

This report has been cleared for submission to the board by:
Dr Karen Creed, Senior Inspector

Signed: *Gráinne Oglecky* Date: *7/1/11*



OFFICE OF CLIMATE,
LICENSING & RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	DIRECTORS	
From:	Anne Pearson	Environmental Licensing Programme
Date:	5 th January 2011	
RE:	Application for a Waste Water Discharge Licence from Monaghan County Council for the agglomeration named Castleblaney and Environs, Reg. No. D0205-01	

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 2,001 to 10,000.
Licence application received:	13 th November 2008
Site visit:	25 th November 2008
Site notice check:	25 th November 2008
Notice under Regulation 12 and 18(3)(b) issued:	16 th April 2009
Reply to Regulation 12 requirement received:	7 th August 2009
Site notice re-erected:	30 th April 2009 for one month
Information under Regulation 18(3)(b) received:	7 th August 2009
Submission received:	22 nd September 2009, Eastern Regional Fisheries Board

1. Agglomeration

The agglomeration to which this Inspector's Report relates is Castleblaney and Environs (Castleblaney). Castleblaney is the third largest town in Co. Monaghan, located approximately 23km south east of Monaghan town.

The population equivalent (p.e.) of the agglomeration is estimated by the Applicant as 5,692 p.e., based on a 2007 flow load survey. The breakdown into residential p.e., commercial p.e., and industrial p.e. is presented in Table 1.

Table 1: 2007 Population Equivalent

Component	Equivalent p.e.	Proportion
Residential	3,124	55%
Industrial	1,746	31%
Commercial/ Institutional	822	14%
Total	5692	100%

Using growth trends from census data and planning permissions granted, the Applicant predicts the total p.e., will increase to c.8,519 by 2015. The Applicant states that the waste water treatment plant (WWTP) is currently designed to cater for a population equivalent of 12,960p.e.

The sewerage system is comprised of a partially combined network serviced by nine pumping stations, a rising main and a WWTP. The WWTP was built in 1983 and is located to the north of the town. The WWTP provides secondary treatment and nutrient removal (phosphorous reduction).

Description of Waste Water Treatment Plant

Incoming waste water is screened by a mechanically raked coarse screen. Flows of greater than three dry weather flow (DWF) go to a storm tank (SW3). Waste water with volumes greater than 6 DWF overflow a storm weir, join the final treated effluent outfall and discharge to Lough Muckno at primary discharge point SW1. Waste water with flows of up to 6 DWF are held in a storm tank until it is pumped back to the treatment system when the flow subsides. The licensee is required under Condition 4.12 of the RD, to undertake an assessment of storm water overflows, to determine compliance with the criteria for storm water overflows, as set out in the DoEHLG "Procedures and Criteria in Relation to Storm Water Overflows", 1995. The RD requires the licensee to maintain a written record of all assessments and remedial measures arising from such assessments.

A vortex grit trap removes grit from waste water of volumes of up to 3 DWF. Waste water flow is measured in venturi flumes prior to secondary treatment. Ferric sulphate is dosed into a flow splitting chamber, upstream of the aeration tanks, in order to reduce phosphate. A single stage extended aeration system provides secondary treatment in two aeration tanks, designed for BOD removal and nitrification. Oxygen is provided using vertical shaft surface aerators.

Flow from the aeration tanks gravitates to two radial flow settlement tanks fitted with rotating half bridge scraper mechanisms. Treated effluent gravitates to an on-site chamber where it combines with storm water discharge (SW3) and discharges to Lough Muckno at primary discharge point SW1. Refer to Appendix 1: Figure 1: Map showing Castleblaney WWTP, Lough Muckno and EPA Monitoring Locations and Figure 2: Castleblaney WWTP Discharge Points and Sampling Locations.

An upgrade of Castleblaney WWTP is included in the Water Services Investment Programme 2010-2012, as a contract to start, at an estimated cost of €3,927,000. An Environmental Impact Statement (EIS) was submitted in support of the licence application. According to the EIS, as the existing WWTP is approximately 20 years old, it needs to be overhauled, tertiary treatment facilities need to be provided and the storm water management system improved. The final detailed design will be developed once the scheme has been granted planning permission. The proposed phased expansion of the WWTP is presented in Table 2. However the DoEHLG has yet to approve this proposed extension of the WWTP.

