Appendix 2

Letter from the Development Applications Unit

An Roinn
Ealaíon, Oidhreachta agus Gaeltachta
Department of
Arts, Heritage and the Gaeltacht

Our Ref: **G Pre00050/2015**
ABP Ref: **PL04 .PC0151 according to ABP website: Pre-Application Consultation**

11 September 2015

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Via email fiona.patterson@arup.com
Cc: sids@pleanala.ie

Re: **Pre-planning enquiry - Proposed waste management facility, Ringaskiddy**

A Chara,

On behalf of the Department of Arts, Heritage and the Gaeltacht, I refer to your consultation letter of 18 February 2015 with regard to the above proposed development, and to the preliminary documents presented at meetings (on 23 April and 9 September 2015) between Indaver, Arup, Dixon-Brosnan and regional staff of the National Parks and Wildlife Service (NPWS) of this Department. It is noted that the proposal does not now include a hazardous waste facility.

Outlined below are heritage-related observations/recommendations of the Department under the stated heading(s).

Nature Conservation
In the context of the provisions of the Planning and Development Act, 2000, as amended, the Department understands that An Bord Pleanála will be carrying out the appropriate assessment and environmental impact assessment of this proposed development, and they should be consulted in the first instance. The Department has therefore copied the Board with this letter. The observations below *are not comprehensive*, and are without prejudice to any recommendations, decisions or actions by either the Board or the Minister for Arts, Heritage and the Gaeltacht relating to this planning application or to further pre-planning consultations.

The proposed municipal waste incinerator facility is located within the Lower Harbour area, parts of which includes Cork Harbour Special Protection Area (SPA) (4030), designated under the European Communities (Conservation of Wild Birds (Cork Harbour Special Protection Area 004030) Regulations 2010 (S.I. No. 237 of 2010). A site synopsis, conservation objectives, and the conservation objectives supporting document, for this site are available at www.npws.ie. Although the proposed development is not located within, or adjacent to, the above SPA, nevertheless both stack emissions and flue-treatment ash transport could indirectly affect the SPA. In addition, species to which conservation objectives (e.g. cormorant, common tern, red-breasted merganser) apply feed within the Lower Harbour area, and also migrating and dispersing birds could be at risk of collision with the stack.

Information on the legislative requirements for Habitats Directive appropriate assessment and Environmental Impact Assessment can be found on the websites of the Departments of Arts, Heritage and the Gaeltacht (DAHG) and the Department of the Environment, Community and Local Government (DECLG), respectively. Your attention is drawn to the requirement for the Habitats Directive appropriate assessment to be "clear, precise and definitive" (Court of Justice of the European Union Case C-521/12).

Although the emissions from the facility will be subject to an EPA licence, nevertheless, the Department considers that their assessment is necessary as part of the planning process, to ensure that the decision concerning location (near to a SPA) is properly made.

NIS - Cork Harbour SPA

The following potential conservation issues, discussed at the above pre-planning meetings, will need to be addressed in the Natura Impact Statement (NIS), concerning the conservation objectives of the SPA:

(1) Effects of air emissions

Due to their ecotoxicological effects, emissions of polychlorinated dibenzo-dioxins (PCDDs), polychlorinated dibenzofurans (PCDFs), thallium (Tl), mercury (Hg), and cadmium (Cd) are of particular concern. These compounds and metals also bioaccumulate, affecting species such as piscivorous (fish-eating) birds and otter which are high in the food web. Elevated concentrations of these pollutants have been reported associated with municipal waste incinerators. Baseline data on piscivorous bird species in Cork Harbour, to which the conservation objectives of the SPA apply, should be provided. This should form part of the basis for the interpretation of emission modelling of effects of emissions on the SPA.

Pollutant monitoring and operation performance data for similar processes under similar management (especially re start-up frequencies) (e.g. from the Indaver facility in Co. Meath) should be provided, where an argument is being proposed that modern facilities have less emissions than those reported in the scientific literature more than ten years ago.

(2) Dioxins and furans

As mentioned above, dioxins and furans can be produced by the incineration process, and these contaminants have been recorded as having very low toxicity thresholds to some piscivorous birds, as well as accumulating through the food chain to top predators.

The ability of the incinerator process to control temperature above that predicted to lead to dioxin and furan formation, and the efficacy of the quenching process to rapidly reduce temperature to avoid temperatures lingering between 500 and 800^{o}C, needs to be assessed.

