



This memo has been cleared for submission to the Board by Senior Inspector, Dr Karen Creed  
 Signed: Sonia Smith Date: 27/06/2013

RESOURCE USE.

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

To:	Dara Lynott, Director	
From:	Suzanne Wylde, Yvonne English, Gavin Clabby, Éimer Godsil, Ciara Maxwell & Simon Hussey	Environmental Licensing Programme
Date:	27 <sup>th</sup> June 2013	
RE:	Application for a Waste Water Discharge Licence from Cork County Council, for the agglomeration named <b>Dunmanway</b> , Reg. No. D0160-01.	

**Application Details**

Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 2,001 to 10,000.
Licence application received:	22/09/2008
Notices under Regulation 18(3)(b) issued:	8/4/09, 30/6/09, 11/4/13, 18/4/13
Information under Regulation 18(3)(b) received:	4/6/09, 27/8/09, 26/4/13, 22/5/13
Site notice check:	11/10/2008
Site Visit:	26/03/2013
Submission(s) Received:	03/09/2010

**1. Agglomeration**

This application relates to the agglomeration named Dunmanway in Co. Cork (See map in Appendix 1).

The wastewater treatment plant (WWTP) in Dunmanway was constructed in 2011/2012 and was commissioned and put into operation on 24<sup>th</sup> July 2012. The WWTP was designed to cater for a population equivalent of 3,500 but at present serves a p.e. load of 2,214. The influent to the wastewater treatment plant is primarily domestic wastewater.

The WWTP provides tertiary treatment. The plant consists of primary screening of the incoming sewerage at the inlet, dosing of the influent for phosphorous removal, treatment of sewage in a sequence batch reactor, sludge removal and thickening on site for off-site disposal/recycling.

## 2. Discharges to waters

The final treated effluent discharges through the primary discharge point (SW001) to the River Bandon. The normal flow from the WWTP is 1,100m<sup>3</sup>/day, while the maximum discharge from the WWTP is 2,500m<sup>3</sup>/day. The final treated effluent quality from the WWTP in 2012 was in compliance with the Urban Wastewater Treatment Regulations (BOD 25mg/l, COD 125mg/l and suspended solids 35mg/l). The effluent monitoring results for 2012 for BOD, COD and suspended solids were in the range of 1-20mg/l, 11-74mg/l and 3-36mg/l, respectively.

There are no secondary discharge points within the agglomeration.

There are two emergency overflow(s) within the agglomeration. The emergency overflows are located at the Long Bridge and Quarry Road pump stations. These pump stations were also upgraded when the new WWTP was being built in 2011/2012.

There are three stormwater overflow(s) within the agglomeration. They are located at Brookpark, Castle Street and Chapel Street and discharge to River Bandon. The licence, as drafted, requires that the stormwater overflow must conform with the criteria as set out in the DoECLG '*Procedures and Criteria in Relation to Storm Water Overflows*', 1995 and any other guidance as may be specified by the Agency. The programme of infrastructural improvements required under Condition 5.1 of the RL requires an assessment of all storm water overflows (Condition 5.2 (c)) and preparation of an implementation plan as necessary (Condition 5.3).

*Schedule A: Discharges & Discharge Monitoring* of the recommended licence (RL) specifies the Emission Limit Values (ELVs) to which the discharge(s) from the Dunmanway agglomeration must conform. The ELVs are aimed at providing a high degree of protection to the receiving water body. Monitoring of the discharges will take place as per this schedule of the RL.

## 3. Receiving waters and impact

The following table summarises the main considerations in relation to the Bandon River downstream of the primary discharge.

Table 1: Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Bandon River	WFD Code:IE_SW_20_2096
Applicable Regulations	UWWT Regulations <sup>Note 1</sup>	In compliance
	Surface Water Regulations <sup>Note 2</sup>	In compliance
Designations	Bandon River	SAC Site code: 002171
EPA monitoring stations	Ardcahan Br EPA RS Code: RS20B020150	3.8km u/s of SW001 on Bandon River
	Bealboy Br EPA RS Code: RS20B020300	2.8 d/s of SW001 on Bandon River
Biological quality rating (Q value)	Q4 (2012)	U/s of WWTP on Bandon River
	Q3-4 (2012)	D/s of WWTP on Bandon River
WFD status	Moderate	Restore by 2021
WFD Risk Category	1a	At risk of not achieving good status

Note 1: Urban Wastewater Treatment Regulations, as amended, 2001.

