OFFICE OF CLIMATE, LICENSING & RESOURCE USE

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	Directors	
From:	Éimer Godsil	Environmental Licensing Programme
Date:	25 June 2014	
RE:	Application for a Waste Water Discharge Licence from Irish Water, for the agglomeration named **Kinsale**, Reg No. D0132-01.	

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:	02/12/2010, 03/10/2013
Reg 18(3)(b) Reminders issued:	26/07/2012, 31/10/2012
Information under Regulation 18(3)(b) received:	22/11/2012, 26/11/2013
Unsolicited Additional Information received:	22/05/2013, 23/01/2014[1]
Site notice check:	17/10/2008
Site Visit:	08/01/2014
Submission(s) Received:	None

1. Agglomeration

This application relates to the agglomeration named Kinsale, located in Co. Cork. (See map in Figure 1). Kinsale is situated 16km south of Cork City. The WWTP was commissioned in February 2011 and is designed to cater for a population equivalent (p.e.) of 9,800. The agglomeration p.e. served by the wastewater works is 6,706. Kinsale is a popular tourist destination all year, with peak increase in numbers on fine weather weekends. The WWTP is capable of treating the resulting increase in BOD and hydraulic loading. The influent to the wastewater treatment plant is 50% domestic wastewater with 50% commercial contribution. The sewage system in Kinsale is a combined system with considerable infiltration.

[1] Irish Water confirmed, via EDEN on the 01st April 2014, that Irish Water have reviewed the information submitted by Cork County Council in response to the Reg. 18(3)(b) Notice (received by the Agency on the 23rd January 2014) and are satisfied that it can be considered a response from Irish Water.

The WWTP provides Sequencing Batch Reactor (SBR) secondary treatment with UV disinfection.
The plant consists of;

inlet pumping station (PS) with duty and standby pumps,

inlet works with screening (1 duty, 1 stand-by), grit removal, grease removal, ferric sulphate dosing for phosphorous removal and stormwater holding of 6 DWF,

biological treatment of four sequencing batch reactors which includes nitrification and de-nitrification process,

UV disinfection prior to discharge,

Sludge holding tank with four days sludge production capacity, sludge is thickened and dewatered before removal off site.

The plant monitors influent and effluent on a weekly basis using composite sampling.

2. Discharges to waters

The final treated effluent discharges through SW001 to the transitional water of the Lower Bandon Estuary adjacent to the WWTP and 1km upstream of Kinsale Bridge. From the discharge point the treated effluent then flows approximately 4km to the coastal waters of Kinsale Harbour. The normal flow from the WWTP is 3,092m^3/day, while the maximum discharge from the WWTP is 9,000m^3/day. The final treated effluent quality from the WWTP for 2012 was within the limits prescribed in the Urban Wastewater Treatment Regulations for BOD 25mg/l, COD 125mg/l and suspended solids (SS) 35mg/l.

The average monthly effluent monitoring results for 2012 for BOD, COD and suspended solids were 2.4mg/l, 35mg/l, and 4mg/l and for TP and TN were 0.9mg/l and 4.6mg/l respectively. The plant is designed to achieve specifications for BOD/COD/SS of 20/125/30mg/l and for TP and TN of 2 and 15mg/l respectively. The plant consistently achieves <200cfu/100ml for total coliforms.

There are no secondary discharge points within the agglomeration.

There are 4 pumping stations (PS) within the agglomeration that relate to wastewater, they are located at Denis Quay, Scilly, Summercove and Worlds End. Denis Quay is the main PS for the agglomeration, the majority of wastewater in the agglomeration either gravitates or is pumped to this station before onward pumping, a distance of 1.2km, to the WWTP. Wastewater adjacent to the plant flows to the plant by gravity. Denis Quay PS has a duty plus 2 standby pumps, an emergency overflow and 2 emergency overflow storage tanks. The other pump stations all have a duty pump with either 1 or 2 standby pumps, emergency overflows with storage capacity. All 4 have an alarm in the event of pump failure. None of the 4 PS has standby generators.

There are 2 stormwater overflows in the agglomeration, at Denis Quay and at the WWTP which discharges via SW001, there are no storm water holding tanks at either overflow. The licence, as drafted, requires that the stormwater overflows must conform to 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 applicant has stated that both stormwater overflows comply with the above mentioned criteria. The programme of infrastructural improvements required under Condition 5.1 of the RL requires an assessment of all storm water overflows (Condition 5.2.3) 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 from the Kinsale 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 Lower Bandon Estuary, downstream of the primary discharge.

