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**OFFICE OF CLIMATE,
LICENSING & RESOURCE USE.**

**INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE
APPLICATION**

To:	Dara Lynott, Director
From:	Loretta Joyce Environmental Licensing Programme
Date:	5 th June 2013
RE:	Application for a Waste Water Discharge Licence from Meath County Council for the Smithborough agglomeration, Reg. No. D0464-01.

Application Details

Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 500 to 1000
Licence application received:	22/06/2009
Notices under Regulation 18(3)(b) issued:	06/05/2011
Information under Regulation 18(3)(b) received:	02/12/2011
Site notice check:	16/07/2009
Site visit:	18/04/2011 (J.Cope), 16/04/2013 (L.Joyce)
Submissions Received:	None

1. Agglomeration

This application relates to the Smithborough agglomeration in County Monaghan. The agglomeration had a population equivalent (p.e.) of 590 in 2011. As the application identified that the p.e. is projected to increase to 484 by 2015, which is less than the current p.e., a projected increase of 20% is used in the mass balance below. There are no identified sources of industrial waste water in the agglomeration.

The waste water treatment plant (WWTP) was constructed prior to 1994 with a design capacity of 750 p.e. to provide effluent treatment to 10mg/l:10mg/l BOD:SS standard. The plant consists of inlet works, aeration basin, clarifier, sludge holding tank and three grass plots. The grass plots are intended for further BOD removal as necessary but are not in use at present as the WWTP is operating below design capacity. Treated effluent can be pumped up to the inlet chamber of the grass plots where it flows by gravity into the three grass plots which can operate together or independently. There is a sloped land drain along the bottom and side of the grass plots to intercept any runoff from the plots, which discharges to the outfall channel

and to the primary discharge pipe to the Magherarney River. The applicant states that the grass plots are constructed on a compacted subsoil liner. If operated there is likely to be some discharge to ground. As the applicant was not in a position to calculate the losses to ground and consequential impacts of such discharges the RL does not provide for use of the grass plots.

2. Discharges to waters

Primary Discharge

The primary discharge (SW-1) is the gravity outfall from the WWTP to the Magherarney River, adjacent to the WWTP and has a flap valve, which closes when the river rises in storm conditions. At 95%ile flow in the river (0.04 m³/sec), there are approximately 11 dilutions available for the projected normal waste water discharge (0.0036m³/sec). The 95%ile river flow was provided by the Office of Environmental Assessment. The applicant's 2011-2012 treated effluent monitoring results are shown in Table 1, along with the WWTP design standards.

Table 1. WWTP monitoring results 2011-2012 (average based on 6-12 samples)

Parameter	BOD (mg/l)	COD (mg/l)	Suspended solids (mg/l)	Ammonia (mg/l)	Orthophosphate (mg/l)
Average effluent	2.72	26.38	8.58	0.29	2.13
WWTP Design standards	10	-	10	-	-

Secondary Discharges

There is one secondary waste water discharge from the agglomeration which only activates during storm conditions (high river level) when the flap valve on the primary discharge closes. The treated effluent from the WWTP is pumped to the Magherarney River approximately 4m upstream of the primary discharge, the secondary discharge point is approximately 1m higher than the primary discharge point and therefore not subject to inflow from the river.

Monitoring of the primary and secondary discharge is at the same point downstream of the WWTP, only the actual point of discharge is slightly different.

Storm water overflows

There is one storm water overflow (SWO) at the WWTP.

Emergency overflows

There are no emergency overflows in the agglomeration.

3. Receiving waters and impact

The Magherarney River forms part of the North Western International River Basin District. The following table summarises the main considerations in relation to the receiving waters.

Table 2. Receiving waters

Characteristic	Description	Comment
Receiving water name and type	Magherarney IE_NW_36_1082	The Magherarney River flows into the Finn River.
Relevant designations within 10km	None	

Drinking water abstraction within 10 km d/s	PA1_2400PUB1010 Templetate borehole (GW)	70m SE of primary discharge
EPA monitoring stations & Biological quality rating (Q value)	U/s station RS36M010200 located on Magherarney River 300m u/s No EPA station d/s	Upstream Q3 in 2010
WFD status	Poor	2011
WFD Risk Category	1A – at risk	
WFD Objective	Restore good status	Exemption until 2021
WFD protected areas	None	

Ambient water quality monitoring data for the Magherarney River provided by the Local Authority in accordance with the Water Framework Directive is summarised in Table 3 below. The results show that BOD and Ammonia as N levels deteriorate downstream of the primary discharge and do not comply with the good status water quality standards specified in the European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended.

Table 3. Water Quality in Magherarney River in 2012-2013 (average based on 5-7 samples)

Parameter	10m u/s of SW001	30m d/s of SW001	Water Quality Standards Note 1
BOD	1.37	1.38	≤ 1.5 mg/l (mean)
Orthophosphate (as P)	0.043	0.042	≤ 0.035 mg/l (mean)
Ammonia (as N)	0.080	0.098	≤ 0.065 mg/l (mean)

Note 1: Good status under European Communities Environmental Objectives (Surface Waters) Regulations 2009 as amended;

Table 4 below summarises the mass balance calculations which show the contribution from the primary discharge on the receiving water at a projected loading of 708 p.e. (590 p.e. plus 20%) in 2016. The calculations use the 'notionally clean river' approach (a hypothetically clean stretch of river) provided by the Office of Environmental Assessment.

