

INSPECTORS REPORT ON A LICENCE APPLICATION

TO:	DIRECTORS
FROM:	John McEntagart and Aoife Loughnane - Environmental Licensing Programme
DATE:	06 th November 2014
RE:	Application for a review of Industrial Emissions Licence from Indaver Ireland Limited for the Carranstown Waste-to-Energy Facility, Duleek, Co. Meath. Licence Reg. W0167-03.

Application Details

Type of facility:	Waste-to-Energy Facility
Class of activity (First Schedule of EPA Act 1992 as amended)	11.3 (a) and (b)
Category of Activity under IED (2010/75/EU):	Categories 5.2(a) and 5.2(b)
Classes of activity under Waste Framework Directive (2008/98/EC)	Disposal: D9, D10, D14 & D15 Recovery: R1, R4, R5 & R13
Quantity of waste managed per annum:	235,000 tonnes (17.5% increase on W0167-02) up to 31/12/2019, 220,000 tonnes thereafter.
Types of Waste:	Non-hazardous household, commercial and industrial wastes, and hazardous wastes (<10,000 tpa).
Location of facility:	Carranstown, Duleek, Co. Meath.
Licence application received:	23/04/2012
EIS Required:	Yes
Article 8 Notice sent:	25/06/2012
Article 8 reply received:	06/07/2012
Article 14(2)(b)(ii) Notice sent:	9/08/2012
Article 14(2)(b)(ii) reply received:	31/10/2012
Article 16(1) Notice sent:	18/07/2013
Article 16(1) Notice reply received:	04/09/2013
Article 16(1) Notice re. IED sent:	18/07/2013
Article 16(1) Notice re. IED reply received:	09/08/2013

Article 16(2) Notice sent:	06/08/2013
Article 16(2) Notice reply received:	04/09/2013
Additional information received:	11/06/2012, 3/09/2012, 27/02/2013, 05/08/2014 and 25/09/2014
Site Notice Inspection	22/06/2012 and 28/06/2012
Section 87(1I)(g) Notice sent to Planning Authority	03/10/2013
Response to Section 87(1I)(g) Notice	09/10/2013
Section 76A(3) notice	19/02/2014
Response to section 76A(3) notice	03/04/2014, 11/09/2014
Site Inspection:	28/06/2012 (A. Loughnane & B. Meaney) and 07/06/2013 (John McEntagart)
Submissions received:	25

This report relates to an application from Indaver Ireland Limited (CRO No. 59667) for a review of Industrial Emissions Licence W0167-02, granted as a Waste Licence on 16th February 2011 (and amended to an Industrial Emissions Licence on 31/12/2013), for the Waste-to-Energy Plant at Carranstown, Duleek, Co. Meath. The licence was transferred from Indaver Ireland (branch of Indaver NV) to Indaver Ireland Limited on 29th August 2011.

Indaver Ireland Limited are seeking authorisation for changes at the facility, including:

- (i) Increase of 35,000 tonnes (17.5%) in annual waste throughput, to a maximum waste incineration capacity of 235,000 tonnes per annum (up to 31 December 2019, 220,000 tpa thereafter);
- (ii) Inclusion of additional waste types (hazardous and non-hazardous EWC¹ codes);
- (iii) Extension of waste acceptance and dispatch hours;
- (iv) Additional storage tanks for ammonia (62m³) and fuel oil (44m³);
- (v) Additional package waste water treatment system (30 p.e.) to serve the modular office block;
- (vi) Conversion from temporary to permanent status of two structures (modular office block and spare parts shed). Conversion to permanent status of hardcore area for contractor parking, paved roadway leading to office block, and 22 additional paved car parking spaces.

The site layout is shown in Appendix 1 to this report. The incineration process and associated flue gas cleaning and energy recovery systems are unchanged from those authorised under the current licence.

On 4th February 2013, An Bord Pleanála granted planning permission (Ref. PA0026) under the strategic infrastructure provisions of the Planning & Development Acts for the requested amendments, including increasing the intake of waste to 220,000 tpa, to the existing Waste-to-Energy plant. This permission was amended on 1st August 2014 to allow an intake of waste of up to 235,000 tpa until 31st December 2019

¹ EWC: European Waste Catalogue, as per the European Waste Catalogue and Hazardous Waste List, 2002.

when the Dublin City Council/Dublin Waste to Energy Project installation at Poolbeg (W0232-01) is expected to be operational.

Since the current licence was issued, national waste legislation has been updated by means of the *European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)*, transposing the Waste Framework Directive into Irish law and the Industrial Emissions Directive has been transposed into Irish law, notably through European Union (Industrial Emissions) Regulations 2013 (S.I. No. 138 of 2013), EPA (Industrial Emissions) (Licensing) Regulations 2013 (S.I. No. 137 of 2013) and European Union (Waste Incineration Plants & Waste Co-incineration Plants) Regulations 2013 (S.I. No. 148 of 2013). The Recommended Decision (RD) takes account of the new legislative provisions.

This report focuses on the proposed changes to the facility. A detailed description of the existing facility is given in the Inspectors Report on waste licence W0167-02.

1. Facility

The facility consists of a Waste-to-Energy (WtE) plant (an incineration plant with energy recovery) and ancillary services. The WtE plant is based on conventional grate furnace technology with a horizontal steam boiler and an advanced flue gas treatment system. Plant commissioning began in August 2011 and the applicant has identified March 2012 as the first full operating month. The plant commenced 'normal operating conditions' and the plant was issued with an operating certificate by Eirgrid, effective from 5th December 2012.

The tonnage throughput of a WtE facility is determined by the thermal capacity of the boiler (the boiler for this facility has a design capacity of 70MW), the average expected calorific value (CV) of the waste and the number of operating hours per annum. Based on the initial design parameters, the plant was expected to produce 18MW electricity. However current electrical output is averaging 16.56MW due to lower calorific value of waste than expected and the plant being in a start-up phase (i.e. not operating at 100% capacity).

Indaver has recently submitted an application to ESB Networks to increase the maximum electricity export capacity available to the plant from 17MW to 21MW. This is due to higher efficiency of the turbine and lower house load than initially expected. At present, the plant is restricted to generating less than 17MW due to the nature of the connection agreement. The increase will enable all of the energy recovered to be exported, which would facilitate a higher efficiency overall and therefore improve the R1 calculation¹.

In order to make up for the shortfall in the calorific value of the waste and to take advantage of the higher turbine efficiency and lower house load than expected, Indaver is seeking authorisation to process more waste in order to achieve the design thermal output and maximise the amount of electricity it can produce and export.

The WtE plant operates 24 hours per day for approximately 7,752 hours per annum (46 weeks), depending on the energy content of the waste. There are approximately 42 employees made up of 20 permanent staff who run and control the plant on a 24

¹ R1, indicator of energy efficiency for thermal treatment of waste, calculated in line with the *European Commission Guidelines on the Interpretation of the R1 Energy Efficiency Formula for Incineration Facilities dedicated to the Processing of Municipal Solid Waste according to Annex II of the Directive 2008/98/EC on Waste*.

hour basis, and an additional 22 staff who provide management, operation, quality control and maintenance functions.

2. Proposed Changes

(i) Increase of 35,000 tonnes in annual waste throughput

The applicant has requested a 17.5% increase in annual waste incineration to 235,000 tonnes per annum in order to realise the full potential of the WtE plant which is designed based on thermal capacity rather than tonnage throughput.

The plant was designed and built to accept 200,000 tpa of waste based on an anticipated average CV of waste of 9.35 MJ/kg. However, the actual CV of the MSW (municipal solid waste) being treated at the facility is closer to 8.5 MJ/kg, meaning that more waste needs to be processed to meet the thermal capacity of the boiler. Therefore, the applicant proposes to accept an additional 35,000 tpa at the facility. They have also applied for a number of additional waste streams, including hazardous waste, which would increase the overall CV of the waste. The bunker provides a buffer zone for mixing waste to achieve a consistent and optimal CV in the waste feed to the furnace.

The incineration process and associated flue gas cleaning and energy recovery systems will remain unchanged from those authorised under the current licence. The main impacts of increasing the waste throughput by 35,000 tpa are:

- 17.5% increase in raw materials usage in the flue gas treatment system;
- 17.5% increase in the generation of incinerator residues (bottom ash, boiler ash and flue gas cleaning residues);
- 17.5% increase in water usage;
- Increase in electrical output from 17 to 21 MW.

(ii) Inclusion of additional EWC codes (hazardous and non-hazardous)

The applicant proposes to accept a number of additional waste types (28 new EWC codes), including hazardous wastes, for treatment at the facility. In 2010, Indaver managed 65,952 tonnes of hazardous waste for its customers, the majority of which was exported for treatment. The proposed new waste streams are ones that are currently exported, which Indaver states would be suitable for treatment at the facility. The full list of additional wastes, including EWC codes, is shown in Table 1. Indaver also request that EWC Code 19 12 12 (organic fines and other mechanical treatment residues) have the restriction of 50,000 tpa removed, and to be listed alongside non-hazardous residual municipal waste. Indaver states that there are large quantities of this material available in the market with limited treatment capacity elsewhere. The RD accedes to this request.