The following is cited from Teaf *et al.* (1999: 33[1]): "Temperatures between 500 and 800^{o}C are observed to promote PCDD [polychlorinated dibenzo-dioxin] formation, while destruction of PCDDs is expected only at temperatures above 800^{o}C. Combustion temperature is a function of fuel Btu content, available oxygen content, and fuel processing operations. Thus, the conditions of municipal waste incinerator combustion (low temperatures, high moisture content, low Btu-value fuel, lack of supplemental fuel, and poor

waste mixing during combustion) are conducive to and are considered a significant source of PCDD formation."

The following is the part of the DEHLG submission to the Oral Hearing for the previous Indaver application, referring to toxicity thresholds for common tern, as requested at the pre-planning meeting:

"In the related Forster's tern, embryotoxicity occurred at 90-339 pg/g of TCDD-TEQ (toxic equivalents) (Hoffman *et al*., 1996; cited in Mierzykowski *et al*., 2008[2]). A common tern egg hatchability effect threshold of 600 pg/g TCDD-TEQ was suggested by Kubiak (2007; cited in Mierzykowski *et al*., 2008), and a feminization threshold of 3000 pg/g lipid was suggested by Hart (1998; cited in Mierzykowski *et al*., 2008). A toxicity reference value of 90pg TCDD-TEQ/g can be taken from this data for common tern."

(3) Comparative data from similar waste-to-energy incinerator facilities

A number of similar incinerators operate close to Special Protection Areas in other parts of Europe. Examples are:

(a) Runcorn municipal waste incinerator (Cheshire, UK), within 300m of the Mersey Estuary SPA;
(b) Marchwood Energy from Waste Facility (Southampton, UK), within 1km of the Solent and Southampton Water SPA;
(c) Exeter Energy from Waste facility (Devon, UK), within 2km of the Exe River SPA;
(d) La Collete non-hazardous waste incinerator facility (Jersey, UK), near to the South East coast of Jersey Ramsar site[3].

Comparative ecological data on the impact of operating incinerators, where these data are available and preferably accredited, should be collated to support the conclusion of the appropriate assessment, as to whether there is reasonable scientific doubt concerning the absence of adverse effects of the proposed incinerator on Cork Harbour SPA.

In addition, the thresholds of sub-lethal and lethal effects of dioxins and furans on the above or similar bird species, documented from areas like the Great Lakes in North America and from Tokyo Bay, should be considered in relation to the model predictions for the proposed development. For instance, Tsuchiya *et al.* (2003)[4] made the following observations in relation to food chain accumulation:

"The major source of dioxin impurities in Japan in the past years was agrochemical formulations; more recently, it has been exhaust from waste incinerators.

The elevated dioxin concentration with polychlorinated dibenzo-p-dioxins, polychlorinated dibenzofurans and coplanar PCBs found in the fishermen may be due to the frequent consumption of fish.

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[1] Teaf, C.M., Stabile, I.K. and Moffat, P.A. (1999) Characterization of potential emissions from hazardous waste incinerators and related facilities. Pp. 23-50. In: Roberts, S.M., Teaf, C.M. and Bean, J.A. (eds.) *Hazardous waste incineration*. Lewis Publishers, Boca Raton.

[2] Mierzykowski, S.E., Welch, L.J., Hall, C.S., Kress, S.W. and Allen, R.B. (2008) *Contaminant assessment of common terns in the Gulf of Maine*. USFWS Special Project Report FY07-MEFO-2-EC. Maine Field Office, Old Town, Maine, U.S.

[3] A 'Ramsar site' is a site designated under the Ramsar Convention on Wetlands (Part of Cork Harbour is also designated as a Ramsar site (837)).

[4] Tsuchiya, Y., Nakai, S., Nakamura, K., Hayashi, K., Nakanishi, K. and Yamamoto, M. (2003) Effects of dietary habits and CYP1A1 polymorphisms on blood dioxin concentrations in Japanese men. *Chemosphere* **52**: 213-219.

Thus, it is probable that the primary route of dioxin exposure in the Japanese population is through the food chain, via fish consumption …"

However, Senthikumar *et al.* (2002)[5] pointed out that several studies indicated elevated exposure of birds to PCDD/Fs in the mid- to late 1990s, but that "efforts have been taken to reduce emission of dioxin in Japan in the late 1990s. As an example, increase of temperature and reduction of carbon sources and substitution of oxygen reduced PCDD/DF emissions."