Table 2: Proposed Phased Expansion of Castleblaney WWTP as per E.I.S.

Stage	Capacity Increase	Resultant Capacity	Year
Stage 1	1,040 p.e.	14,000 p.e.	2010-2011
Stage 2	15,040 p.e.	28,000 p.e.	2020

This report and the RL consider 8,519 p.e., the estimated figures for 2015, rather than the existing capacity.

2. Discharges to waters

Primary Discharge

The primary discharge (SW1) from the WWTP discharges into a narrow channel, opposite Black Island, connecting an upper bay of Lough Muckno with the main body of the lake. Refer to *Appendix 1: Figure 2: Castleblaney WWTP Discharge Points and Sampling Locations*. Lough Muckno flows into the Clarebane River and the main channel of the River Fane via Lough Ross.

The EPA's report on *Urban Waste Water Discharges in Ireland for Population Equivalents Greater than 500 Persons- A Report for Years 2006 & 2007* indicates that Castleblaney WWTP was in compliance with the Urban Waste Water Treatment (UWWT) Regulations in 2006. In 2007 one result for suspended solids was greater than the higher emission limit value of 87.5 mg/l and therefore recorded as non-compliant with the UWWT Regulations. 2009 monitoring results were in compliance with the Urban Waste Water Treatment (UWWT) Regulations.

The receiving water, Lough Muckno, is highly eutrophic and is currently classified as 'bad' status under the Water Framework Directive. The *Fane Water Management Unit Action Plan* identifies that there is possibly insufficient assimilative capacity in the receiving water for discharges from Castleblaney WWTP.

The reported normal flow from the agglomeration is 1,917m³/day (0.022m³/sec) and maximum flow is 5,750m³/day (0.067m³/sec). The 95%ile flow in the receiving water is estimated by the applicant as 0.1m³/sec. Based on consultation with hydrometric staff in the Office of Environmental Assessment a more conservative estimate of the 95%ile flow of the receiving water is 0.08m³/s. The dilution available for the WWTP discharge is low at this 95%ile flow in the receiving water, 3.6 dilutions.

A comprehensive study of the trophic status of Lough Muckno was under taken during the 1970's.¹ From an estimated nutrient budget for Lough Muckno in 1978, 25 % of the total phosphorous input to the lake was attributed to the WWTP. Extrapolating up to the 2010 p.e., the WWTP would contribute 59% of the total phosphorus contribution. This may be an over estimation as contributions from streams and residual lands outside the catchments would also likely to have increased during the intervening years.

The UWWT Regulations standards apply to the primary discharge from the date of grant of licence. However, the WWTP requires significant upgrade in order to contribute towards the receiving water achieving compliance with the *European Communities Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009*. Emission limit values are set in the RL having regard to these Regulations. The proposed emission limit values are discussed below under Impact of Discharges, and are considered necessary in order to contribute towards the restoration of good water quality in Lough Muckno.

Secondary Discharges

No secondary discharges from the agglomeration have been identified.

¹ The trophic Status of Irish Lakes: Lough Muckno. A report on the investigation of Lough Muckno and its feeder streams carried out between February 1977 and February 1979, An Foras Forbartha, Water Resources Division, Published May 1984.

The applicant identified one combined sewer overflow (CSO) in the sewer network, one CSO at the WWTP and four emergency overflows associated with pumping stations.

Storm Water Overflows

1. The CSO in the sewer network is located at Monaghan Road roundabout and discharges into Lough Muckno approximately 250m upstream of the primary discharge SW1, at SW2. The applicant states that this CSO is in compliance with the *Urban Waste Water Treatment Directive 91/271/EEC; Procedures and Criteria in relation to Surface Water Overflows*.
2. The storm water tank at the WWTP (SW3) overflows at volumes of greater than 6 times DWF, discharging into Lough Muckno through the primary discharge pipe.