Table 1. Additional Waste Types (hazardous and non-hazardous EWC codes)

EWC code	Description
07 01 01* 07 05 01* 08 03 08	Aqueous wastes e.g., water from spill clean-ups containing trace oils and adhesive powders, rinse waters containing trace pharmaceutical residues, waste ink solution (water and non-hazardous ink solids), paint and water.
15 01 10* 15 02 02*	Contaminated packaging & clothing e.g., empty paint tins, empty containers for cleaning agents, rags and cloths contaminated with paint/glue/ink, protective clothing from pharmaceutical, computer chip or chemical manufacturers.
07 05 13*	Off-specification materials & unused products

16 03 03* 16 03 05* 16 05 07* 16 05 08*	e.g., headache tablets, colourings used in cosmetic manufacture, off-spec or redundant cosmetic make-up, toilet bowl or other cleaners, detergents, eye baths, denture fixative waste.
03 01 04* 17 02 04* 17 09 03* 19 12 06* 20 01 37*	Treated or contaminated wood e.g., wood shavings and small pieces of wood, treated with preservative, from furniture/window manufacturers, C&D waste wood contaminated with creosote or other preservative, treated wood from waste management facilities.
07 05 11* 19 08 11*	Industrial sludges e.g., WWTP sludge from pharmaceutical plant, sludge from local authority WWTPs where possible contamination may have occurred.
17 05 03* 17 05 05* 19 13 03*	Contaminated soils, spoil & sludges e.g., soil & stones from clean-up operations where contamination has occurred, dredging spoil from firewater retention ponds, sludges from soil remediation.
19 10 03*	Contaminated wastes from waste treatment facilities e.g., material from shredding of white goods, shredded paint containers.
20 01 27* 20 01 28	Paint and inks e.g., paint cans & paint waste from Civic Amenity sites
16 01 07*	Oil filters e.g., discarded oil filters from garages and mechanics.
13 07 01*	Waste oil e.g., waste fuel oil & diesel.
19 01 13* 19 01 07* 19 01 12	Ash/residues e.g., flue gas treatment residues, bottom ash & boiler ash temporarily returned to site before being re-dispatched for treatment off-site.

The proposed new hazardous waste types are considered to be 'low end' hazardous wastes and the applicant has confirmed that hazardous wastes with a content of >1% halogenated organic substances (expressed as chlorine) will not be accepted at the facility. They will therefore continue to operate the plant at a minimum combustion temperature of 850°C in accordance with Chapter IV of the IED¹. Condition 1.3 of the RD prohibits the acceptance of hazardous waste with >1% chlorine for treatment at the facility.

While it is acknowledged that grate incineration is not suitable technology for all types of hazardous waste, the applicant has selected the proposed new waste streams based on the successful treatment of such wastes in similar grate furnace technology in Europe, e.g. AVR in Rotterdam and Ekokem in Finland. Hence, the proposed waste streams should not pose a difficulty for the grate furnace which is a proven robust technology.

Varying the waste input will affect the concentration of pollutants in the untreated flue gases, however the applicant has confirmed that the existing flue gas treatment system is capable of treating the gases and the stack emissions will continue to be below the emission limit values specified in the current licence.

¹ A minimum combustion temperature of 1,100°C is required if hazardous wastes containing >1% chlorine are to be treated.

Chapter IV of the IED stipulates extra requirements for the acceptance of hazardous waste at incineration/co-incineration plant and these have been included in Condition 8.4 of the RD. The current practice of unloading directly from delivery vehicles into the bunker may not suffice for all the additional waste types received. Condition 8.4.3 of the RD requires the licensee to agree procedures for bunker management of new waste streams.

Condition 3.19 requires a test programme to validate the performance of the plant under the expanded range of waste mixes.

(iii) Extension of waste acceptance and dispatch hours

The majority of waste deliveries arrive to the site in the early morning period between 08.00 and 09.00 hours. The applicant has requested an extension to the current waste acceptance hours, as shown in Table 2 below. They initially sought to extend the week-day hours to 06:00 - 20:00, however following consultation with the Carranstown Residents Association, they have revised their request to allow for only one additional hour in the morning (07:00), with no change to Saturday hours.

Table 2. Hours of Waste Acceptance

Period	Current Licence W0167-02	Proposed in original licence review application for W0167-03	Amended proposal (11/06/2012)
Monday to Friday	08:00 – 18.30	06:00 – 20:00	07:00 – 18:30
Saturday	08:00 – 14:00	06:00 – 14:00	08:00 – 14:00

The applicant initially sought to have unrestricted hours of dispatch of incinerator residues/wastes from the facility. However, they have amended their proposal to follow the same pattern of hours as for waste acceptance, with a provision that in exceptional circumstances, incinerator residues/wastes be allowed into the site outside these hours with written notification provided to the Agency no later than 10:00am on the following working day. An example of this would occur if a consignment of incinerator residues failed to make the allocated TFS shipment (i.e., transfrontier shipment), it would be returned to the facility out-of-hours for temporary storage before new TFS documentation could be arranged. The licence does not need to be amended to enable the take back of waste they have produced and dispatched from the installation.

The impact of the extended hours of acceptance/dispatch on noise and traffic has been assessed in the Environmental Impact Statement (EIS). Condition 3.17 of the RD authorises the requested hours and includes the text “unless otherwise agreed by the Agency” to cater for exceptional circumstances. Condition 4 of planning permission PA0026 authorises the same hours, with any deviation from these times only allowed in exceptional circumstances where prior written approval has been received from the planning authority.

(iv) Additional storage tanks for ammonia and fuel oil

The applicant proposes to install an additional ammonia storage tank (62m³) and fuel oil storage tank (44 m³) beside the existing tanks in the service yard. The proposed new tanks will be double skinned. The RD requires secondary containment of all tanks to contain any spills/leaks in order to protect surface water and groundwater.

(v) Additional package waste water treatment system (30 p.e.) to serve the modular office block;

The applicant proposes to install a third Puraflo waste water treatment system and engineered percolation area to serve the modular office block which is to be converted from a temporary to a permanent structure. The capacity of the new system is 30 p.e. Condition 3.13 of the RD specifies that the waste water treatment systems and percolation areas shall satisfy the criteria set out in the EPA's waste water treatment manuals.

(vi) Request for amendments to current licence W0167-02

The applicant has requested a number of changes to the current licence, as presented in Table 3.

Table 3. Requested changes to current licence requirements

Condition / Schedule	Requested change	Recommendation
Condition 3.11.7	<p>Remove the requirement to provide a storage tank for aqueous wastes delivered to the facility, as all aqueous wastes will be directly injected into the furnace from the delivery vehicles.</p> <p>A small mobile pump unit with flexible hosing will be connected to the tank and to the feeding system. The aqueous wastes will be pumped directly to the furnace, where it will be introduced via a lance located above the main feed area of the grate. The aqueous waste unloading area is a contained area where any potential spillages can be captured in an underground tank</p>	Approve
Schedule B.1: Emission Limits to Air	<p>Indaver request that, as there is a continuous monitoring system in place for dioxins/furans, note 3 be updated or removed. Note 3 on dioxins/furans states "<i>Average values shall be measured over a sample period of a minimum of 6 hours and a maximum of 8 hours. The emission limit values refers to the total concentration of dioxins and furans calculated using the concept of toxic equivalence in accordance with Annex I of Directive 2000/76/EC.</i>"</p>	<i>Refuse. Schedule B.1 Emission Limits to Air and associated note 3 included in the RD are as per Annex VI of the IED.</i>
Schedule C.4: Monitoring of Incinerator Residues	<p>Note 1 of the table states '<i>All analysis to be undertaken at an accredited laboratory employing accredited procedures.</i>'</p> <p>The applicant's experience is that while many laboratories are accredited for soil analyses, few are accredited for the equivalent analyses in bottom ash. They have requested that the note be amended to say accredited laboratories <u>where possible</u>.</p>	Approve
Conditions 6.16 and 3.11.6	<p>Clarify frequency of integrity testing of underground pipes and bunds. One condition has a testing cycle of every three years, the other has every five years.</p>	The RD removes the condition indicating a five year cycle, to clarify that it should be a three year cycle.

Condition 11.7.2	Indaver request the condition be updated to reflect the standardisation of AER guidance and align with this guidance.	The RD reflects current AER guidance.
Condition 4.1.1.2	Indaver request that the confidence levels detailed in Condition 4.1.1.2 of the existing licence (and the RD) be used to assess monitoring results instead of the confidence intervals determined from the QAL2 monitoring validation exercise (as per CEN standard EN 14181 for continuous emissions monitoring systems).	Do not approve. OEE advised that Condition 4.1.1.2 (which comes from the IED) details performance standards for the continuous emissions measuring system (CEMS). If the QAL2 identifies that the AMS is in line with Condition 4.1.1.2 then the AMS is performing satisfactorily and the confidence intervals determined via the QAL2 are used. The OEE have requested confirmation from the EC that this interpretation is correct.

3. Use of Resources

Energy: The facility will be a net exporter of energy and the waste to be combusted is its primary fuel. The facility qualifies as a waste recovery operation using the R1 formula in the revised Waste Framework Directive (2008/98/EC).

Climate: The increase in greenhouse gas emissions as a result of the changes would represent a 0.05% additional contribution to total GHG emissions in Ireland in 2012. This is considered an imperceptible amount in the context of Ireland's obligations under the Kyoto Protocol.

Water: The additional water requirement is approximately 300 litres/hr, which is a 3.5% increase on the current rate of groundwater extraction (8.5 m³/hr).

Other Materials: A 17.5% increase in the raw materials used in the flue gas treatment system is anticipated. These materials are hydrated lime (Ca(OH)₂), quicklime (CaO), expanded clay (Dioxorb), activated carbon, nitrogen gas (N₂) and ammonia solution (SNCR reagent for nitrogen oxides (NO_x) removal).

There will be no additional fuel oil requirement as a result of the proposed change, in fact the use of fuel oil may decrease if the addition of waste oil (EWC 13 07 01*) is authorised.

4. Consideration of Best Available Techniques (BAT) and BAT Conclusions

The following reference documents have specific relevance in the determination of BAT for the installation:

- *BREF 'Integrated Pollution Prevention and Control (IPPC) Reference document on Best Available Techniques for Waste Incineration (July 2006).*

Aspects of the following reference documents also have relevance:

- *Reference document on Best Available Techniques for Energy Efficiency (February 2009);*
- *Reference document on Best Available Techniques on Emissions from Storage (July 2006).*

The *BREF 'Integrated Pollution Prevention and Control (IPPC) Reference document on Best Available Techniques for Waste Treatment Industries' (August 2006)* was not considered relevant to this application, because all operations are covered by the Waste Incineration BREF.