Table 1: Receiving waters

Characteristic	Classification	Comment
Receiving water name and type	Lower Bandon Estuary	(WFD Code: IE_SW_080_0100) Transitional waterbody
Applicable Regulations	UWWT Regulations [Note 1] Surface Water Regulations [Note 2]	In compliance In compliance
Amenity Value	Watersports	Yacht Club and Marina
Designations	Sensitive Water Shellfish Area	Lower Bandon Estuary Kinsale (PA2_0062)
Receiving water monitoring stations	BN080 – Whitecastle Creek IEMTTW05003167BN2006 BN090 – Kinsale Bridge IEMTTW05003167BN2007	1.0km u/s of SW001 750m d/s of SW001
Transitional Water Quality	Eutrophic	2007 – 2009
WFD status	Moderate (2011)	Restore to Good 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).
Note 3: European Communities (Quality of Shellfish Waters) Regulations 2006 (as amended).

Lower Bandon Estuary is within the *South Western River Basin District* and the *Bandon/Stick Water Management Unit Action Plan (WMUAP)*. The Kinsale agglomeration is mentioned as being a point pressure. However, a new plant has been commissioned since the publication of the plan and receiving water monitoring results since that date show that the discharge is not adversely impacting the estuary.

The Agency report *Focus on Urban Waste Water Discharges in Ireland 2011* records a *Pass* for Kinsale WWTP for effluent quality discharged. The *South Western RBD Transitional and Coastal Waters Action Plan (2010)* identifies the Lower Bandon Estuary at 'Moderate' ecological status and 'Bad' status for specific pollutants, as listed in Annex VIII of the Water Framework Directive 2000/60/EC. The Water Framework Directive status is also 'Moderate' and assigned in April 2011, two months after the commencement of operation of the new WWTP.

The Kinsale agglomeration discharges to within 50m of the boundary of the Kinsale Shellfish Area. *The Kinsale Pollution Reduction Programme (Revised/Updated)* identifies the WWTP as a key pressure, but this was published prior to the commissioning of the current WWTP and it also states that "the results of shellfish water monitoring do not indicate any water quality issues within/in the vicinity of Kinsale shellfish area". Modelling of the receiving water for faecal coliforms in the vicinity of the discharge was carried out

as part of the EIS (1999) submitted with the application. The modelling shows 'that the impact would not be significant' with the estuary exhibiting 'high dispersive characteristics' and the plume being dispersed in a linear manner along the ebb and flow of the estuary waters, thus minimising the dispersion of the discharge in the direction of the adjacent shellfish water. Kinsale WWTP provides UV disinfection to the effluent prior to discharge and carries out weekly coliform monitoring, which yielded an average result for 2013 of 50 cfu/100ml. Condition 5.7 of the RL, as drafted, require the local authority to assess the impact of the discharge on the shellfish waters.

Under the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended), orthophosphate and BOD are the primary parameters of interest in transitional waters, therefore ortho phosphate and BOD are included in the ELVs for the primary discharge. The standard for 'Good' status for orthophosphate in transitional receiving waters is ≤0.040 mg P/l where the waterbody is >17% salinity and ≤0.060 mg P/l when the waterbody is 0-17% salinity. The standard for 'Good' status for BOD is ≤4.0 mg/l. The RL, as drafted, has set emission limit values for BOD and ortho phosphate.
The Office of Environmental Assessment (OEA) carried out ambient monitoring in 2013 for BOD and orthophosphate at national monitoring stations both upstream and downstream of SW001 and no increase in concentrations of BOD nor orthophosphate were noted downstream of the discharge. These monitoring results indicate that the transitional receiving water is in compliance with the European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended). OEA carried out monitoring for ammonia in the receiving waters and yielded average results in 2013 of 0.030mg/l at Kinsale Bridge (BN090) downstream of SW001 and 0.033mg/l at Whitecastle Creek (BN080) upstream of SW001.
The standard for "Good/High" status of Dissolved Inorganic Nitrogen (DIN)[2] in coastal receiving waters is ≤0.25/0.17mg/l in accordance with European Communities Environmental Objectives (Surface Water) Regulations 2009, (as amended).
In the Agency publication *Water Quality in Ireland Report 2007-2009* the Lower Bandon Estuary winter DIN (2.05mg/l) is not compliant with the threshold value (1.68mg/l), summer DIN (0.54mg/l) is compliant. In Kinsale Harbour, the coastal waterbody into which the Lower Bandon Estuary flows, DIN is compliant with the threshold (0.31mg/l) both winter and summer. The RL, as drafted, has set emission limit values for total oxidised nitrogen (TON) and ammonia. Though DIN is not listed in the Surface Water Regulations for transitional waters, it is considered in this report due to high winter DIN in the receiving water and close proximity of the discharge to shellfish waters. Coliforms are considered in this report as the discharge from the plant is in close proximity to a designated shellfish waters.
The RL has set ELVs of 20mg/l for BOD, 125mg/l for COD, 35mg/l for Suspended Solids (SS), 1.0mg/l for ortho phosphate, 5mg/l for ammonia and 10mg/l for TON. The WWTP has SBR treatment with nitrification and denitrification, chemical dosing for phosphorous and UV treatment which according to the Agency publication *Urban Wastewater Treatment Guidance for Inspectors (2011)* can achieve standards in the discharge of;

