Emyvale	84	Influent	30/04/2013	C			359.00	1095.00	250.00			77.30	10.200	
Emyvale	210	Influent	11/06/2013	C			483.00	1370.00	392.00			23.70	12.200	
Emyvale	201	Influent	30/07/2013	C			392.00	901.00	200.00			43.40	7.620	
Emyvale	104	Influent	11/09/2013	C			296.00	819.00	154.00			39.50	8.100	
Emyvale	79	Influent	15/10/2013	C			600.00	1155.00	272.00			70.60	10.000	
Emyvale	66	Influent	26/11/2013	C			302.00	582.00	172.00			72.00	8.190	
Average	123						408.86	1062.29	348.43			53.47	9.089	

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 Phosphorus (as P) mg/l	Ammonia (as N)	Total Nitrogen mg/l (as N)	Total Phosphorus mg/l (as P)	Dissolved Oxygen (DO)
Emyvale		Up Stream Of Works	26/02/2013	G	5.6	7.62	1.90			0.007	0.065			13.010
Emyvale		Up Stream Of Works	09/04/2013	G	7.4	7.59	0.90			0.015	0.057			13.070
Emyvale		Up Stream Of Works	30/04/2013	G	9.6	7.42	2.00			0.018	0.024			12.160
Emyvale		Up Stream Of Works	11/06/2013	G	13.7	7.39	3.00			0.009	0.051			9.160
Emyvale		Up Stream Of Works	30/07/2013	G	17.3	7.84	0.90			0.009	0.093			8.210
Emyvale		Up Stream Of Works	11/09/2013	G	14.3	7.5	0.90			0.061	0.012			11.440
Emyvale		Up Stream Of Works	15/10/2013	G	11.3	7.89	0.90			0.018	0.023			10.900
Emyvale		Up Stream Of Works	26/11/2013	G			0.90			0.015	0.036			
Average							1.43			0.019	0.045			

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 Phosphorus (as P) mg/l	Ammonia (as N)	Total Nitrogen mg/l (as N)	Total Phosphorus mg/l (as P)	Dissolved Oxygen (DO)
Emyvale		Down Stream of Works	26/02/2013	G	5.6	7.5	1.40			0.054	0.076			12.500
Emyvale		Down Stream of Works	09/04/2013	G	7.2	7.2	0.90			0.013	0.060			12.700
Emyvale		Down Stream of Works	30/04/2013	G	9.7	7.4	3.00			0.037	0.046			12.380
Emyvale		Down Stream of Works	11/06/2013	G	13.5	7.41	3.00			0.009	0.065			9.220
Emyvale		Down Stream of Works	30/07/2013	G	17.4	7.8	0.90			0.024	0.047			8.190
Emyvale		Down Stream of Works	11/09/2013	G	14.0	7.46	0.90			0.018	0.031			11.300
Emyvale		Down Stream of Works	15/10/2013	G	11.6	8.04	0.90			0.013	0.041			11.060
Emyvale		Down Stream of Works	26/11/2013	G			0.90			0.015	0.030			
Average							1.49			0.023	0.050			