The applicant submitted an assessment of the installation activity against the relevant BAT Conclusion requirements contained in the above BREF Documents. The applicant has demonstrated that the installation will generally comply with all applicable BAT Conclusion requirements specified in the Waste Incineration BREF and those contained in the energy efficiency and storage BREF documents. Regard was also had to relevant BAT Conclusion requirements for Environmental Management Systems set out in recently published Commission Implementing Decisions (CIDs).

I consider that the applicable BAT Conclusion requirements are addressed through: (i) the technologies and techniques as described in the application; (ii) the standard conditions specified in the RD; and (iii) where applicable, the inclusion of additional specific conditions (see Table 4 below).

Table 4. Additional Conditions in RD to address BAT Conclusion requirements

BREF Document for Waste Incineration	
Additional Requirements:	Condition/Schedule
Environmental policy	2.3.2.1
Preventative Action requirements	2.3.2.6
Auditing of the EMS	2.3.2.10
EMS documents availability	11.4
Requirements when choosing/designing plant/infrastructure	3.2
Amendment to waste acceptance procedures	8.4.3 (ii) and 8.4.5
Bunker management	8.4.3(vi)
Hazardous waste data collection	8.4.4 and Schedule A
Feed equalisation systems	8.4.4.3
Detector for the presence of radioactive materials	3.20.10
Limit on the calorific value of wastes	3.28
Energy efficiency in maintenance	2.3.2.8
Labelling tanks, containers, drums and pipework	3.12.5
Air from bulk waste storage areas and pre-treatment areas to be used as combustion air	5.5
BREF Document on Energy Efficiency	
Incorporating energy efficiency into EMS	2.3.1
Maintenance and optimisation of energy efficiency	2.3.2.8

BREF Document on Emissions from Storage	
Catchment for leaks	3.29
Leak inspection programme	6.18

I have examined and assessed the application documentation and I am satisfied that the site, technologies and techniques specified in the application and as confirmed, modified or specified in the attached RD comply with the requirements and principles of BAT. I consider the technologies and techniques as described in the application, in this report, and in the RD, to be the most effective in achieving a high general level of protection of the environment having regard - as may be relevant - to the way the installation is located, designed, built, managed, maintained, operated and proposed to be decommissioned.

4. Emissions

4.1 Air

The applicant has requested an increase in the maximum volumetric flow rate from the stack. Previously, the stack emissions were assessed based on a volume flow rate of 147,000 Nm³/hr, i.e., 110% of the estimated flue gas flow rate at the plant nominal capacity. Recent spot measurements of the volume flow at the stack have shown flowrates that are higher than was expected. As a result, Indaver now propose to increase the maximum licensed volumetric flow rate from 147,000 to 183,700 Nm³/hr (approximately 25% increase), in order to allow for daily fluctuations based on the waste input and operating conditions.

The air quality assessment presented in the EIS is an update of the assessment presented in the previous (2009) EIS for the facility. Several variations in volume flow have been modelled (maximum spot flow of 192,086 Nm³/hr, minimum spot flow of 134,641 Nm³/hr and 110% maximum volume flow of 183,700 Nm³/hr) in order to ascertain whether any significant variation in ambient ground level concentrations of the regulated pollutants occurs due to the variation in volume flow.

The modelling was conducted in accordance with the Agency's *Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)*, EPA 2010. The revised air dispersion modelling results at a volume flow of 183,700 Nm³/hr and relevant air quality standards are presented in the following table.

Table 5: AERMOD Revised Air Dispersion Modelling Results at 183,700 Nm³/hr

Parameter	Background Concentration	Process Contribution	Predicted PEC	Air Quality Standard (AQS)
	All results are in µg/m ³ unless otherwise stated			
NO₂ ^{Note 1}				
1-hour (99.8%ile)	N/A	24	55.5 ^{Note 2}	200 ^{Note 3}
Annual mean	20	0.87	20.9	40 ^{Note 3}
SO₂				
1-hour (99.7%ile)	N/A	21.1	26.5 ^{Note 2}	350 ^{Note 3}
24-hour (99.2%ile)	N/A	2.46	7.86	125 ^{Note 3}
PM₁₀				
24-hour (90.4%ile)	N/A	0.19	15.96 ^{Note 2}	50 ^{Note 3}
Annual mean	20	0.058	20.06	40 ^{Note 3}
PM_{2.5}				

Annual mean	14	0.058	14.1	25 ^{Note 3}
CO				
8 hour	400	17.4	417.4	10,000 ^{Note 5}
TOC (as benzene)				
Annual mean	0.7	0.06	0.76	5 ^{Note 3}
HCl				
1-hour (arithmetic mean)	0.02	3.98	4	100 ^{Note 4}
HF				
1-hour (98%ile)	0.01	0.27	0.28	0.3 ^{Note 4}
Annual mean	0.005	0.0058	0.11	3 ^{Note 4}
Hg				
Annual mean	0.001	0.00032	0.0013	1 ^{Notes 4 & 5}
Cd & Ti				
Annual mean	0.001	0.00029	0.0013	0.005 ^{Note 6}
Arsenic (As)				
Annual average	0.001	0.00031	0.0013	0.006 ^{Note 6}
Dioxins/Furans				
max. annual average	(fg/m ³) 28 ^{Note 7} 46 ^{Note 7}	(fg/m ³) 0.57	(fg/m ³) 28.6 46.6	---
PAHs				
(as benzo[a] pyrene)	(ng/m ³) ^{Note 8}	(ng/m ³)	(ng/m ³)	(ng/m ³)
Annual mean	0.09	0.0017	0.0917	1 ^{Note 6}

Note 1: 1-hour (99.8%ile) value assumes 50% NO_x conversion to NO₂. Annual mean value assumes 75% NO_x conversion to NO₂.

Note 2: Background added in accordance with Agency's Air Dispersion Modelling from Industrial Installations Guidance Note (AG4). 2012 Data from the Agency's Kilkitt monitoring station indicates a 99.8th%ile of maximum 1 hour concentrations of NO₂ of 28.6 µg/m³, annual mean NO₂ of 3.8 µg/m³ and a maximum oxidant (NO₂ & O₃) concentration of 128.7 µg/m³. Monitoring for SO₂ at Kilkitt (2012) indicated a 99.7th%ile of maximum 1 hour concentrations of 8 µg/m³, an annual mean of 2.7 µg/m³ and a maximum 99.2th%ile of 24 hour concentrations of 6.4 µg/m³. Monitoring of PM₁₀ at Kilkitt (2012) indicated 90.4%ile of maximum 24 hour concentrations of 15.9 µg/m³ and annual mean of 8.8 µg/m³.

Note 3: Council Directive 2008/50/EC on ambient air quality and cleaner air for Europe.

Note 4: TA Luft (1986) immission standard for 98%ile of hourly values; TA Luft (2002) immission standard for annual mean standard of 0.3 µg/m³. The UK Environment Agency has Environmental Assessment Levels (H1 Guidance) of 750 µg/m³ (maximum one hour level) and 20 µg/m³ (annual mean) and the model indicates predicted ground level concentrations well within these levels.

Note 5: World Health Organisation.

Note 6: Arsenic, Cadmium, Mercury, Nickel And Polycyclic Aromatic Hydrocarbons In Ambient Air Regulations 2009 (S.I. No.58 of 2009).

Note 7: 1 femtogram (fg)/m³ = 1 x 10⁻¹⁵ g/m³. Baseline results for dioxins given as sum of cumulative impacts (in the absence of the WTE facility) and baseline monitoring data firstly as (i) Non-detects = zero, (ii) Non-detects = limit of detection.

Note 8: 1 nanogram (ng)/m³ = 1 x 10⁻⁹ g/m³.

A comparison of the predicted environmental concentrations (PECs) of the regulated pollutants at maximum spot flow, minimum spot flow and the 110% maximum volume flow shows only a very minor variation as the volume flow changes. The model results show that the variation in flow rate does not materially alter the original conclusions that all substances emitted from the facility will meet the most stringent ambient air quality standards for the protection of human health and the environment, even where the plant is operating at maximum or abnormal operating conditions.

The more complex waste mix may give rise to increased emissions of some pollutants such as heavy metals, HCl and SO₂, but the emission rates for all pollutants must still comply with the limit values as modelled and set down in Annex VI of the IED.

Dioxin and PCB levels in the Carranstown Area

Carranstown, Co. Meath is included in the EPA's national dioxin survey (based on levels in cow's milk) as sampling station B17, an area of perceived potential risk. I have consulted with Dr. Colman Concannon, OEA, who has provided recent monitoring results, as presented in the following table.

Table 6. Dioxin & PCB monitoring results at Carranstown, Co. Meath (station B17), 2010 & 2011.

Year	Sample	Dioxins	PCBs	Dioxins and PCBs
		WHO-TEQ incl. LOQ pg/g milk fat	WHO-TEQ incl. LOQ pg/g milk fat	Total WHO-TEQ incl. LOQ pg/g milk fat
2011	B17: Carranstown	0.222	0.168	0.390
	Analysis of data from all 14 "B sample" stations	Minimum: 0.171 Maximum: 0.382 Mean: 0.237	Minimum: 0.120 Maximum: 0.395 Mean: 0.186	Minimum: 0.299 Maximum: 0.759 Mean: 0.422
2010	B17: Carranstown	0.208	0.138	0.346
	Analysis of data from all 14 "B sample" stations	Minimum: 0.180 Maximum: 0.300 Mean: 0.211	Minimum: 0.102 Maximum: 0.597 Mean: 0.253	Minimum: 0.301 Maximum: 0.897 Mean: 0.464
EU Limit Value		3.0	-	6.0
EU Action Level		2.0	2.0	-

In 2010 and 2011, the monitoring results for (i) dioxins and (ii) PCBs were both less than 11% of the EU action level of 2.0 pg WHO-TEQ/g, and the sum of dioxins and PCBs was less than 8% of the EU limit value of 6.0 pg WHO-TEQ/g.