Emergency Overflows

There are nine pumping stations within the Castleblaney agglomeration, four of which have emergency overflows:

- Dundalk Road pumping station
- Castlecoole pumping station
- Conbury Hill pumping station
- Laurel Hill pumping station

Dundalk Road pumping station has storage capacity of c. three hours. A CSO located at Dundalk Road does not discharge to the surface water but gravitates back to this pumping station. Castlecoole pumping station has storage capacity of c.19 minutes. Conbury Hill and Laurel Hill pumping station storage capacities were not provided by the applicant. The applicant states that these emergency overflows will normally only be activated in the case of pump or power failure. According to the applicant these overflows have been activated in the 12 months preceding August 2009, generally instigated by pump failure. The applicant states that the destination of the overflow pipe is unknown for two of the emergency overflows.

Condition 4.12.1 of the RL, as drafted, requires identification and assessment of storm water overflows and all emergency overflows within the agglomeration.

3. Receiving Waters and Impact

The primary discharge (SW1) from the WWTP enters Lough Muckno adjacent to Black Island. Refer to *Appendix 1, Figure 2: Castleblaney WWTP Discharge Points and Sampling Locations*. Lough Muckno is part of the River Fane catchment. The river discharges into Dundalk Bay at Blackrock, approximately 34 km downstream. The following table summarises the main considerations in relation to Lough Muckno downstream of the primary discharge.

Table 3: Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Lough Muckno	Drains in to the Clarebane River, part of the Fane catchment, approx. 4km downstream of the primary discharge.
Resource use	Drinking water abstraction	(i) Water is abstracted for Newry from Lough Ross in Northern Ireland, approx. 6km downstream of SW1. (ii) Inniskeen water treatment plant (2400PUB1009) is located on the River Fane approx.16km downstream of SW1. (iii) Water abstraction for Dundalk (2100PUB1018) is approx. 27km downstream of SW1.

	Fishing	Lough Muckno holds stocks of coarse and salmonid fish. River Fane contains stocks of brown trout, salmon and sea trout and is the only river on the east coast open to angling. The lake and river are not designated salmonid waters under the Salmonid Waters Regulations ^{Note 1}
Amenity value	Canoeing Unofficial bathing area at Black Island, approximately 0.5km d/s of discharge. Refer to Appendix B for exact location.	Not a designated bathing area under EU Directive 76/160/EEC concerning the quality of bathing water.
Applicable Regulations	UWWT Regulations ^{Note 2} Surface Water Regulations ^{Note 3} Drinking Water Regulations ^{Note 4}	Compliant in 2006 and 2009, non-compliant in 2007. Non-compliant (see Impact of Discharges below) Not designated as drinking water lake or river under WFD Register of Protected Areas
Designations	Sensitive Area ^{Note 2}	Lough Muckno, Co. Monaghan
EPA monitoring stations	Station 06GO40100: Bridge 1.5km downstream of Muckno Mill Lough Station 06F010200: Derrycreevy Bridge Station 06CO30170: Bridge upstream of Wallace Bridge Lake monitoring station : NB_06_56 Station 06F010300: Clarebane Bridge	On the Gentle Owen's Lake Stream, approx 1764m upstream from SW1. On the Dunfelimy Stream, approx. 609m upstream from SW1. On the County Water, on the eastern shore of Lough Muckno. Near Crane Island approx.1850m downstream from SW1. On the Clarebane River, approx. 5500m downstream of SW1 and 1348m downstream of Lough Muckno .
WFD lake status	Bad status ^{Note 5}	
Biological quality rating (Q value) ^{Note 6}	Station 06GO40100 Q3-4 (moderate) Station 06F010200 Q3-4 (moderate) Station 06CO30170 Q3-4 (moderate)	2009 2009 2009

	Station 06F010300: Q3 (poor)	2006
WFD Risk Category	At risk of not achieving good status by 2015	River Basin Management Plan proposes to exempt the water body from reaching good status until 2021.
WFD protected areas (Register of Protected Areas)	Nutrient sensitive lake	Lough Muckno

Note 1: European Communities (Quality of Salmonid Waters) Regulations 1988, S.I. No. 293 of 1988.