15-25mg/l for BOD
30-120mg/l for COD
15–35mg/l for SS
0.5-0.8mg/l for orthophosphate,
10mg/l for TON
2-5mg/l for ammonia,
0.7-1mg/l for TP,
7-15mg/l for TN,
2000-3000cfu/100ml for total coliforms.

[2] DIN is the sum of the concentrations of nitrate, nitrite and ammonia.

Based on this information and the design specifications for the plant, the ELVs in *Schedule A* of the RL for BOD, COD, Suspended Solids, ortho Phosphate, Ammonia and TON in the primary discharge are achievable by the WWTP and are sufficient to protect the receiving water. Monitoring of Total Nitrogen, Total Phosphorous, faecal coliforms and Escherichia coli are also a requirement of *Schedule A* of the RL.

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 Kinsale provides tertiary treatment with UV disinfection for wastewater from the Kinsale agglomeration since February 2011 and has no programme of improvements in place. 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:

<u>Drinking Water Abstraction Regulations</u>

There are no drinking water abstractions downstream of the discharge from the Kinsale WWTP.

<u>Sensitive Waters</u>

The Lower Bandon Estuary is designated a sensitive area under the UWWT Regulations, 2001 as amended. However as the p.e. of the Kinsale agglomeration is <10,000 and it is not required to comply with the limits for Total Phosphorous (2mg/l) and Total Nitrogen (15mg/l) as set out in the UWWT Regulations.

<u>Water Framework Directive [2000/60/EC]</u>

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 2021.

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]

Kinsale 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 not provided sampling results for any of the 19 dangerous substances in the primary discharge for the purposes of the licence application. Condition 4.20 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]

Kinsale WWTP does not discharge directly into a Natura 2000 site. The nearest sites are Sovereign Islands SPA, 10km from the discharge, Old Head of Kinsale SPA[3], 13km from the discharge and Courtmacsherry Estuary SAC[4], 26km from the discharge.

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the sites, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on European Sites. In this context, particular attention was paid to the European sites at Sovereign Islands SPA (Site Code; 004124), Old Head of Kinsale SPA (Site Code: 004021) and Courtmacsherry SAC (Site Code: 001230) and the Agency considered, for the reasons set out below, that the activity is not directly connected with or necessary to the management of the site as a European Site and that it can be excluded on the basis of objective scientific information, that the activity, individually or in combination with other plans or projects, will have a significant effect on a European site, and accordingly the Agency determined that an Appropriate Assessment of the activity is not required.

The reasons for the decision are; the transitional receiving water has adequate assimilative capacity for the discharge, the European Sites are located in coastal water bodies with extensive dilution and dispersion capacity, monitoring upstream and downstream of SW001 indicate that the discharge is not having an negative impact on the receiving water, effluent monitoring indicates that the primary discharge is compliant with the Urban Wastewater Regulations and the receiving water is in compliance with the Surface Water Regulations.

Environmental Impact Assessment Directive [85/337/EEC]

An EIS for the proposed WWTP at Kinsale was submitted with the application in 2008 in accordance with the Wastewater Discharge (Authorisation) Regulations (2007, as amended). In assessing the application regard was had to the matters mentioned therein in so far as they related to the risk of environmental pollution of the Lower Bandon

[3] SPA: Special Area of Protection designated under the Birds Directive, Council Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the Conservation of wild birds.

[4] SAC: Special Area of Conservation designated under the Habitats Directive, Council Directive 92/42/EEC of 21 may 1992 on the conservation of natural habitats and of wild fauna and flora.

Estuary from the waste water discharge associated with this agglomeration. Monitoring of the receiving water since that date indicates that the discharge from the agglomeration is not having a negative impact on the Lower Bandon Estuary. Should any further EIS 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.

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. I consulted with Shane O Boyle (OEA) regarding the trophic assessment of the receiving water.

9. Submissions

No submissions were received in relation to this application.

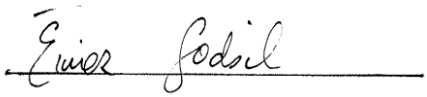
10. Charges

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.

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



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Environmental Licensing Programme

Figure 1: Map showing location of Kinsale WWTP and associated primary discharge point.