In 2010, the Carranstown result for dioxins and PCBs of 0.346 pg WHO-TEQ/g was below the average value of 0.464 pg WHO-TEQ/g for all 14 "B sample" stations. In 2011, the Carranstown result of 0.390 pg WHO-TEQ/g was below the average value of 0.422 pg WHO-TEQ/g for all 14 "B sample" stations.

The Agency's report on *Dioxin levels in the Irish Environment: Ninth Assessment (Summer 2011)*, also reviewed work carried out by the UK authorities, and noted: "A recent report from the UK Health Protection Agency (HPA) reviewed research on the links between emissions from municipal waste incinerators and effects on health. It concluded that modern and well managed municipal waste incinerators make only a very small contribution to local concentrations of air pollutants and any potential damage to the health of those living close-by is likely to be very small, if detectable (HPA 2009)." ¹

Odour

¹ *The Impact on Health of Emissions to Air from Municipal Waste Incinerators*. UK Health Protection Agency. September 2009.

Since commencing operations, there have been complaints of odour nuisance from the facility – there were 3 odour complaints received by the Agency in 2012. Indaver accepted the need for remediation of this problem. During the scheduled maintenance shut-down in August 2012, they installed a temporary/back-up odour abatement unit to extract odorous air from the bunker area using a fan and ductwork and pass it through an activated carbon unit (approx. 90% odour removal efficiency). Indaver subsequently determined the cause of the problem was the escape of odorous gases through vents in the bunker. Indaver have upgraded the seals on these vents and now consider the matter resolved. Accordingly Indaver does not propose to maintain the odour abatement unit to extract odorous air from the bunker. There were no odour complaints in 2013 and there has been one so far in 2014, although the cause of this complaint was not attributed to the licensee.

4.2 Emissions to Sewer

There are no emissions to sewer from the facility.

4.3 Emissions to Surface Waters / Storm Water Run-off

There are no changes proposed to the management of storm water run-off at the facility. The additional run-off from roofs of the new permanent buildings and additional hard-standing and parking areas is minor, and is capable of being managed by the existing attenuation system. The maximum rate of surface water discharge from the site is not to exceed the pre-development 'greenfield' runoff rate. This has recently been amended from 36.2 litres per second to 59.8 litres per second with the agreement of Meath County Council, and is specified in Condition 3.14 of the RD.

There are no changes proposed to the fire water risk management programme.

4.4 Emissions to ground/groundwater:

There is a new proposed emission to ground from the additional package waste water treatment system (30 p.e.) to serve the modular office block. There are two existing similar package waste water treatment systems at the facility with discharges of treated sanitary effluent to ground via engineered percolation areas. Condition 3.13 of the RD specifies that the waste water treatment systems and percolation areas shall satisfy the criteria set out in the EPA's waste water treatment manuals.

4.5 Wastes Generated:

The proposed changes will result in a 17.5% increase to approximately 73,100 tpa of incinerator residues (bottom ash, boiler ash and flue gas cleaning residues) produced at the facility. Bottom ash generated at the facility has been classified to date as non-hazardous and consists mainly of inert materials such as glass, sand, metal pieces and stones. Despite the proposed incineration of up to 10,000 tpa¹ of hazardous wastes, the applicant believes (based on experience from other grate furnaces in Europe) that the classification of the bottom ash will remain as non-hazardous. As the disposal costs for hazardous bottom ash are much higher than those for non-hazardous ash, the applicant has a strong commercial reason to ensure that hazardous bottom ash is not produced at the facility. The primary means of achieving this will be by only accepting suitable hazardous waste types that

¹ As Indaver have only received planning permission for 10,000tpa hazardous waste, the RD also limits the licensee to 10,000 tpa hazardous waste.

will produce non-hazardous bottom ash. *Schedule C.4 Monitoring of Incinerator residues* of the RD requires a weekly regime of bottom ash sampling and analysis during hazardous waste incineration test programmes, reducing to quarterly thereafter. This monitoring regime is based on the advice of OEE, but can be amended as per Condition 6.3.

The boiler ash and flue gas cleaning residues are classified to date as hazardous waste and are subject to periodic monitoring according to Schedule C.4 of the RD. These residues are currently exported to Germany where they are used as fill material in extinct underground salt mines.

Ferrous metals will be recovered from the bottom ash as standard. In future, as technology and markets develop, other materials will be recovered as far as practicable.

4.6 Noise:

There was an issue of noise nuisance from the main stack fan which required the fan supplier to carry out replacement works. The applicant has confirmed that this noise issue was corrected during the maintenance shutdown in August 2012, and as a precaution, a second silencer was installed in the stack in November 2012.

No new noise sources are proposed in this review application. The Agency issued a revised Noise Guidance Note (NG4) in 2012. One of the key changes is that noise limits and assessment periods are now expressed in terms of daytime (07:00 to 19:00 hrs), evening (19:00 to 23:00 hrs) and night-time (23:00 to 07:00 hrs), as opposed to daytime and night-time only. The applicant has confirmed that they will comply with the requirements of NG4.

4.7 Nuisance:

It is not anticipated that the proposed changes at the facility will result in any additional environmental nuisances. Mitigation measures are in place to ensure odour, vermin, dust and litter nuisances are minimised.

5. Decommissioning

Condition 10.2 of the current licence requires that the Decommissioning Management Plan (DMP) is reviewed annually. If the requested changes are authorised, the main area of focus for the DMP would be the disposal of the contents of the waste bunker. Currently, the financial calculations assume a disposal cost of €110/tonne plus €5/tonne transport to a licensed facility, based on the bunker contents going to landfill in Ireland. If the requested changes are authorised, the bunker contents would now contain hazardous waste and may not be suitable for landfill. In the absence of another thermal treatment facility in Ireland, the waste would have to be exported for treatment/disposal abroad. This would entail a higher transport & disposal costs per tonne.

Another area requiring review would be if the proposal to double the storage capacity for ammonia and heavy fuel oil is granted. The calculations in place for the costs of tank cleaning and disposal of residues will also have to be amended.

6. Waste Management, Air Quality and Water Quality Management Plans

The Agency's Third National Hazardous Waste Management Plan 2014 – 2020 has a stated objective of striving for self-sufficiency in the treatment of hazardous waste.

The North Eastern Regional Waste Management Plan 2005 - 2010 identifies the need for a 150,000 to 200,000 tonnes per annum WtE facility to serve the Region's future waste management requirements. The plan does not preclude the incineration or co-incineration of hazardous waste. The scale and nature of the proposed facility is consistent with the requirements of the plan. Indaver also make reference to the 2012 evaluation of this plan, which concludes the overarching policy objectives (including diversion of waste from landfill) remain relevant.

Ireland has renewable energy targets required under EU Directive 2009/28/EC, obligations regarding greenhouse gas emissions under the Kyoto Protocol, and, under the Landfill Directive 1999/31/EC, targets for the diversion of biodegradable waste from landfill.

I consider that the proposed development is consistent with the aforementioned plans and targets.

7. Compliance with Directives/Regulations

Industrial Emissions Directive (2010/75/EU)

This installation falls within the scope of the following categories of Annex 1 of Council Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control).

- Category 5.2 – *Disposal or recovery of waste in waste incineration plants or in waste co-incineration plants:*
 - (a) *for non-hazardous waste with a capacity exceeding 3 tonnes per hour;*
 - (b) *for hazardous waste with a capacity exceeding 10 tonnes per day.*

The installation is subject to authorisation under chapters II and IV of the Directive, and associated annexes.

The Recommended Decision (RD) as drafted takes account of the requirements of the Directive. BAT, as described above, is taken to be represented by the guidance given in European IPPC Bureau Reference (BREF) Document on BAT for Waste Incineration (July 2006).

Baseline Report

Article 22(2) of the IED requires operators to prepare and submit a Baseline Report before a permit for an installation is updated for the first time after January 2013. As part of the licence application Indaver, in accordance with article 9(2)(n) of the Environmental Protection Agency (Industrial Emissions) (Licensing) Regulations 2013, S.I. No. 137 of 2013, submitted a baseline report. This will allow for the making of a quantified comparison of the state of the soil and groundwater upon definitive cessation of activities.

A review of the site history indicated the only previous use was for agriculture. The factory was constructed in the period 2008 – 2011 and commenced operation in 2011. The licensee stores/uses on site the following hazardous substances that are classified as hazardous by the Agency under the European Communities Environmental Objectives (Groundwater) Regulations 2010 and/or have risk phrases R50 to R53 associated with them:

- Ammonium hydroxide solution;
- Diesel;

- Flue gas residues; and
- Boiler ash.

Much of the site is paved and there is approximately 8 m of generally low permeability glacial till providing protection for the underlying regionally important karstified and fractured aquifer. Significant receptors in addition to the aquifer include groundwater abstraction wells and drainage ditches feeding the River Nanny. The groundwater flow regime is, however, primarily controlled through the dewatering of the nearby Platin Quarry.

The licensee also carried out a review of soil quality from the 2000 and 2007 baseline assessments and collated additional data in 2014, which confirmed there is no evidence of significant soil or groundwater contamination at the site. This conclusion is supported by compliance groundwater monitoring carried out since operations commenced in 2011.

The groundwater body name is Bettystown, with the code: IE_EA_G_016. The current Water Framework Directive status of this water body is 'poor' and the overall objective of this groundwater body is to 'restore' and the overall risk is 1a 'At risk of not achieving good status'.

The Baseline Report is considered to adequately identify the state of the soil and groundwater contamination by relevant hazardous substances at the site of the installation. Where the installation causes significant pollution of soil or groundwater by relevant hazardous substances compared to the state established in the baseline report, the operator shall, in accordance with Condition 10 of the RD, upon closure, take the necessary measures to address that pollution and return the site to the state identified in the baseline report.

