

An Bord Pleanála Oral Hearing

Irish Water

Greater Dublin Drainage

UV Disinfection Response to Inspector

– Ciarán O’Keeffe

**GDD Oral Hearing
Response to Inspector
UV Disinfection**

Expert Position in Relation to UV Disinfection and Each Topic Addressed in the Environmental Impact Assessment Report and Natura Impact Statement

Opening Statement of Ciarán O’Keeffe

- 1 Having regard to the submissions made by Fingal County Council and members of the public including fishermen, as received during the recent statutory consultation, and to provide additional reassurance on the protection of the designated shellfish waters, Irish Water has proposed, out of an abundance of caution, that Ultraviolet (UV) treatment will be applied to the effluent discharge from the new GDD treatment plant.
- 2 Irish Water has provided a detailed statement on the proposed addition of UV technology to An Bord Pleanála and to all observers as part of the oral hearing process and has made this information publicly available at www.gddapplication.ie.
- 3 Changes to the planning application or environmental documentation, as submitted to An Bord Pleanála in June 2018, are not required following the addition of UV treatment technology.
- 4 In my role as project manager, I have consulted with each of the technical, environmental, planning and consultation experts who have considered the proposed enhancement to the treatment process by way of UV technology and any potential impacts there from. Each of the experts have provided the following statements to me. I will now present these to the Inspector.

Planning – Lara Gough

- 5 UV disinfection is not relevant to ‘Planning’ insofar as planning policy and the topic of planning is concerned. However, insofar, as it relates to the current GDD planning application and associated process, it is relevant in the context of addressing issues raised, and in assisting to reduce impacts. This is in accordance with the objectives of proper planning and sustainable development.

Consultation – Dan O’Boyle

- 6 The level of treatment provided at the proposed WWTP has been the subject of consultations and a number of submissions have been received in this regard. The enhancement of the treatment process by way of Ultraviolet (UV) treatment is being proposed to provide further reassurance on the protection of the designated shellfish waters in response to the submissions received from Fingal County Council, from the fishing community and from the public to this statutory consultation.
- 7 Irish Water has provided a detailed statement on the proposed addition of UV technology to An Bord Pleanála and to all observers as part of the statutory consultation process and has made this information publicly available at www.gddapplication.ie. Therefore, the statutory consultation requirements under the legislative and planning regulations are met as the opportunity for the public concerned to consider and comment on the proposed enhancement is being provided while all options are open and before a decision on consent is taken by the competent authority.

Marine Water Quality – Alan Berry

- 8 UV disinfection is relevant to Marine Water Quality. Application of UV disinfection will result in a reduction of coliform concentrations in the discharge to 20,000 cfu/100ml thus having a beneficial effect in reducing the previously assessed impact.

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Biodiversity (Marine Ecology – Ian Wilson, Marine and Terrestrial Ornithology – Dr. Simon Zisman, Terrestrial and Freshwater Aquatic and Natura Impact Statement – James McCrory)

Ecological Considerations for EIAR and NIS in Relation to UV

- 9 The EIAR and NIS both fully assessed the potential effects of water quality changes from the Proposed Project on marine and estuarine ecology and on the European sites in the zone of influence of the Proposed Project on the basis of no UV treatment and concluded that there were no detectable impacts on marine and estuarine ecology or on European sites.
- 10 While the introduction of UV treatment to the waste water treatment process will reduce the concentrations of micro-organisms in the effluent and improve water quality with regard to bathing water quality and commercial shell-fisheries, it will not have implications for the marine and estuarine ecology or the European sites within the zone of influence of the proposed project. As such, the addition of UV treatment to the project has no effect on these ecological receptors, does not alter any of the conclusions reached in the EIAR or NIS.

Physical Changes

- 11 Given that the utilisation of UV treatment does not require any additional structures or changes to planned structures (para 32 of Ciaran O’Keeffe’s evidence) and will be installed and operated in Zone 2 of the WwTP at Clonshaugh, there is no additional construction activity that could give rise to significant effects which was not previously contemplated and considered in the individual assessments. Therefore, there is no change to either the EIAR or NIS in this regard.

Process Changes

- 12 Any processes that occur within the physical infrastructure of the WwTP have already been assessed for their emissions to the environment. Adding a UV treatment procedure prior to effluent being discharged into the outfall pipeline in Clonshaugh does not result in any new emission to the environment in Clonshaugh which was not previously contemplated and considered in the individual assessments. Therefore, there is no change to either the EIAR or NIS in this regard.