Any up-to-date indication that such improvements in process control have been successful would be useful.

(4) Flue gas treatment residue and filter ash transport in Cork Harbour

Flue gas treatment residue and filter ash can contain high concentrations of the pollutants mentioned above. If it is proposed to ship this material to continental Europe through Cork Harbour, then the risk of an accidental release of this material into Cork Harbour (and including the SPA-designated mudflats) should be thoroughly assessed.

(5) Flue gas treatment residue and filter ash transport in the Elbe Estuary

At the pre-planning meeting on 9 September 2015 it was mentioned that the flue gas treatment residue and filter ash may be shipped to Hamburg. The Elbe Estuary leading to Hamburg includes the Ramsar-Gebiet S-H Wattenmeer und angrenzende Küstengebiete SPA (DE0916491), the Niedersächsisches Wattenmeer und angrenzendes Küstenmeer SPA (DE2210401), the Unterelbe SPA (DE2121401), the Vorland St. Margarethen SPA (DE2121402), the Unterelbe bis Wedel SPA (DE2323401), the Mühlenberger Loch SPA (DE2424401), the Hamburgisches Wattenmeer SAC (DE2016301), the Unterelbe SAC (DE2018331) and the Schleswig-Holsteinisches Elbästuar und angrenzende Flächen SAC (DE2323392), It should be confirmed with An Bord Pleanála as to whether a similar assessment for these sites, as recommended above for Cork Harbour SPA in relation to ecological risks of residue and ash shipping, is necessary. The Board may also be able to advise if the EIS and/or NIS need to be sent to the German authorities (e.g. under Articles 124-129 of the Planning and Development Regulations 2000 – 2014).

(6) Bird collision risk with stack

There is a potential for collisions between birds dispersing between various parts of Cork Harbour SPA and the proposed stack, with the potential for lighting of the stack to exacerbate this during poor weather conditions (e.g. fog). This issue should be thoroughly assessed, especially in relation to the type of lighting proposed.

(7) Increased predator attraction

The potential for the facility to encourage a higher population of nest predators (e.g. hooded crows, brown rats) in the Ringaskiddy area, due to the potential availability of waste, should be assessed.

(8) Effects of hazardous components in waste

The potential for ecotoxicological effects of the residues of the hazardous wastes to be burned as part of the waste feed (e.g. solvents, etc.) should be thoroughly assessed.

[5] Senthikumar, K., Iseki, N., Hayama, S., Nakanishi, J. and Masunaga, S. (2002) Polychlorinated dibenzo-p-dioxins, dibenzofurans, and dioxin-like polychlorinated biphenyls in livers of birds from Japan. *Archives of Environmental Contamination and Toxicology* **42**: 244-255.

EIS – protected species

The following potential conservation issues, in addition to those mentioned above, will particularly need to be addressed in the Environmental Impact Statement (NIS), concerning protected species and strictly protected species (under the Birds and Habitats Directives and the Wildlife Acts):

(1) Effects on otters (including coastal protection measures and bioaccumulation of pollutants (as with piscivorous birds above));
(2) Effects on Annex I bird species and regularly occurring migratory birds, to which the conservation objectives of the SPA do not apply, e.g. little egret (a piscivorous species), whimbrel (in terms of collision risk), etc.
(3) Effects on red-listed and amber-listed bird species (e.g. yellow-hammer (habitat removal), barn owl (rodenticide use), etc.).
(4) Effects of any blasting or pile-driving on marine mammals occurring in the Lower Harbour;
(5) Effects of rock-armouring on the fauna and flora of the shingle beach; a survey for protected flora should be undertaken.

You are requested to send further communications to Development Applications Unit (DAU) via email to manager.dau@ahg.gov.ie; if emailing is not possible, correspondence may alternatively be sent to:

The Manager
Development Applications Unit
Department of Arts, Heritage and the Gaeltacht
Newtown Road
Wexford
Y35 AP90

Finally, the above observations and recommendations are based on the papers submitted to this Department on a pre-planning basis and are made without prejudice to any observations the Minister may make in the context of any consultation arising on foot of any development application referred to the Minister, by the planning authority, in her role as statutory consultee under the Planning and Development Act 2000, as amended.

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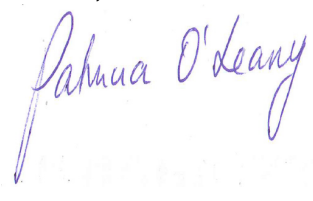

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