Due to the requirements of groundwater and soil monitoring in the IED and due to the nature of the substances processed at the installation, the RD (Schedule C.6.1 Ambient Groundwater Monitoring) requires the continuation of groundwater monitoring on a monthly/biannual basis and soil monitoring to be carried out every ten years (Condition 6.17).

Chapter III of Directive 2010/75/EU and European Union (Large Combustion Plants) Regulations 2012 (S.I. No. 566 of 2012)

Chapter III of the Industrial Emissions Directive and the European Union (Large Combustion Plants) Regulations 2012 (S.I. No. 566 of 2012) have replaced the Large Combustion Plant Directive 2001/80/EC and the Large Combustion Plant Regulations (S.I. No. 644 of 2003) respectively. Article 28 of the IED exempts waste incineration installations from the provisions of Chapter III of the IED related to large combustion plants.

Chapter IV of Directive 2010/75/EU and European Union (Waste Incineration Plants and Waste Co-Incineration Plants) Regulations 2013 (S.I. No. 148 of 2013).

Chapter IV of the Industrial Emissions Directive and the European Union (Waste Incineration Plants and Waste Co-Incineration Plants) Regulations 2013 (S.I. No. 148 of 2013) have replaced Incineration of Waste Directive 2000/76/EC, and the Air Pollution Act, 1987 (Municipal Waste Incineration) Regulations, 1993 (S.I. No. 347 of 1993); and (from 7 January, 2014), the European Communities (Incineration of Waste) Regulations 2003 (S.I. 275 of 2003) respectively.

Chapter IV of the IED sets stringent operational conditions and technical requirements for waste incinerators. The RD takes account of these requirements.

In accordance with Article 45(2) of the IED, a permit granted to a waste incineration plant using hazardous waste shall include a list of quantities of the different categories of hazardous wastes which may be treated, the minimum and maximum mass flows of those hazardous wastes, their lowest and maximum CVs and their maximum content of pollutants, e.g. PCB, PCP, chlorine, fluorine, sulphur, heavy metals and other polluting substances. These requirements have been specified in Schedule A.2 of the RD.

In respect of the European Union (Waste Incineration Plants and Waste Co-Incineration Plants) Regulations 2013, the RD includes conditions/amended conditions, as follows:

1. Amended Condition 3.8.2 requiring adequate storage capacity for contaminated rain water run-off in the event of fire or spillage, as per Article 13(5)(b).
2. New Condition 7.1.5, requiring the licensee to explore avenues for the export of heat, as per Article 17(5).

Waste Framework Directive (2008/98/EC)

The RD takes account of the legislative provisions of the *European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011)*, which transposed the Waste Framework Directive into Irish law. The key change in this licence review is the re-designation of the principal activity as R1 *use principally as a fuel or other means to generate energy* instead of D10 *Incineration on land*.

Condition 8.9 brings into effect Article 18 of the Waste Framework Directive and the ban on the mixing of hazardous wastes, as transposed by Regulation 34 of the 2011 Regulations.

Stockholm Convention

Ireland's *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)* was finalised by the Agency in November 2012. Unintentionally formed POPs associated with waste incineration include PCDDs and PCDFs, commonly known as dioxins and furans. The Plan identifies that in 2010, the estimated releases of dioxins to air from waste incineration was comparatively insignificant compared with open burning activities (e.g. backyard burning, vehicle and building fires) which contributed an estimated 5,000 times more dioxin emissions than controlled incineration. The waste incineration sector has a high standard of pollution abatement in order to comply with Chapter IV and Annex VI of the IED (formerly WID) and routine monitoring of emissions is undertaken.

The source category controls identified for waste incinerators are licensed operations in accordance with the IED, and associated monitoring requirements imposed as part of the licence. The RD has taken account of these measures and ensures that dioxin emissions from the facility are closely regulated and controlled.

Clean Air for Europe CAFÉ Directive (2008/50/EC)

The air dispersion modelling study undertaken indicates that emissions from the facility will not result in a breach of the statutory air quality limits as specified in S.I. No. 180 of 2011 (transposed CAFÉ Directive).

Emissions Trading Directive (2003/87/EC)

Hazardous or municipal waste installations are not required to hold a permit under the EC (Greenhouse Gas Emissions Trading) Regulations, 2004 (S.I. No. 437 of 2004).

Water Framework Directive (2000/60/EC)

The only changes in emissions to surface water or groundwater from the facility is the additional package waste water treatment plant and percolation area. The RD takes account of the Water Framework Directive, as relevant.

Environmental Liabilities Directive (2004/35/EC)

Condition 12.2 of the RD satisfies all the requirements of the Environmental Liabilities Directive, in particular those requirements outlined in Article 3(1) and Annex III of 2004/35/EC.

The applicant states that a new ELRA (Environmental Liabilities Risk Assessment) will be conducted to assess the impact of the new waste types plus the additional ammonia and waste oil storage capacity in the overall context of the site. Condition 12.2.2 requires the ELRA to be reviewed to reflect any significant change on site and at least every three years.

Seveso Directive (96/82/EC)

The EC (Control of Major Accident Hazards Involving Dangerous Substances) Regulations (S.I. No. 74 of 2006), also known as the Seveso II Regulations, do not apply to the activities at the facility. The proposed amendments will not result in any change in status.

Appropriate Assessment

Four Natura 2000 sites are located within 10km of the facility.

Table 7. Natura 2000 sites within 10 km of the facility

Site Code	Designation	Description	Distance
002299/004232	River Boyne & River Blackwater SAC and SPA	Freshwater river with alkaline fen and alluvial woodland <u>Annex I habitats:</u> Alkaline fens Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) <u>Annex II species:</u> <i>Lampetra fluviatilis</i> <i>Salmo salar</i> (only in fresh water) <i>Lutra lutra</i> Bird species: Kingfisher (<i>Alcedo atthis</i>)	3 km

004080	Boyne Estuary SPA	Estuarine and shoreline habitat (Wetlands) <u>Species:</u> Shelduck <i>Tadorna tadorna</i> Oystercatcher <i>Haematopus ostralegus</i> Golden Plover <i>Pluvialis apricaria</i> Grey Plover <i>Pluvialis squatarola</i> Lapwing <i>Vanellus vanellus</i> Knot <i>Calidris canutus</i> Sanderling <i>Calidris alba</i> Black-tailed Godwit <i>Limosa limosa</i> Redshank <i>Tringa tetanus</i> Turnstone <i>Arenaria interpres</i> Little Tern <i>Sterna albifrons</i>	8 km
004158	River Nanny Estuary and Shore SPA	Estuarine and shoreline habitat (Wetlands) <u>Species:</u> Oystercatcher <i>Haematopus ostralegus</i> Ringed Plover <i>Charadrius hiaticula</i> Golden Plover <i>Pluvialis apricaria</i> Knot <i>Calidris canutus</i> Sanderling <i>Calidris alba</i> Herring Gull <i>Larus argentatus</i>	8 km

A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activity, individually or in combination with other plans or projects is likely to have a significant effect on a European Site(s). In this context, particular attention was paid to the following European sites:

- **River Boyne & river Blackwater SAC (002299);**
- **River Boyne & river Blackwater SPA (004232);**
- **Boyne Estuary SPA (004080); and**
- **River Nanny Estuary and Shore SPA (004518).**

The Agency considered, for the reasons set out below, that the activity is not directly connected with or necessary to the management of those sites as European Sites and that it can be excluded on the basis of objective 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.

It has been determined that this facility does not have the potential for significant effects on any European site due to the nature and scale of the WtE plant operations and the distance between the installation and the designated sites.

Environmental Impact Assessment Directive (85/337/EEC, as amended)

The applicant submitted an Environmental Impact Statement (EIS) which was prepared in support of planning application Ref. PA0026, based on a waste intake of 220,000 tpa. Planning permission was granted for this development by An Bord Pleanála on 4th February 2013 under the strategic infrastructure provisions of the Planning and Development Acts. The licensee then made an application to An Bord Pleanála under Section 146 B of the Planning and Development Acts to increase the tonnage that can be accepted at the facility to 235,000 tpa up until 31 December 2019. The licensee submitted a review of the EIS outlining the impact of increasing the waste tonnage to 235,000 tpa. The report stated that there would be no significant change in the impact on the environment and Indaver argued a revised planning application and EIS/EIA should not be required. On 1 August 2014, An Bord Pleanála amended Indaver’s planning permission to increase the tonnage to 235,000 and stated that an EIA was not required for this alteration to the planning permission. An Bord Pleanála invoked the provisions of Section 146B(8)(a) of the Planning and Development Act, 2000, as amended to invite submissions and observations in relation to this matter from the public and the Agency made its response in correspondence dated 27 June 2014.

- **Content of EIS**

I have considered and examined the content of the EIS and other material (information submitted in the licence application, the planning permission, planning inspectors report, correspondence between the Agency and An Bord Pleanála carried out under Section 87 of the EPA Acts and any submissions made by third parties in relation to the EIS). I consider that having examined the relevant documents and with the addition of this Inspector’s Report that the likely significant direct and indirect effects of the activity have been identified, described and assessed in an appropriate manner as required in Article 3 and in accordance with Articles 4 to 11 of the EIA Directive as respects the matters that come within the functions of the Agency. I consider that the EIS also complies with the Environmental Protection Agency (Industrial Emissions) (Licensing) Regulations (S.I. No. 137 of 2013, as amended).

- **Environmental Impact Assessment (EIA)**

An assessment, as respects the matters that come within the functions of the Agency, has been carried out as detailed below.

An assessment as regards the functions of the planning authorities was carried out by An Bord Pleanála when granting planning permission for the development (Planning File Ref. PA0026). An Bord Pleanála’s EIA was considered as part of the Agency’s assessment.