Conclusions with Regard to EIAR and NIS

- 13 The analysis and conclusions of the EIAR and NIS were based on a process which did not include for UV treatment. In evidence presented on Wednesday the following was stated in relation to marine ecology:

“For marine biodiversity, the low-level increase in coliforms within the surrounding waters does not have a direct impact on the ecological receptors within the area of influence (as dictated by the model) including the benthos and the shellfish. However, whilst these species may not be directly impacted by the operational plume, the movement of organic materials and coliforms may be maintained within the food chain for a short period of time. Marine life may carry low concentrations of coliforms within their digestive systems, but these are flushed quickly out of their system when foraging in open water or during upstream periods of tidal flow”(Para 38 of Ian Wilson’s evidence).

- 14 With or without UV treatment, the previous conclusions remain completely valid. There will be no detectable impacts on marine and estuarine ecology as a result of the Proposed Project. Furthermore the Proposed Project will not adversely affect the integrity of any European site, either individually or in combination with other plans and projects and no reasonable scientific doubt remains as to the absence of such effects.

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Population – Richard Hamilton

- 15 For Population, UV Disinfection is an important issue for Fisheries - economic impact. It provides an additional level of mitigation to address concerns and perceived impact of outfall on sea water quality and associated quality and value of shellfish and fish produce. The utilisation of UV Disinfection will therefore have a positive impact on Population and Human Health – Population (Economic).

Health – Dr. Martin Hogan

- 16 UV disinfection is relevant to Human Health and its use at the proposed WWTP will have a positive impact as it will further reduce microbial counts. Although modelling has shown that even in a worst case scenario at the proposed WWTP facility, including total process failure, there will be no impact on bathing water quality or at Blue Flag Beaches, UV disinfection will facilitate reduced microbial count levels i.e. beyond compliance, and from first principles, it's use can only be of benefit.

Traffic and Transport – Tom Cannon

- 17 The construction of the UV element within the WwTP will generate only a small number of additional HGV movements, including concrete lorries. The traffic generation will not be significantly increased over that assessed in the Peak Hour assessments included in Chapter 13 of Volume 3 Part A of the EIAR.

Air Quality, Odour and Climate – Dr. Imelda Shanahan

- 18 UV disinfection is not specifically relevant to Air & Odour. However, application of this technique would be expected to have either a neutral or perhaps a slight positive impact in respect of odour control. This is because the UV disinfection process will also result in a reduction in Total Organic Carbon (TOC) and this would lead to a slight reduction in odour in the waste water. The magnitude of any positive impact would depend on several factors, and the technique would not have a significant positive impact but some slight reduction in odour would be likely and therefore a slight positive impact would be expected to occur.

Noise and Vibration – Dr. Imelda Shanahan

- 19 UV disinfection has no specific noise or vibration impact because there are no noise or vibration emissions associated with the proposed UV process.

Landscape and Visual – Richard Barker

- 20 UV disinfection is irrelevant to Landscape and Visual as the structures will be contained within the proposed WwTP site and will not be above ground.

Archaeological, Architectural and Cultural Heritage – Faith Bailey

- 21 UV disinfection is irrelevant to the Archaeological, Architectural and Cultural Heritage because it has no effects on archaeological, architectural and cultural heritage resource.

Hydrology and Hydrogeology – Kieran O'Dwyer

- 22 UV is irrelevant to my Hydrology and Hydrogeology as the beneficial effects are related to the marine environment. The hydrology and hydrogeology chapter assess impacts on the terrestrial elements of the project.

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Soils and Geology – Eoin Wyse

- 23 UV disinfection is irrelevant to Soils and Geology because as outlined in the EIAR there are negligible impacts upon soils and geology during the operational phase and no impacts due to the discharge waste water from the treatment plant. The main impacts upon soils and geology occur during the construction phase.

Agronomy – Philip Farrelly

- 24 UV disinfection is irrelevant to Agronomy. It will have no impact on land used for agricultural production.

Waste – Damien Grehan

- 25 The proposed development of the UV disinfection element at the WwTP is irrelevant to waste as it will not result in any additional surplus material which will require to be hauled off-site.

Material Assets – Damien Grehan

- 26 The UV disinfection element will not lead to an increase in the impact on any material assets, with the exception of the additional construction materials required to construct the facility which will be a negligible additional impact on raw materials.

Risk of Major Accidents and/or Disaster – Ciarán O’Keeffe

- 27 The provision of UV disinfection does not impact the conclusions of Risk assessment. It is designed in a duty/standby configuration to mitigate against the potential risk of UV lamp failure.

RBSF

- 28 UV disinfection is irrelevant to the RBSF because the facility is for the storage of treated wastewater sludge (biosolids). Biosolids arises from a treatment process that is separate to UV disinfection.

Energy

- 29 The aeration system is typically the largest energy user on a WwTP. The aeration system on the proposed WwTP will have an energy demand in the order of 1,000kW. The proposed UV treatment system will have an energy demand in the order of 50kW. As my colleague Dara White has stated, the UV treatment system will be installed with an energy management system to optimise energy use. Therefore, the inclusion of the proposed UV treatment system will have a negligible impact on the overall energy demand of the proposed WwTP.