Note 2: Urban Waste Water Treatment Regulations 2001, S. I. No. 254 of 2001, as amended.

Note 3: European Communities Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009.

Note 4: European Communities (Quality of Surface Water intended for the Abstraction of Drinking Water) Regulations, 1989, S.I. No. 294 of 1989.

Note 5: Fane Water Management Unit Action Plan, Neagh Bann International River Basin District River Basin Management Plan 2010, www.wfdireland.ie

Note 6: Refer to *Appendix A: Map showing Castleblaney WWTP, Lough Muckno and EPA Monitoring Locations.*

EPA biological monitoring in the Fane River catchment shows moderately polluted conditions (Q3-4,2009); approximately 609m upstream of the primary discharge at Derrycreevy Bridge on the Dunfelimy Stream and on the Gentle Owen's Lake Stream and County Water. Lough Muckno itself is strongly eutrophic. Downstream approximately 5.5km from the primary discharge, the Clarebane River at Clarebane Bridge has remained in poor condition (Q3) since 1994. According to the *Fane Water Management Unit Action Plan* Lough Muckno continued to exert marked adverse effects on the reach immediately downstream.

Appropriate Assessment

For the purposes of the waste water discharge licence assessment, the EIS submitted as part of the application is considered sufficient in terms of an "appropriate assessment".

Dundalk Bay is the nearest Special Protection Area (site code 004026) and Special Area of Conservation (site code 000455) to the discharge, located approximately 35km downstream. There is not likely to be any significant impact on these sites from the discharge.

Lough Smiley proposed National Heritage Area (pNHA) (site code 001607) is located approximately 2 km north of Castleblaney. This includes Drumilland Lake which feeds the Dunfelimy stream, upstream of Lough Muckno. As this pNHA is upstream of the WWTP, it is not considered that the discharge can have any adverse impact on the pNHA.

Lough Muckno is itself a proposed National Heritage Area (site code 000563). Lough Ross on the border with Northern Ireland, approximately 6km downstream of Lough Muckno is also a proposed National Heritage Area (site code 001495). It is considered that the RL, as drafted, will provide a high level of protection to these lakes as it will ensure that all discharges from the agglomeration will be provided with an appropriate level of treatment, as per *Condition 3: Discharges*, of the licence.

Impact of Discharges

The UWWT standards apply to the primary discharge from the date of grant of licence. However, the receiving water has insufficient assimilative capacity to cater for the existing discharge, which is likely to be contributing to the poor water quality in the lake.

Table 4 below summarises the assimilative capacity calculations. These are based on the 2015 estimated loading of 8,519 p.e., 95thile receiving water flow of 0.08m³/sec, the water quality standards in the *European Communities Environmental Objectives (Surface Water) Regulations 2009, (S.I. No. 272 of 2009)* and the primary discharge emission limit values (ELV's) specified in the RL.

The primary discharge from the WWTP is into a lake, which will have minimal flows. Therefore, while the method used to calculate the assimilative capacity has limitations, it is considered reasonable for the assessment.

Table 4: Assimilative Capacity

Parameter		Background conc (mg/l)	Proposed ELVs for discharge from SW-1 ^{Note 1} (mg/l)	Contribution from primary discharge (mg/l)	Predicted downstream conc (mg/l)	Relevant standard (mg/l) ^{Note 2}
BOD mg O ₂ /l	Actual Background	3.5 ^{note 3}	10	2.12	4.91	≤ 2.6
	Notionally clean	0.26 ^{note 4}			2.38	
Total Phosphorous mg P/l	Actual Background (ortho P)	0.028 ^{note 3}	0.30	0.064	0.087	≤ 0.075
	Notionally clean (ortho P)	0.005 ^{note 4}			0.069	
Total Ammonia mg N/l	Actual Background	0.098 ^{note 3}	0.5	0.107	0.185	≤ 0.140
	Notionally clean	0.008 ^{note 4}			0.115	

Note 1: ELV's to be complied from by 1st January 2015.