Consultation was carried out between An Bord Pleanála and the Agency in accordance with Section 87(11)(g) of the EPA Acts, as follows:

Notice under Section 87(11)(g) (request for observations) issued:	03/10/2013 to An Bord Pleanála
Response to Section 87(11)(g) Notice received:	09/10/2013

As part of the consultations, An Bord Pleanála confirmed that planning permission reference PA0026 was the applicable grant of permission relating to this development. An Bord Pleanála provided the following observations to the Agency:

1. An Bord Pleanála is concerned about the potentially significant move from use as a waste recovery facility to use as a waste disposal facility. While An Bord Pleanála understands that the waste licences issued to date provide for certain waste disposal activities incidental to the core recovery activity at the facility, it is concerned that the licence review application seeks to include waste disposal (D10 – incineration on land) as a substantial on-going activity. An Bord Pleanála advises that any significant shift in activities from “recovery” to “disposal” would be at variance with the integrity of planning permissions governing the facility.

Response: The existing licence (W0167-02) and the previous licence (W0167-01) both provided for *Incineration on land or at sea*, Class 8 of the Third Schedule of the Waste Management Acts 1996 to 2010 (1996 to 2005 for licence reg. no. W0167-01) – a waste disposal activity - as well as *Use of any waste principally as a fuel or other means to generate energy*, Class 9 of the Fourth Schedule of the Waste Management Acts 1996 to 2005 (1996 to 2005) – a waste recovery activity. In licence reg. no. W0167-02, class 8 of the Third Schedule of the Waste Management Acts 1996 to 2010 - a waste disposal activity - was authorised as the principal activity. In this regard the Indaver facility at Carranstown has always been licensed as a disposal as well as a recovery facility. Furthermore, it is not Indaver’s proposal that waste disposal will be a substantial part of its activity. Under Condition 7.1.2 of the RD, the licensee is required to calculate the R1 efficiency number for the installation on an annual basis. This will confirm whether or not the installation is operating primarily as a waste recovery or a waste disposal activity.

2. An Bord Pleanála notes that the planning permission for the installation limits the intake of hazardous waste to 10,000 tpa whereas the licence review application looks for 15,000 tpa.

Response: The RD proposes authorisation of a maximum of 10,000 tpa.

3. An Bord Pleanála notes that Indaver withdrew their request for the intake of EWC code 19 12 11 after being granted planning permission on 4th February 2013.

4. An Bord Pleanála state that, in considering the environmental impact of the planning application, it noted there was a lack of detailed information in respect of the on-site waste storage and handling areas and facilities for certain additional wastes then proposed to be accepted at the facility. The submissions to the licence review application (described below) states that An Bord Pleanála concluded, in respect of this issue, that details of procedures, physical implications for waste storage and handling areas would be satisfactorily dealt with by the waste licensing process. In addition An Bord Pleanála note the EPA is empowered to direct the provision of works necessary to secure adequate on-site infrastructure appropriate to the activities being licensed.

Response: The matters raised above by An Bord Pleanála have been taken on board in drafting the RD.

5. An Bord Pleanála note that it has made all documentation related to the EIA available to the Agency.
6. An Bord Pleanála draws the Agency’s attention to the issues set out in its Inspector’s Report and Assessment and the Board’s final decision, as set out

in the Direction and Order, with particular attention to the Reasons and Conditions impose on the grant of permission.

An Bord Pleanala provided a copy of the EIA report relating to planning permission PA0026.

The assessment outlined in this report considers the submissions and observations exchanged between An Bord Pleanala and the Agency. All third party submissions/observations received which are relevant to impacts on the environment have also been considered and taken into account.

The submitted EIS and the assessment as described in this Inspectors Report address the likely significant direct and indirect effects arising from the activity, as respects the matters that come within the functions of the Agency.

- **Likely significant effects**

The following section identifies, describes and assesses the main likely significant direct and indirect effects of the activity on the environment, as respects the matters that come within the functions of the Agency, for each of the following factors: human beings, flora, fauna, soil, water, air, climate, the landscape, material assets and cultural heritage. The main mitigation measures proposed to address the range of predicted significant impacts arising from the activity have also been outlined.

1. Human Beings

Likely significant effect	Description of effect	Mitigation measures proposed by applicant in EIS or IE licence application <small>Note 1</small>
Health	Air emissions from stack Acceptance of hazardous wastes	Flue gas treatment system, air dispersion modelling carried out that predicts no exceedance of air emission limits. Only suitable hazardous wastes will be accepted that will not cause exceedance of air emission limits.

Note 1: and/or as outlined above in this report

2. Flora & fauna

Likely significant effect	Description of effect	Mitigation measures proposed by applicant in EIS or IE licence application <small>Note 1</small>
Ecological impacts	Potential impacts of the proposed development on the flora & fauna of the site and its environs.	Screening for Appropriate assessment (AA) concluded that AA was not required. EIA also identified no significant impact on flora and fauna elsewhere, and local ecology.
Impact on local watercourses	Water pollution causing fish kills in River Nanny.	Surface water drainage design incorporates monitoring and

		shut-off of discharge in the event of contamination, based on trigger levels to be agreed under condition 6.16 of the RD.
Impact of air emissions	Impact of air emissions plume on designated sites.	Air dispersion modelling indicated no adverse impact with extensive flue gas treatment system.

Note 1: and/or as outlined above in this report

3. Soil

Likely significant effect	Description of effect	Mitigation measures proposed by applicant in EIS or IE licence application ^{Note 1}
Soil contamination	<p>Accidental spillage of potentially polluting substances, e.g. oils</p> <p>Leakage from waste delivery vehicles</p> <p>Leakage from waste bunker</p> <p>Disposal of sanitary effluent to ground</p>	<p>Environmental Management Plan, bunding of storage tanks, oil interceptor on surface water drainage system, containment of surface water drainage.</p> <p>All waste deliveries will be in fully contained structures.</p> <p>Bunker has an impermeable base & wall with secondary containment and leak detection system.</p> <p>Design of waste water treatment systems & percolation areas in accordance with EPA manual.</p>

Note 1: and/or as outlined above in this report

4. Water

Likely significant effect	Description of effect	Mitigation measures proposed by applicant in EIS or IE licence application ^{Note 1}
Surface water / groundwater contamination	Accidental spillages during operation	Existing surface water management system includes silt trap, oil interceptor, attenuation pond, two levels of monitoring and a controlled discharge system, bunding of storage areas, containment booms & absorbent material to control spillages.
Impact on groundwater quality	Percolation of treated waste water	Design of waste water treatment systems & percolation areas in accordance with EPA manual.
Groundwater abstraction	Increased rate of groundwater abstraction	Overall negligible impact on aquifer due to ongoing dewatering of adjacent quarry. The drawdown from Indaver's borehole is minimal compared with the Irish Cement Platin cone of depression.

Fire-water	Discharge of contaminated fire-water	Fire-water retention facilities provided on-site. Fire-water risk management programme.
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Note 1: and/or as outlined above in this report

5. Air

Likely significant effect	Description of effect	Mitigation measures proposed by applicant in EIS or IE licence application ^{Note 1}
Air quality impact	Increase in air emissions from WtE plant.	Flue gas treatment system, air dispersion modelling carried out.
Odour	Changes / increases in odour emissions	No significant impact
Noise	Changes / increases in noise emissions	No significant impact

Note 1: and/or as outlined above in this report

6. Climate

Likely significant effect	Description of effect	Mitigation measures proposed by applicant in EIS or IE licence application ^{Note 1}
Greenhouse gas (GHG) emissions	Increase in GHG emissions (CO ₂ , CH ₄ , N ₂ O) from WtE plant. Increase in GHG emissions from additional traffic.	Thermal energy generated by waste incineration is recovered and converted to electricity for export to national grid. This is a direct benefit in terms of GHG emissions which would have been released from power stations. Air emissions from increased traffic are not significant.

Note 1: and/or as outlined above in this report

7. Landscape, Material Assets & Cultural Heritage

Likely significant effect	Description of effect	Mitigation measures proposed by applicant in EIS or IE licence application ^{Note 1}
Utility services	Increase in demand on water supply, surface water and foul water drainage systems, waste management	No significant impact

Note 1: and/or as outlined above in this report

- **Assessment of parts 1 to 7 and the interaction of effects and factors**

The assessment detailed throughout this Inspector's Report fully considers the range of likely significant effects of the activity on human beings, flora, fauna, soil, water, air, climate, landscape, material assets and cultural heritage, as respects the matters

that come within the functions of the Agency, (as identified in parts 1-7 above), with due regard given to the mitigation measures proposed to be applied. The assessment also has regard to the assessments carried out by the An Bord Pleanála and all relevant observations and submissions made on the licence application and EIS.

The following is a matrix of the potential significant interaction of impacts, as provided by Table 19.1 of the EIS (unchanged in assessment for increased waste intake of 235,000 tpa).

Table 19.1 Interactions between Environmental Media

	Human Beings	Air	Noise	Landscape	Flora & Fauna	Surface Water	Soils & Groundwater	Climate	Material Assets
Human Beings									
Air									
Noise									
Landscape									
Flora & Fauna									
Surface Water									
Soils & Groundwater									
Climate									
Material Assets									

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I have considered the interaction between the factors referred to in parts 1-7 above and the interaction of the likely effects identified (as well as cumulative impacts with other developments in the vicinity of the activity). I do not consider that the interactions identified are likely to cause or exacerbate any potentially significant environmental effects of the activity.

I am satisfied that the proposed mitigation measures identified above are adequate and will also address any potential significant interactions or cumulative effects. The RD includes conditions as considered appropriate to address any likely significant effects or interactions associated with the licensable activity.

- **Reasoned Conclusion on Environmental Impact Assessment**

I consider that having examined the relevant documents, and on foot of the assessment carried out throughout this Inspector's Report, that the likely significant direct and indirect effects of the activity have been identified, described and assessed in an appropriate manner as respects the matters that come within the functions of the Agency, and as required by Section 83(2A) and Section 87(1G)(a) of the EPA Acts.