Note 2: European Communities Environmental Objectives (Surface Water) Regulations 2009 (as amended).

The primary discharge point SW001 is located within the Bandon River SAC (site code: 002171), which has been designated partly on the basis that the fresh water pearl mussel, *Margaritifera margaritifera*, is a qualifying interest. The first schedule of the *European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations S.I No. 296 of 2009 (Pearl Mussel Regulations 2009)* lists the 27 designated Freshwater Pearl Mussel sites. The Bandon River is one of these designated freshwater pearl mussel sites.

The Upper Bandon Water Management Unit Action Plan (WMUAP) identifies the WWTP in Dunmanway as a point pressure on the Upper Bandon catchment.

The Office of Environmental Assessment (OEA) has carried out upstream and downstream ambient monitoring for a number of years. The monitoring results indicate that the receiving water is in compliance with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

The Bandon is required to support the freshwater pearl mussel (*Margaritifera margaritifera*) both under the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations (2009) and the '*Freshwater Pearl Mussel Bandon Sub-Basin Management Plan*'. The proposed emission limit values (ELVs) for the RL, as drafted, are therefore based on the high status standards as laid down in the European Communities Environmental Objectives (Surface Water) Regulations (2009). The high status limits (95%ile) for BOD, ammonia and orthophosphate are 2.2mg/l, 0.090mg/l and 0.045mg/l, respectively.

Table 2: Mass Balance Calculations.

Parameter	Background	Proposed	Contribution	Predicted	Relevant
-----------	------------	----------	--------------	-----------	----------

	Concentration (mg/l)	ELVs for discharge from SW001 (mg/l)	from primary discharge (mg/l)	downstream concentration (mg/l)	standard (mg/l)
BOD	0.88	15	0.4956	1.3756	2.2 <sup>Note 1</sup>
Orthophosphate	0.0092	0.5	0.0172	0.0264	0.045 <sup>Note 1</sup>
Total Ammonia	0.034	1	0.0339	0.0679	0.090 <sup>Note 1</sup>

Note 1: European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

Mass balance calculations were carried out using the monitoring information provided by OEA, i.e. Aquarius. The 95%ile flow in the river at the primary discharge point is 0.35m<sup>3</sup>/s. The mass balance calculations are based on the 95%ile flow in the receiving water, the mean background concentration of each parameter in the receiving water, the normal effluent discharge rate and the maximum concentration of the parameter in the effluent (Table 2).

The mass balance calculations indicate that the predicted downstream concentrations for BOD, orthophosphate and ammonia are within the standards set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

The limit of 0.045mg/l for orthophosphate, 0.090mg/l for ammonia and 2.2mg/l for BOD in the receiving water are statutory limits set in the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended), to achieve high status in the surface water. An emission limit value of 0.5mg/l is recommended for orthophosphate, 1mg/l for ammonia and 15mg/l for BOD in the RL. The limits are set based on the mass balance calculations and the achievable standards that can be met. The WWTP has sequencing batch reactors with phosphorus removal which can achieve standards of 0.5-0.8mg/l for orthophosphate. Operational efficiencies may be required to achieve the limit of 1 mg/l for ammonia in the discharge.

Condition 4.23 of the RD, as drafted, requires the licensee to review the finalised version of the Freshwater Pearl Mussel Bandon Sub Basin Management Plan for the Bandon Catchment on an annual basis, implement applicable measures and submit a report of the measures implemented as part of the AER.

#### 4. Ambient Monitoring

*Schedule B.2: Receiving Water Monitoring* of the RL specifies the parameters, analysis method and frequency for which ambient monitoring of the primary discharge shall be carried out. The requirements for ambient monitoring in *Schedule B.2: Receiving Water Monitoring* are sufficient to ensure that there will be no deterioration in the status of the receiving water as a result of the discharge.

#### 5. Combined Approach

The Wastewater Discharge (Authorisation) Regulations (2007, as amended) 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 (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 Wastewater Discharge (Authorisation) Regulations (2007, as amended).

## **6. Programme of Improvements**

The WWTP in Dunmanway provides tertiary treatment for wastewater from the Dunmanway agglomeration and as previously stated the new plant was commissioned in July 2012. There are no plans in place for any further improvements to the wastewater works. Condition 5.1 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 works. The conditions and emission limit values specified in the RL will ensure no deterioration in the quality of the receiving waters as a result of the discharge.