Note 2: European Communities Environmental Objectives (Surface Waters) Regulations 2009. (95thile standards presented)

Note 3: EPA background water quality data January 2007 to August 2010 from Derrycreevy Bridge approximately 609m upstream from primary discharge (21 samples).

Note 4: Theoretical notionally clean background concentration.

As there is little assimilative capacity in the receiving water the “notional clean river” approach formulated by the Office of Environmental Assessment has been used to determine the assimilative capacity of the receiving water, whereby other sources of upstream pollution will be dealt with separately and the WWTP discharge will not cause deterioration in the water quality status.

BOD

Table 4 demonstrates there is no assimilative capacity in the receiving water for BOD based on the water quality standard specified in S.I. No.272 of 2009 and the upstream actual background concentration of 3.5 mg/l. Using the notionally clean river approach there would be assimilative capacity available in the receiving water for BOD at 2015 loadings and an ELV of 10mg/l. At this loading the predicted downstream concentration is 2.38mg/l. and 92% of the hypothetical assimilative capacity of the receiving water is used. This ELV would be sufficient to ensure no deterioration of water quality resulting from the WWTP discharge. The design effluent quality is 25mg/l BOD. However, when comparing with average effluent monitoring results for 2007 and 2009, it is considered that the WWTP is capable of complying with the ELV for BOD of 10mg/l.

Total Phosphorous

As the primary discharge is into a lake, an ELV for Total Phosphorous is included in the RL. There is no environmental quality standard for total phosphorous in lakes in S.I. No. 272 of 2009, therefore comparisons are made against the water quality standard (for rivers) for molybdate reactive phosphorous of 0.075mg/l. Using the actual background concentration of orthophosphate (0.028mg/l) all the assimilative capacity of the receiving water is used at 2015 loadings and an ELV of 0.3mg/l. For a notionally clean river setting an ELV of 0.3mg/l, 92% of the assimilative capacity of the receiving water for ortho-phosphate is consumed. The concentration of total phosphorous is always greater than that of ortho-phosphate in the discharge. Therefore in setting the ELV at 0.3 mg/l total phosphorous, this is considered a conservative estimation of the assimilative capacity of the receiving water for this parameter and is sufficient to ensure no deterioration of water quality. The design effluent quality for the existing WWTP is 2 mg/l total phosphorous. It is considered that the existing WWTP is currently incapable of complying with the ELV of 0.3mg/l total phosphorous. Significant

upgrade and investment would be required in order to comply with this ELV to ensure that no deterioration of water quality is caused as a result of the WWTP discharge. The RL gives the licensee until the end of 2015 to comply with the 0.3 mg/l standard.

Ammonia

From Table 4, the actual background concentration is close to the environmental quality standard specified in S.I. No.272; therefore no assimilative capacity is available in the receiving water for ammonia. For a notionally clean receiving water, an ELV of 0.5 mg/l at 2015 loadings would be necessary to avoid causing deterioration of water quality. At this ELV 82% of the hypothetical assimilative capacity of the receiving water is consumed and the predicted downstream concentration is 0.115mg/l. There is no design effluent quality set for the existing WWTP. The RL sets an ELV of 0.5mg/l for ammonia. It is anticipated that significant upgrade and investment would be required in order to meet this ELV. The average ammonia result for 2007 was 12.3mg/l.

The RL, as drafted, requires these stringent ELVs for BOD, total phosphorous and total ammonia to be complied with from 31st December 2015.

From the date of grant of licence, the licensee is required to comply with UWWT standards of 25mg/l BOD, 35 mg/l suspended solids and 125mg/l COD. The average effluent monitoring results for 2007 and 2009 for the WWTP are below these ELVs. Lough Muckno is designated as a sensitive area under the *Urban Waste Water Treatment Regulations 2001, S.I. 254 of 2001*. Nutrient reduction was required by 31st May 2008 for p.e. of greater than 10,000 discharging to sensitive areas. The p.e. of Castleblaney is not expected to exceed 10,000 during the lifetime of the licence; therefore the concentrations of total phosphorous and total nitrogen stated in the Regulations do not apply. However as the receiving water, Lough Muckno, is highly eutrophic and is currently classified as 'bad' status under the Water Framework Directive, an emission limit value of 2mg/l total phosphorous is applied from the date of grant of licence to 31st December 2015. Average effluent monitoring results for the WWTP for total phosphorous for 2007 and 2009 are below 2mg/l.