It is considered that the mitigation measures as proposed will adequately control any likely significant environmental effects from the activity.

It is also considered that the proposed activity, if managed, operated and controlled in accordance with the licence conditions included in the RD will not result in a significant detrimental impact on the environment.

8. Cross Office Liaison

I have consulted with the OEE inspector (Dave Mathews) regarding enforcement issues relating to the current licence W0167-02. This has informed how the RD regulates notifying and reporting to the Agency, bottom ash, waste handling and odour management. In addition I have consulted with the Air Thematic Unit of the OEE (Ian Marnane and Ken Murphy,) in relation to emissions to atmosphere, and this has informed how the RD interprets the emissions limit values. I also consulted with Brian Quirke (Resource Use Unit) regarding Ireland's *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants (POPs)* and the National Hazardous Waste Management Plan.

9. Compliance Record

Indaver Ireland has not been prosecuted by the Agency. The OEE have conducted 31 site visits (23 unannounced and 8 announced) and 3 audits (one unannounced and two announced) of the facility since licence W0167-02 was issued. No non-compliances were identified during the audits. Audit observations included waste acceptance, waste records, air emissions monitoring, test programme and bunding.

10. Fit & Proper Person Assessment

The Fit & Proper Person test requires three elements of examination:

- Technical Ability
- Legal Standing
- Financial Standing

It is my view that the applicant can be deemed a *Fit & Proper Person* for the purpose of this licence review. The RD requires the licensee to review and maintain the Environmental Liabilities Risk Assessment and the financial provisions to the satisfaction of the Agency (Condition 12.2).

Indaver have agreed financial provisions related to the existing Environmental Liabilities Risk Assessment and the Decommissioning Management Plan. Condition 12.2.3 of the RD requires the licensee to agree financial provision for the revised Environmental Liabilities Risk Assessment (Condition 12.2.2) and revised Decommissioning Management Plan (Condition 10) prior to the acceptance of hazardous waste at the installation.

11. Complaints

The Agency has received nine complaints (includes three for odour and three for air pollution) with respect to the licensee since the installation began operations in 2011.

14. Submissions

Twenty submissions were received in relation to this review application.

- (i) Health Service Executive, Dublin North East, received 01/06/2012 & 19/11/2012

The main issue raised by the HSE relates to the noise impact associated with extended hours of acceptance of waste, with particular regard to the World Health Organisation's "Night Noise Guidelines for Europe".

Response: After consulting with the Carranstown Residents Association, Indaver has scaled back its request. The amended proposal would see the opening hours for Monday to Friday start one hour earlier than currently authorised, while the closing hours would remain as is. Night time noise levels should not be adversely affected by the proposal.

(ii) Mr. James Rountree, Sellar, Nobber, Co. Meath, received 20/03/2012 & 11/12/2012

Mr. Rountree is a dairy farmer, living 17 miles from the Indaver site. The submissions outline his concerns regarding the health impact of burning hazardous waste, particularly waste paint and paint containers which he considers should be recycled. Mr. Rountree is concerned about emissions of heavy metals and particularly the potential for significant emissions of chromium VI. Mr. Rountree is also concerned about emissions of fine particulate matter. Mr. Rountree is concerned about using occupational exposure assessments as a means to estimate the risk to the general public.

Mr Rountree asserts that health statistics in the area are not good, although he did not provide evidence for this and the HSE has not expressed this concern in its submission. He requests the gathering and analysis of health statistics with continual review.

Mr Rountree expresses his concern about consent from and communication with farmers regarding the analysis of agriculture produce and reporting of the subsequent results. He also requests a baseline study for farm produce. He requests "chemical fingerprinting" of emissions so that any contamination of farm produce could be linked to the incinerator, if the incinerator is the source of the contamination.

Mr Rountree also expressed concern regarding the impact assessment methodology. In particular he considers that as one goes further down the plume of emissions, the exposure to any one individual may decrease but more people are exposed giving an increased risk of impacting vulnerable populations. Accordingly he considers that potential impacts beyond 5 miles should be considered and requests a review of all health statistics.

Mr Rountree expressed concern at the use of the term *dust* for particulate matter in the existing licence, as there are different categories of particulate matter and requests that the size distribution and surface area of particulate matter be considered.

Mr Rountree expressed concern that the only real-time information uploaded to the website is details of the combustion chamber temperature and other data is published as yearly averages in the AER. He feels the full range of data should be available to the public, so the public can consider short term events.

Mr Rountree also makes reference to ECJ Case 50/09 which criticises the lack of involvement of the Agency at the planning stage of new developments and the separation of planning and licensing procedures. Mr. Rountree considers that the Agency and An Bord Pleanála have not properly convened for consideration of the application. He is concerned that the experience and

expertise of the Agency is not directly available to An Bord Pleanala regarding emissions of chromium VI.

Response:

In its assessment of emissions of heavy metals Indaver considered chromium VI. Indaver's assessment indicated that no standard for heavy metals, including chromium VI, would be breached at the emission levels included in the RD. The use of occupational exposure limits for environmental assessment where environmental standards are not available is standard practice and I consider appropriate in this instance.

In regard to fine particulate matter, the air dispersion model included in the EIS indicated emissions from the facility would not breach the EU standards for PM₁₀ and PM_{2.5} included in the CAFÉ Directive.

Concerns regarding health statistics in the vicinity of the facility should be addressed to the HSE.

Concerns regarding the analysis of agricultural produce should be addressed to the Department of Agriculture, Food and the Marine.

In regard to "chemical fingerprinting" of emissions, the RD (Schedule C.1.2. Monitoring of Emissions to Air) requires an extensive range of parameters to be analysed.

In regard to the impact assessment methodology, the approach used is standard practice internationally for the impact assessment of emissions from stationary installations. The impact of a pollutant on an individual relates to the exposure time and concentration, i.e. the dose. The further one travels down the plume, the smaller the dose. The criteria for assessing the impact of the dose received by an individual (e.g. national ambient air quality standards) takes into account vulnerable members of the population. I do not consider there is a need to extend the range of the impact assessment beyond that carried out in the EIS.

Dust is the term used for particulate matter in the RD because this is the term used in Annex VI of the IED. The size distribution of particulate matter was considered in the impact assessment of emissions of total dust, in particular by use of the air quality standards for PM₁₀ and PM_{2.5}, and in the air dispersion model for heavy metals, dioxins, PAHs and mercury which incorporated the mass distribution and surface area distribution of particulate emissions. The RD requires monitoring of emissions of PM₁₀ and PM_{2.5} as well as total dust.

In regard to the availability of data for the public, the RD requires all emissions data to be submitted to the Agency, data which is publicly available, on a quarterly basis. I do not consider it necessary for this information to be uploaded to the website in real-time. The Agency is not seeking this information in real-time for its own purposes either. I consider that real-time data on the combustion chamber temperature is sufficient. This data informs the Agency, and the public, as to the performance of the incinerator. In circumstances where the combustion chamber temperature is outside specification, further information can be sought. In addition, the RD requires the licensee to notify the Agency of any incidents, including exceedances of emission limit values. The records of such incidents are also publicly available.

In regard to the role of the Agency in the planning process, the Agency responded to correspondence from An Bord Pleanala received 29/06/2012 requesting comments from the Agency in regard to the planning application for this development. The

Agency responded to this request in a letter dated 01/08/2012. Both of these letters are on the Agency's website. In addition the Agency sent a consultation letter on 06/09/2013 to An Bord Pleanála regarding EIA and the licence application. An Bord Pleanála responded to this letter in correspondence dated 09/10/2013 (both of these letters are also on the Agency's website). The nature of An Bord Pleanála's response is outlined in the Environmental Impact Assessment included in Section 8 of this report.

- (iii) Cllr. Ken O'Heiligh, Drogheda Borough Council, received 23/06/2012. Mr. Denis Lenehan, Newgrange Growers Group, received 26/06/2012, Ms. Mary P. Burke, Friends of the Aquifer Ltd., received 11/07/2012, Michael O'Dowd, received 11/07/2012, Mr. Pat O'Brien, Louth & Meath Health Protection Group, received 12/07/2012, Dominic Hannigan and Gerald Nash TD, received 17/08/2012, Joe & Nuala Kavanagh, for and on behalf of the residents of the adjoining area received 21/09/2012, Shane McEntee TD, Minister for State, Department of Agriculture, Food and the Marine, received 27/09/2012.

The above submissions are summarised together as they raised similar issues, notably the following:

1. Site selection and source of waste

Concerns, albeit unspecified, were raised about the site selection measures for hazardous waste facilities and the elimination of unsuitable areas. Concern was also raised that waste from outside the North East region would be accepted at the facility.

Response:

Site selection is a matter primarily for the planning authorities. Indaver has obtained planning permission to accept hazardous waste at the facility.

In regard to the sourcing of waste from outside the North East region, Indaver may take waste from other regions in line with Ministerial Direction Circular WIR: 04/05. The RD limits the Indaver installation to 235,000 tpa regardless of the source of the waste and accepted waste will be of the same character regardless of the region of the country it comes from.

2. Tonnage and hours of waste acceptance and dispatch

Concerns were raised about an increase in tonnage of waste (and what Indaver might do in the future), the proposal for unrestricted hours of waste dispatch and a proposal for a significant extension of hours for waste acceptance.

Response:

In regard to the tonnage and hours of operation at the facility, the RD only considers what Indaver applied for. It does not consider what Indaver might propose to do in the future.

In regard to the proposal to extend the opening hours for waste acceptance and waste dispatch, Indaver have consulted with Carranstown Residents Association and amended their proposal for opening hours and decided to leave the hours for waste dispatch unchanged.