## **7. Compliance with EU Directives**

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

### Drinking Water Abstraction Regulations

There are no drinking water abstractions directly downstream of the discharge from the Dunmanway WWTP. The nearest drinking water abstraction point is 25 km from the Dunmanway discharge point. This abstraction point is downstream of the discharge from the Ballineen/Enniskeane agglomeration (Reg No. D0472-01; currently under assessment).

### Sensitive Waters

The Bandon River, downstream of the discharge, is not designated as a sensitive water under the Urban Wastewater Treatment Regulations.

### Water Framework Directive [2000/60/EC]

The RL, as drafted, transposes the requirements of the Water Framework Directive. In particular, *Condition 3: Discharges* provides conditions regulating discharges to waters. *Schedule A: Discharges & Discharge Monitoring* specifies limit values for those substances contained within the waste water discharge. Those limits specified in the RL are determined with the aim of achieving good water quality status by 2015.

### European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended)

The ambient monitoring data supplied by OEA demonstrates compliance in the receiving water with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended). The RL, as drafted, includes emission limit values to ensure that the treatment provided by the plant is sufficient to satisfy the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).

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

Dunmanway WWTP complies with the requirements of the Urban Waste Water Treatment Directive, in terms of the level of treatment provided. The RL, as drafted, has regard to the requirements of the Urban Waste Water Treatment Directive.

### Dangerous Substances Directive [2006/11/EC]

The applicant has provided once-off sampling results for 8 of the 19 dangerous substances in the primary discharge for the purposes of the licence application. The measured concentrations are not considered significant.

Condition 4.12 of the RL, as drafted, requires the licensee to identify the priority substances for monitoring by undertaking a risk-based assessment in accordance with "*Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*" issued by the Agency. Monitoring for any identified priority substance shall be carried out as required by the Agency.

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

Dunmanway WWTP discharges to the Bandon River, a designated SAC<sup>1</sup> (Site code: 002171). The SAC is protected for habitats listed under Annex 1 of the *Habitats Directive*, including an Annex I priority habitat. The qualifying habitats are: Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation and \*Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*).<sup>2</sup> The SAC is also selected for protection of species listed under Annex II of the *Habitats Directive*. The qualifying species of the SAC are: Freshwater Pearl Mussel *Margaritifera margaritifera* and Brook Lamprey *Lampetra planeri*.

A screening (Stage 1) for Appropriate Assessment of the discharge(s) from the agglomeration was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the discharge, individually or in combination with other plans or projects, is likely to have a significant effect on the European Sites.

Dunmanway WWTP is listed as a point source pressure in the Freshwater Pearl Mussel Bandon Sub-Basin Management Plan (2<sup>nd</sup> Draft), which states:

*"the WwTP at Dunmanway requires:*

- upgrade of capacity together with an upgrade of treatment level/operational performance improvement*
- reduction of nutrient, organic and sediment load is of critical importance."*

Following screening it was determined that an Appropriate Assessment was required to assess the impact of the discharge(s) on the Bandon River SAC and the applicant submitted a report entitled "Appropriate Assessment", dated August 2009, as part of the licence application.

The Dunmanway WWTP discharges directly upstream of the majority of the Freshwater Pearl Mussel population in the Bandon catchment. The river in this area is braided and forms a number of channels. The discharge outfalls to the river at a side channel denoted "Channel A". Following surveys undertaken on behalf of the applicant, it was determined that pearl mussels are not present in "Channel A", and it was considered that this channel does not provide suitable habitat for lamprey species. There is an example of the Annex I priority habitat Alluvial forest south of the discharge point.

---

<sup>1</sup> SAC: Special Area of Conservation designated under the *Habitats Directive*, Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.

<sup>2</sup> \* indicates a priority habitat under the *Habitats Directive*.

Pearl mussels and lampreys are susceptible to deterioration in water quality. Pearl mussels are also particularly susceptible to increases in suspended solids. An elevation in suspended solids from effluent discharges poses a risk to lamprey recruitment where settlement on spawning gravels may occur. Nutrient enrichment would lead to accelerated algal and plant growth with implications for pearl mussel and lamprey populations. Increases in nutrient levels will affect the distribution and density of aquatic plants leading to possible reductions in plant diversity. There should be no impact on terrestrial or riparian habitats from the discharge.