The *Neagh Bann River Basin Management Plan (2009-2015)* includes a proposed extended timeframe to 2021 for Lough Muckno to achieve good water quality status. The extended deadline has been set considering the time requirements to upgrade the WWTP discharges. Emission limit values set in the RL will require upgrade of the WWTP to be completed by 31st December 2015. This will contribute towards the objectives of restoring good water quality by 2021.

The *Fane Water Management Unit Action Programme* recommends measures to be undertaken at the WWTP and timeframes for their implementation, including the provision of tertiary treatment or relocation of the outfall and the investigation of combine sewer outfalls by 2015+. Condition 4.19 of the RL requires an assessment to be undertaken to investigate options to relocate the primary discharge point either downstream of Lough Muckno or into the main body of the lake. ELVs are included in the RL that will require the provision of tertiary treatment and/or additional works in order to comply with the discharge licence and contribute to achieving good status by 2021. Condition 4.12.1 of the RL also requires an investigation of emergency overflows within the agglomeration to be undertaken. The discharge licence shall be reviewed in six years and the review process provides a mechanism to confirm whether further works will be required with regard to the receiving water meeting good status by 2021. Review of the River Basin Management Plan will also consider all pollutant sources to Lough Muckno and will identify if further works to the WWTP will be required to contribute to good status.

4. Ambient Monitoring

The applicant proposed one ambient monitoring point circa 23m upstream from the primary discharge and one ambient monitoring point circa 124m downstream of the primary

discharge. *Schedule B.4 Receiving Water Monitoring*, of the RL sets out the requirements for ambient monitoring upstream and downstream of SW1 (primary discharge) on Lough Muckno. *Schedule B.1 Monitoring of Primary Waste Water Discharge* requires the applicant to undertake monitoring of the primary discharge twelve times per year.

5. Combined Approach

The Waste Water Discharge Authorisation Regulations, 2007 (S.I. No. 684 of 2007) specify that a 'combined approach' in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations (S.I. No. 254 of 2001) as amended and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made. The RL as drafted gives effect to the principle of the Combined Approach as defined in S.I. No. 684 of 2007.

6. Programme of Improvements

The WWTP is required to comply with the standards for BOD, COD and suspended solids, set in the UWWT Regulations from the date of grant of licence. Until 31st December 2015 the licensee is to achieve an ELV of 2mg/l for total phosphorous. The RL also includes strict emission limit values on the primary discharge SW1 for BOD (10 mg/l), total phosphorous (0.3mg/l) and ammonia (0.5mg/l), to be complied with from 1st January 2016.

Capital investment will be required in order to comply with the ELVs set in the licence. An upgrade of Castleblaney WWTP is included in the WISP 2010-2012, listed as a contract to start, at an estimated cost of €3,927,000. The planning application for an extension of Castleblaney WWTP has been suspended by An Board Pleanála until receipt of an application to confirm a compulsory purchase order. Communication from the County Council indicates that it is not anticipated that construction will commence before 2015. The timeframe included in the RD to comply with the above stringent emission limit values therefore provides a year to complete any necessary building works.

Condition 5 of the RL requires the licensee to prepare and submit to the Agency a programme of infrastructural improvements to maximise the effectiveness and efficiency of the waste water treatment plant.

7. Compliance with EU Directives

In considering the application, regard was given to the requirements of Regulation 6(2) of the Waste Water (Discharge) Authorisation, Regulations, 2007 (S.I. No. 684 of 2007) notably:

Drinking Water Abstraction Regulations

There are three drinking water abstraction plants located downstream of Castleblaney WWTP. Carran Hill treatment works serves Newry and the Mourne Area and the abstraction point on Lough Ross in Northern Ireland is approximately 7.5km downstream from the primary discharge point. Inniskeen drinking water treatment plant (2400PUB1009) is located approximately 16 km downstream on the River Fane. A drinking water abstraction plant (2100PUB1018) serving Dundalk is located approximately 28km downstream on the River Fane.