Table 4. Mass Balance Calculations

Parameter (mg/l)	Proposed ELVs for Primary discharge	Contribution from Primary discharge	Contribution from notionally clean background Note 1	Predicted Downstream concentration	Water Quality Standards Note 2
BOD	10	0.82	0.24	1.06	≤ 2.6
Orthophosphate (as P)	3 (interim)	0.247	0.005	0.252	≤ 0.075
	0.8	0.066		0.071	

	(from 2019)				
Ammonia (as N)	1	0.083	0.007	0.090	≤ 0.14

Note 1: The notionally clean background concentrations are 0.26 mg/l BOD, 0.005 mg/l ortho-phosphate (as P) and 0.008 mg/l ammonia (as N).

Note 2: Good status under the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

The calculations show that the predicted downstream concentrations of BOD and Ammonia as N would comply with the good status standards in the Environmental Objectives Regulations 2009, as amended.

The RL proposes an ELV of 10mg/l BOD which is the design limit of the WWTP. Average BOD for the discharge was 2.72mg/l in 2011-2012 which indicates that this can be achieved. The RL proposes an ELV of 1mg/l Ammonia as N and the average Ammonia as N for the discharge was 0.29mg/l in 2011- 2012 which indicates that this can be achieved.

Predicted downstream concentration of Orthophosphate as P using an ELV of 3mg/l Orthophosphate as P, would not comply with good status standards in the Environmental Objectives (Surface Water) Regulations 2009, as amended. The RL proposes an interim ELV of 3mg/l Orthophosphate as P and applies 0.8mg/l Orthophosphate as P from 31st December 2019. Average Orthophosphate as P in the discharge was 2.13mg/l indicating that the interim ELV can be achieved. There is no chemical dosing for P removal at the WWTP at present and plant improvement will be required to achieve an ELV of 0.8mg/l Orthophosphate as P.

Smithborough WWTP is listed as a point pressure in the Erne East Water Management Unit Action Plan but there are no improvement measures listed against this WWTP.

4. Site Visit

I visited Smithborough agglomeration on 16/04/2013 and met with a representative of Monaghan County Council. I visited the WWTP and observed the primary and secondary discharge points and receiving waters.

5. Ambient Monitoring

Schedule B.2 Receiving Water Monitoring of the RL specifies quarterly monitoring of the Magherarney River for a number of specified parameters.

- **Upstream:** The location identified by Monaghan County Council is aSW-1u (grid ref. 257755E, 329807N) is approximately 10m upstream of SW001. A National Monitoring Station, Station Code: RS36M010200 (grid ref: 257939E, 329872N) located 300m upstream has been included in *Schedule B.2* of the RL.
- **Downstream:** The location provided by Monaghan County Council aSW-1d, (grid ref. 257686E, 329706N) is approximately 30m downstream of SW001 and is likely to be within the mixing zone of the primary discharge. Condition 4.20 of the RL requires the licensee to submit a proposal for a suitable ambient downstream monitoring point to the Agency for agreement within one month of grant of licence.

6. Programme of Improvements

There are no planned improvements proposed by the applicant for Smithborough WWTP. There is no chemical dosing for P removal at the WWTP at present and plant improvement is likely to be required to achieve an ELV of 0.8mg/l Orthophosphate as P. Schedule C requires Smithborough WWTP to be upgraded to provide chemical dosing for phosphorus removal.

7. Compliance with EU Directives

In considering the application, regard was had to the requirements of Regulation 6(2) of the Waste Water (Discharge) Authorisation, Regulations 2007 as amended, notably:

Table 5. Compliance with EU Directives/Regulations

Compliance with Directives/Regulations	Description and Conditions in RL
Urban Waste Water Treatment Directive [91/271/EEC]	Appropriate treatment was required by 31st December 2005.
Water Framework Directive [2000/60/EC]	Exemption from achievement of good status until 2021.
EC Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009, as amended	Schedule A of RL sets ELVs to contribute towards good status water quality standards.
Drinking Water Abstraction Regulations	Templetate borehole (GW), 70 SE of primary discharge Condition 4 requires a risk assessment for protection of drinking water abstraction points to be carried out.
EC Freshwater Fish Directive [2006/44/EC]	Not a designated salmonid river
Bathing Water Directive [2006/7/EC]	No bathing waters present
Shellfish Waters Directive [2006/113/EC]	No shellfish waters present
Dangerous Substances Directive [2006/11/EC]	Condition 4 requires screening for priority substances.
Birds Directive [79/409/EEC] & Habitats Directive [92/43/EEC]	Screening for Appropriate Assessment (AA) demonstrates that the discharges, individually or in combination with other plans or projects, are not likely to have significant effects on a European site, due to the lack of hydrological connectivity with a European site. AA was not required.
Environmental Impact Assessment Directive [85/337/EEC]	An EIS was not required for Smithborough WWTP.
Environmental Liability Directive [2004/35/CE]	Condition 7.2 of RL satisfies the requirements of the Directive.

8. Submissions

No submissions were received in relation to this licence application.

9. Charges

The RL sets an annual charge for the agglomeration at € 4,152.18 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

10. Recommendation

I recommend that a Final Licence be issued subject to the conditions and for the reasons as set out in the attached Recommended Licence.

Signed



Loretta Joyce
Inspector
Environmental Licensing Programme

Smithborough Agglomeration D0464-01



