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 Signed: N Kealey Date: 11/07/13

OFFICE
 LICENSING & RESOURCE USE.

INSPECTORS REPORT ON A WASTE WATER DISCHARGE LICENCE APPLICATION

To:	Dara Lynott, Director	
From:	Loretta Joyce	Environmental Licensing Programme
Date:	11 July 2013	
RE:	Application for a Waste Water Discharge Licence from Cork County Council for the Riverstick agglomeration, Reg. No. D0433-01.	

Application Details	
Schedule of discharge licensed:	Discharges from agglomerations with a population equivalent of 500 to 1000
Licence application received:	22/06/2009
Notice under Regulation 18(3)(b) issued:	22/09/2010
Information under Regulation 18(3)(b) received:	18/11/2010, 03/01/2012
Site notice check:	17/07/2009
Site visit:	13/05/2013
Submissions Received:	None

1. Agglomeration

This application relates to the Riverstick agglomeration in County Cork. The agglomeration had a population equivalent (p.e.) of 550 in 2011 and the design capacity of the WWTP is 550 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 current plant consists of inlet works, manual bar screening, two aeration tanks, one clarifier, sludge holding tank and three reed beds. The WWTP was designed to provide effluent treatment to 10mg/l:15mg/l BOD:SS standard and there is no chemical dosing for P removal

The applicant has identified major operational difficulties with the WWTP; the inlet pumps are inadequate in terms of capacity for high flows caused by heavy rainfall, the return activated sludge pumps are continually becoming blocked and tripping out, sludge is in the clarifier instead of the aeration tank and gets washed out in high flows and the air blowers are not being operated according to DO readings. The

sludge holding tank is not in use because there is no sludge. The plant was reseeded twice and washed out in heavy flow conditions.

The applicant proposes to construct a new WWTP on a new site in Riverstick to include an activated sludge type plant with phosphorus removal. Riverstick WWTP is listed on the Water Services Investment Programme 2010 to 2012, as a contract to start 2010 to 2012. The applicant plans to sign construction contracts in summer 2013 and the new WWTP would then be constructed and commissioned over a twelve to fifteen month period. Wastewater from the new WWTP will discharge to the same receiving water, the River Stick, approximately 300m downstream of the current discharge location. Condition 4.20 of the RL requires the licensee to submit the location of all discharges from the new WWTP, including primary discharge and storm water overflow, (6E, 6N grid reference) to the Agency prior to commencement of operation of the new WWTP.

2. Discharges to waters

Primary Discharge

The primary discharge (SW-1) is the gravity outfall from the WWTP to the River Stick, adjacent to the WWTP. At 95%ile flow in the river (0.034 m³/sec), there are approximately 10.9 dilutions available for the projected normal waste water discharge (0.003125 m³/sec). The 95%ile river flow was provided by the Office of Environmental Assessment. The applicant's 2012 treated effluent monitoring results are shown in Table 1, along with the WWTP design standards.

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

Parameter	BOD (mg/l)	COD (mg/l)	Suspended solids (mg/l)	Ammonia (mg/l)	Orthophosphate (mg/l)
Average effluent	120	228	43	-	-
WWTP Design standards	10	-	15	-	-

Secondary Discharges

There are no secondary waste water discharges from the agglomeration.

Storm water overflows

There is one storm water overflow (SWO) at the WWTP, pre-screening. Excess hydraulic loads discharge directly to the reed beds and from the reed beds it combines with the treated effluent for discharge to the River stick via the primary discharge point.

Emergency overflows

There are no emergency overflows in the agglomeration.

3. Receiving waters and impact

The River Stick forms part of the South Western 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	River Stick IE_SW_20_1209	Flows into Oysterhaven transitional waters, 6km d/s
Relevant designations	Oysterhaven Shellfish area	Approximately 8km d/s

within 10km	Live Bivalve Molluscs (Production Area) Class B	
Drinking water abstraction within 10 km d/s	None	
EPA monitoring stations & Biological quality rating (Q value)	U/s Station RS20S030300 located 2.5 km u/s D/s Station RS20S030600 located 1.3km d/s	Q4 in 2006 (tributaries join between this station and primary discharge point) Q4 in 2003 (tributaries join between this station and primary discharge point)
WFD status	Good	2009
WFD Risk Category	1a, water body at significant risk of failing objectives	2008
WFD Objective	Maintain good status	No exemption proposed
WFD protected areas	RPA drinking water groundwater	