According to the Applicant the secondary treatment process considerably reduces the quantity of faecal coliform, salmonella and protozoan pathogens. The applicant also considers that because the abstraction points are located approximately 7.5 km, 16km and towards the mouth of the River Fane (28 km downstream from the primary discharge point), the final effluent will be substantially diluted. In addition, the applicant notes that storm water overflows occur in conditions of high flows and therefore there will be a large dilution within

the river catchment at such times. However the applicant did not state the residence time of water in the lake prior to discharge into the Clarebane River, part of the Fane catchment. The residence time of Lough Muckno is estimated by the Office of Environmental Assessment as approximately 79 days.

Condition 4.17 of the RL, as drafted, requires the applicant to prepare a risk assessment for the protection of the downstream drinking water abstraction points. The risk assessment is to address as a minimum, the identification and minimisation of risks to the quality of water abstracted from the discharge listed in *Schedule A: Discharges*. Condition 6.3 of the RL requires the licensee to immediately notify Northern Ireland Water, the Water Services Authority and/or other groups responsible for downstream abstraction points of any exceedance of ELVs or storm water overflows.

Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. *Condition 3: Discharges* provides conditions regulating discharges to water. *Schedule A: Discharges* specifies emission limit values for those substances contained within the waste water discharge. The limits specified in the RL are determined with the aim of contributing to the objective of restoring good water quality by 2021. In addition, Monaghan Co. Co. is required to consider the relocation of the outfall.

European Communities Environmental Objectives (Surface Water) Regulations 2009, S.I. No. 272 of 2009

The water quality upstream and downstream of the WWTP is in breach of the water quality standards for BOD, orthophosphate and ammonia. The RL, as drafted, has regard to the requirements of S.I. No. 272 of 2009.

Urban Waste Water Treatment Directive [91/271/EEC]

Castleblaney and Environs WWTP currently provides an adequate level of treatment for compliance with the UWWT regulations, i.e. secondary treatment for discharges to freshwaters from p.e. >2,000 by 31st December 2005.

The agglomeration was not in compliance with the Urban Waste Water Treatment Regulations 2001 (S.I. No. 254 of 2001 and amendments) in 2007 in terms of effluent quality. 2009 monitoring results were in compliance with the Regulations in terms of effluent quality. The RL, as drafted, has regard to the requirements of the Urban Waste Water Treatment Directive.

EC Freshwater Fish Directive [2006/44/EC]

Neither Lough Muckno nor the River Fane is designated waters under the European Communities (quality of Salmonid Waters) Regulations 1988 (S.I. No. 293 of 1988).

Bathing Water Directive [2006/7/EC]

There are no designated bathing waters in the vicinity of the discharges.

Shellfish Water Directive [2006/113/EC]

There are no designated shellfish waters in the vicinity of the discharges.

Dangerous Substances Directive [2006/11/EC]

The applicant has provided sampling results for 19 of the 19 dangerous substances downstream of the primary discharge for the purposes of the licence application. The result for lead (9 µg/l) was above the environmental quality standard of 7.2 µg/l for inland surface waters in *European Communities Environmental Objectives (Surface Water) Regulations*

2009, S.I. No. 272 of 2009. Copper and zinc could not be determined as compliant or otherwise with S.I. 272 of 2009 as the result is dependent on the hardness of the ambient water. The limit of detection used for tributyltin was not sufficiently low to confirm compliance with the Regulations. As the result for lead exceeds the standard, copper and zinc could not be fully determined and the limit of detection for tributyltin was not sufficient, Condition 4.11 of the RL requires screening of the primary discharge for the presence of organic compounds and metals within twelve months of the date of grant of licence. Any exceedances are to be investigated and mitigating measures are to be put in place to prevent reoccurrence.