The recent upgrade of Dunmanway WWTP (commissioned 24/07/2012), to cater for a population equivalent of 3,500, provides tertiary treatment of effluent, including phosphorus removal. Additional mitigation measures undertaken, on foot of the "Assessment of the ecological impacts of providing an upgraded Wastewater Treatment System at Dunmanway, Co. Cork"<sup>3</sup>, which supported the Part 8 planning<sup>4</sup> approval (granted February 2005), included moving the outfall approximately 10 metres downstream in "Channel A" to ensure that all effluent enters directly into "Channel A", thereby preventing the possibility of effluent entering other channels containing mussels during high flow conditions.

The Appropriate Assessment demonstrates that the discharge will not adversely affect the integrity of the European Site following the recent upgrade to the WWTP, in terms of capacity and treatment level, and relocation of the outfall pipe to ensure that all treated effluent enters "Channel A". The effluent standards proposed in the Recommended Licence comply with the recommendations in the Freshwater Pearl Mussel Bandon Sub-Basin Management Plan measures for this point source. An emission limit value of 25 mg/l has been set for Suspended Solids in the Recommended Licence to provide protection for Pearl Mussel and Brook Lamprey. The limits set for BOD, orthophosphate and total ammonia will assist in the achievement of High Status for the water body, in accordance with the Water Framework Directive.

The Appropriate Assessment demonstrates that the discharge will not adversely affect the integrity of the European Site subject to the mitigation measures of phosphorus removal, which is already in place at the treatment plant, and adherence to appropriate emission limit values in the discharge. In accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), pursuant to Article 6(3) of the *Habitats Directive*, the discharge will not adversely affect the integrity, in terms of maintaining favourable conservation status of the qualifying interests of the European Site, having regard to its conservation objectives.

#### Environmental Impact Assessment Directive [85/337/EEC]

An EIS was not required and should one be required as part of any programme of improvements, it will be dealt with as per Condition 1.8 of the RL.

#### Environmental Liabilities Directive [2004/35/EC]

Condition 7.2 of the RL satisfies the requirements of the Environmental Liabilities Directive in particular those requirements outlined in Article 3(1) and Annex II of 2004/35/EC.

---

<sup>3</sup> The Cork County Council (Western Division) report "Determination whether Dunmanway Sewerage Scheme would or would not be likely to have significant effects on the environment" (August 2004), included the report "Assessment of the ecological impacts of providing an upgraded Wastewater Treatment System at Dunmanway, Co. Cork" which included a Freshwater Pearl Mussel Survey.

<sup>4</sup> Part 8 of the Planning and Development Regulations 2001.

## **8. Cross Office Liaison**

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.

## **9. Submissions**

One (1 no.) submission was received in relation to this licence. The issues raised in the submission are summarised in below. However, the original submission should be referred to at all times for greater detail and expansion of particular points.

Submission 1: The submission was received from Mr Jason Nash, Shippool, Innishannon, Co. Cork on behalf of the Bandon Angling Association as their Environmental Officer. The submission was received on 3 September 2010.

The Bandon Angling Association made the submission arising from both public and private concern about the current state of the Dunmanway agglomeration. The issues raised in the submission related to the poor state of the WWTP in Dunmanway, deterioration in the receiving water and concern over drinking water quality.

Response: It should be noted that the submission was received in September 2010, prior to the construction and commission into operation of the new WWTP in Dunmanway. The new WWTP in Dunmanway provides tertiary treatment. *Schedule A: Discharges & Discharge Monitoring* of the RL specifies the ELVs to which the discharge from the Dunmanway agglomeration must conform. The ELVs are aimed at providing a high degree of protection to the receiving water body. Monitoring of the discharges will take place as per this schedule of the RL.

## **10. Charges**

The RL sets an annual charge for the agglomeration at €7,113.78 and is reflective of the monitoring and enforcement regime being proposed for the agglomeration.

## **11. 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,



**Suzanne Wylde, Yvonne English, Gavin Clabby, Éimer Godsil, Ciara Maxwell  
& Simon Hussey**

Environmental Licensing Programme

Annex 1: Map showing location of Dunmanway WWTP and associated primary discharge point.