Ambient water quality monitoring data for the River Stick provided by the applicant is summarised in Table 3 below. The results show that BOD, Ammonia as N and possibly Orthophosphate 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 River Stick in 2008-2009 (average based on only 1 - 2 samples)

Parameter	600m u/s of SW001	200m d/s of SW001	Water Quality Standards Note 1
BOD	1	2	≤ 1.5 mg/l (mean)
Orthophosphate (as P)	<0.05	<0.05	≤ 0.035 mg/l (mean)
Ammonia (as N)	<0.1	0.2	≤ 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 660 p.e. (550 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	Predicted Downstream concentration	Water Quality Standards Note 2

			Note 1		
BOD	10	0.84	0.24	1.08	≤ 2.6
Orthophosphate (as P)	0.75	0.063	0.005	0.068	≤ 0.075
Ammonia (as N)	1	0.084	0.007	0.091	≤ 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, Orthophosphate as P and Ammonia as N would comply with the good status standards in the Environmental Objectives Regulations 2009, as amended. However, WWTP upgrade is required to meet these ELVs, as identified above construction of a new WWTP is proposed to commence in 2013. Given that the River Stick was assigned 'Good' status in 2009 and there is no exemption from the WFD implementation deadline of 22nd December 2015, proposed in the Bandon/Stick Water Management Unit Action Plan, the RL proposes that the ELVs apply from 22nd December 2015. Interim emission limit values prior to 22nd December 2015 are not specified in the RL due to the very limited capacity of the existing WWTP.

The RL proposes an ELV of 10mg/l BOD from 22nd December 2015, which is the design limit of the existing WWTP. However, the existing WWTP is not operating efficiently and the average BOD for the discharge was 120mg/l in 2012.

The RL proposes an ELV of 0.75mg/l Orthophosphate as P from 22nd December 2015. There is one effluent monitoring result available for Orthophosphate as P, 5.62mg/l in 2009 and there is no chemical dosing for P in the WWTP.

The RL proposes an ELV of 1mg/l Ammonia as N from 22nd December 2015. There is one effluent monitoring result available for Ammonia as N, 42.8mg/l in 2009 and there is no anoxic zone/tank in the WWTP.

Riverstick WWTP is listed as a point pressure in the Bandon/Stick Water Management Unit Action Plan with risks related to insufficient existing capacity, evidence of impact and insufficient future (2015) assimilative capacity (BOD). Riverstick WWTP is listed on the plan as a plant requiring capital works to ensure capacity of WWTP is not exceeded.

4. Site Visit

I visited Riverstick agglomeration on 13/05/2013 and met with a representative of Cork County Council. I visited the WWTP and observed the primary discharge point and receiving waters. The WWTP was in very poor condition and there was a strong odour of waste water probably coming from the reed beds. The reed beds were contaminated with sludge.

5. Ambient Monitoring

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

- **Upstream:** The location identified by Cork County Council is aSW-1u (grid ref. 165827E 057946N) is approximately 600m upstream of SW001 but is unsuitable as a tributary, the Boulaling Stream, joins 170m upstream of the primary discharge point. Condition 4.19 of the RL requires the licensee to submit a proposal for a suitable ambient upstream monitoring point to the Agency for agreement within three months of grant of licence.
- **Downstream:** The location provided by Cork County Council aSW-1d, (grid ref.165966E 057194N) is approximately 200m downstream of SW001. There is a National monitoring station located approximately 230m downstream of SW001 (Station Code: RS20S030500) and this has been included in *Schedule B.2* of the RL.

6. Programme of Improvements

The applicant proposes to construct a new WWTP on a new site in Riverstick to include an activated sludge type plant with phosphorus removal. Riverstick WWTP is listed on the Water Services Investment Programme 2010 to 2012, as a contract to start 2010 to 2012. The applicant plans to sign construction contracts in summer 2013 and the new WWTP would then be constructed and commissioned over a twelve to fifteen month period.

Plant upgrade will be required to achieve ELVs of 10 BOD, 0.75mg/l Orthophosphate as P and 1mg/l Ammonia as N from 22nd December 2015.

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]	Maintain Good Status
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	No drinking water abstractions present
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]	Oysterhaven shellfish area is located 8km d/s. Condition 5.6, 5.7 & 5.8 require an assessment on the impact of the discharges from the WWTP on shellfish.
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 Riverstick 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

Riverstick Agglomeration D0433-01