Birds Directive [79/409/EEC] & Habitats Directive [92/43/EEC]

For the purposes of licensing of municipal waste water discharges an Environmental Impact Assessment (EIA) is considered as an appropriate assessment. An EIA was undertaken for this site and the resulting associated EIS was submitted in support of this licence application.

There are no discharges from the Castleblaney and Environs agglomeration directly into any site designated under the E.U. Habitats or Birds Directives. There is not likely to be any significant impact on the nearest designated site, Dundalk Bay, which is c.35 km downstream of the discharge.

Environmental Liabilities Directive [2004/35/EEC]

Condition 7.2 of the RL, as drafted, satisfies all requirements of the Environmental Liabilities Directive, in particular those requirements outlined in Article 3(1) and Annex III of 2004/35/EEC.

Cross Office Liaison

I consulted with the Agency's Office of Environmental Assessment, Hydrometric section in relation to the flow of the River Fane and residence time of Lough Muckno. I also consulted with biologists of the Agency's Office of Environmental Assessment in relation to water quality of Lough Muckno. Recommendations in relation to the relocation of the primary discharge point are incorporated into Condition 4.19 of the RL. The Office of Environmental Assessment's Regional Laboratory, Monaghan provided up to date monitoring data for the River Fane which was used in the above assimilative capacity assessment.

Advice and guidance issued by the Technical Working Group (TWG) was followed in my assessment of this application. Advice and guidance issued by the TWG is prepared through a detailed cross-office co-operative process, with the concerns of all sides taken into account. The Board of the Agency has endorsed the advice and guidance issued by the TWG for use by licensing Inspectors in the assessment of wastewater discharge licence applications.

Submissions

One submission was received in relation to this application from the Eastern Regional Fisheries Board and has been taken into consideration. The main issues raised in the submission are summarised below, however, the original submission should be referred to at all times for greater detail and expansion of particular points.

- Concern in relation to how the assimilative capacity calculations for ammonia were determined by the applicant including the use of average river flows rather than low flow conditions and the resulting proposed effluent concentration.

Response:

I have recalculated the assimilative capacity of the receiving water using 95thile flow as outlined above.

- Considering the poor water quality of Lough Muckno, which is currently determined as strongly eutrophic and its designation as a sensitive area under the Urban Waste Water Treatment Regulations, the Fisheries Board consider that it apt to apply stringent standards for treated effluent to ensure no further deterioration of water quality in Lough Muckno and subsequently the Fane River.

Response:

From the date of grant of licence, the licensee is required to comply with UWWT standards for BOD, suspended solids and COD. An emission limit value of 2mg/l total phosphorous is to be complied with from the date of grant of licence until 31st December 2015. In addition; stringent emission limit values for BOD, ammonia and total phosphorous are included in the RL, to be complied with from 1st January 2015. These are based on the assimilative capacity of the receiving water, assuming other sources of upstream pollution will be dealt with separately, for example under River Basin Management Plans, and the WWTP discharge will not cause deterioration in the water quality status. The emission limit values stated in the RL, as drafted, will contribute significantly towards the objectives of restoring good water quality in the receiving water by 2021.

- Lough Muckno contains good stocks of both coarse and salmonid fish and along with the Fane catchment is a valuable fishery resource. The river holds good stocks of brown trout, salmon and sea trout. The River Fane is the only river on the east coast of Ireland that is open for angling i.e., there are sufficient quantities of salmon and sea trout returning to the river to allow for recreational fishing.

Response:

Lough Muckno is not designated as a salmonid water under the *European Communities (quality of Salmonid Waters) Regulations 1988* (S.I. No. 293 of 1988). The emission limit values stated in the RL, as drafted, will contribute significantly towards the objectives of restoring good water quality in the receiving water by 2021, thereby providing a good quality habitat for coarse and salmonid fish.

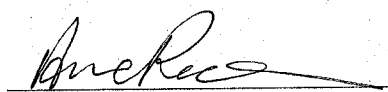
Charges

The RL sets an annual charge for the agglomeration at €2,872.00 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

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



Anne Pearson

Office of Climate, Licensing and Resource Use