3. Human and animal Health

Concerns were raised about the additional waste types, and the impact handling and incinerating these wastes may have on agriculture. Concerns about the long term risks regarding soil, water and the food chain were also raised.

Concerns were expressed that no baseline health study in relation to (i) people living in the locality of the incinerator has been carried out (and requests that the licence not be granted until such a study has been carried out) and (ii) the potential impact of emissions on agriculture has been conducted. There was also a request that a condition be imposed that such a study, on parameters agreed with the HSE, be carried out by an independent body.

Concerns were expressed that the risk to human health was not taken into account by the Agency and the planning authorities. Concerns regarding cancer rates, asthma rates and death rates from respiratory illnesses were also expressed.

Response:

In regard to the proposal for an increase in waste and the introduction of new waste types, the assessment indicates the changes will not cause significant environmental pollution. In particular, the standards used to consider the impact of air emissions consider agriculture and the EIS and licence application indicate agriculture will not be adversely impacted by air emissions from the facility.

The impact assessment for emissions from the facility (in the EIS and licence application) includes any long term risks regarding the pollution of air, soil and water, and any subsequent impact on agriculture and food production.

The risk to human health has been considered, notably through the national ambient air quality standards. In addition Chapter 6 of the EIS considers the impact of the development on human beings. Concerns regarding cancer rates, asthma rates and death rates from respiratory illnesses in the Drogheda area, should be addressed to the HSE. The HSE did not raise such concerns in its submission to the Agency on this licence application.

I consider the emission limit values stipulated in the RD provide sufficient protection of the environment and human health.

In regard to the request for baseline studies regarding human health and agriculture, such concerns should be raised with the HSE and Department of Agriculture, Food and the Marine respectively.

The Agency routinely carries out monitoring of dioxins in milk at a site near the Carranstown facility. No evidence has been provided that would warrant refusing the proposed development until such time as a baseline study has been carried out.

[Irish study on impact of incinerator on health of local community](#)

Further to the above, it may also be noted that the Agency commissioned a study¹, undertaken by the HSE (West) between April 2007 and September 2008, to compare the health status of the populations of two regions of County Clare – Clarecastle and Ennistymon (control population) with the health status determined in a separate study completed in 1996.

At the time the baseline data for the 1996 study was being collected, a pharmaceutical installation in Clarecastle was granted a licence to operate a waste incinerator. The more recent (2007-8) study was designed to reassess the self-reported health status of the residents of Clarecastle to determine if this has been altered in the decade that the incinerator had been operational.

The Strive report indicates the two towns did not differ significantly in terms of environmental quality that would be likely to cause an impact on public health during the years 1996–2007. In addition it stated, “no significant decrease in health status between 1996 and the current study, which was exclusive to the Clarecastle area, could be identified”. The report continued, “overall environmental concern levels reduced significantly in the Clarecastle area between 1996 and 2007.”

4. Enforcement

Concerns were expressed that the facility should be subject to stringent control through licence and enforcement. The Agency was requested to establish a regional office in the area due to the presence of a number of large industries. Some submissions expressed concern that individual company regulation was inadequate, and that there should be a system of independent unannounced site visits. Concern was also expressed about the reliability of self-monitoring of noise levels.

Concern was expressed by some regarding odour and noise emissions they experience and in particular the WHO Night Noise Guidelines for Europe.

Response:

The Agency's Office of Environmental Enforcement (OEE) has a system of unannounced site inspections and audits as part of its enforcement of licences. As detailed above in the section under compliance record, there have been 31 site inspections and 3 audits since licence Reg. No. W0167-02 was granted on 16/02/2011. A robust enforcement of any revised licence will continue.

The OEE has advised that the distance of the Dublin Regional Inspectorate from the facility has not prevented effective enforcement of the licence.

Self-monitoring reports are reviewed, and their adequacy assessed, by OEE inspectors.

Noise monitoring and the noise impact assessment included in the EIS indicate noise levels will comply with the WHO Night Noise Guidelines for

¹ Strive Report No. 46 'Comparative Population Health Status Study of a Semi-Rural Irish Community Before and After Licensing of a Waste Incinerator'.

Europe. The noise limits included in the RD are consistent with these WHO guidelines. There have been no noise complaints received by the Agency.

Any concerns regarding existing noise levels should be addressed to the Office of Environmental Enforcement.

There have been odour complaints related to the facility, as noted and addressed earlier in this report. There have been no further odour complaints received by the Agency in 2013 although one odour complaint that could not be attributed to the licensee was received in 2014. The RD includes conditions prohibiting odour nuisance due to the facility, requiring odour control measures and odour inspections.

5. Groundwater protection

Concerns were raised that the installation was built over a regionally important karst aquifer, and the risks to the aquifer posed by expanding incineration and the storage of hazardous waste.

Response:

The EIS and licence application have considered the risk to groundwater and the aquifer beneath the site. The RD has conditions regarding bunding, storage, conveyance and handling of potentially polluting substances and these conditions are designed to protect soil and groundwater beneath the site.

6. Environmental Impact Assessment and ecological protection

Reference was made to ECJ Case 50/09 and concern regarding a perceived lack of Agency involvement at the planning stage and the separation of the planning and licensing procedures. In particular there was concern that an EIA was not carried out for the development

Particular concerns were raised that Duleek Commons pNHA was not considered in the EIS.

Response:

As noted in the response to submission (ii) from Mr. Rountree, the Agency and An Bord Pleanála have communicated with each other regarding Indaver's proposed development during the planning and licensing processes (under Section 87(11)(g) of the EPA Acts 1992 – 2013). I consider that the relevant communications address the concerns raised in ECJ Case 50/09 and that an EIA has been completed.

The EIS did consider the Duleek Commons pNHA.

7. Previous employment of Director General

Concerns that the Director General of the Agency used to work for Indaver and that she might not be objective were expressed.

Response:

In regard concerns about the Agency's Director General having previously worked for Indaver, the Director General of the Agency will not sit at the Board discussions on this licence review application.

8. Incinerator technology and operations

Concerns were expressed that the technology at the facility is unsuitable for the proposed hazardous waste streams. In particular, Mr. O'Dowd expressed concern that Ekokem use a rotary kiln incinerator, and not a moving grate incinerator, to treat similar hazardous wastes to those Indaver proposes to treat. Indaver's proposal included details of similar operations at Ekokem to justify its proposal to use its moving grate incinerator to treat certain hazardous wastes.

Concerns were expressed about the risk of accidents, malfunctions, etc. and whether there are emergency response procedures in place to deal with the effects of an environmental emergency.

Response:

In regard to the concerns about the technology used at Ekokem versus Indaver, the rotary kiln incinerator at Ekokem is at line 2, but, in their licence application, Indaver were referring to line 4 at Ekokem, a moving grate incinerator where hazardous waste with less than 1% chlorine content is burned.

The temperature requirements for the incineration of waste are specified in Chapter IV of the IED and are incorporated into the RD.

In regard to the concerns about accidents and malfunctions, the RD requires the licensee to maintain an Accident Prevention Programme and an Emergency Response Procedure. Indaver has an Emergency Response Procedure in place, as per Condition 9.2 of the existing licence and is required under Condition 9.2 of the RD to maintain this procedure. The procedure is reviewed by inspectors at inspections and audits to ensure it is adequate.

9. Air Emissions

Concerns were expressed about an increase in emissions of dioxins, furans, and heavy metals (particularly cadmium, chromium, antimony and mercury), due to incineration of medical and paint wastes. Some submissions expressed the belief that there is not a safe level of emissions from the incinerator.

Concern was also expressed that the prevailing wind might not have been taken into account and there was a request that vehicle emissions be considered along with increased emissions from the incinerator.

Joe and Nuala Kavanagh expressed their concern that the stack is not high enough, because they say they can see fumes and debris falling to the ground within a few hundred metres of the stack.

Response:

In regard to the concerns about an increase in emissions to atmosphere, these have been considered in the air dispersion model, which indicated emissions would not cause significant environmental pollution. I consider that emissions at the emissions limit values included in the RD are safe with respect to the protection of the environment and human health.

The prevailing wind was considered in the impact assessment of emissions to air, through the use of actual meteorological data used in the air dispersion model. The impact of vehicle emissions have been

incorporated into the background air quality levels and therefore included in the impact assessment of air emissions from the facility.

The stack height has been determined, using air dispersion modelling, to be sufficient to ensure ground level concentrations are within the relevant standards for the protection of the environment and human health, provided emissions conform to the requirements of the licence and in particular the emission limit values. Any concerns about observed fumes and debris should be addressed to the Office of Environmental Enforcement.

10. Disposal of incinerator residues

Concerns were expressed about the disposal of incinerator residues, given that no ash recovery plant has been installed. In particular, there were concerns about who is in charge of testing and regulating the disposal of incinerator residues. One submission queried the amount of ash residues generated annually.

Concerns were expressed about the plans for the disposal of waste from the incinerator when the White River landfill closes.

Response:

Indaver has estimated it will produce up to 73,100 tpa of residues (bottom ash, boiler ash and flue gas treatment residues). Under the conditions of the RD, the licensee will have to carry out analysis of the residues and dispose of the residues at an authorised facility. The Agency's OEE will oversee these conditions are complied with.

With regard to waste disposal and any closure of the White River landfill, the RD requires all wastes to be disposed of at authorised facilities.

11. One submission included a number of attachments related to newspaper articles and the EIS for previous licence applications. In particular issues were raised to do with the need to undertake a health impact assessment, how the USEPA is not obliged to consider cost-benefit analysis in its decisions regarding air quality, the presence of nearby areas of conservation and streams and the waste hierarchy.

Response:

Chapter 6 of the EIS outlines the impact assessment on human beings, including human health. There is no statutory requirement for a formal health impact assessment outside of the EIA. The Agency does not consider cost-benefit analysis with respect to air quality. It considers the national and EU ambient air quality standards and the protection of the environment and human health. Nearby areas of conservation and streams were considered in the EIA and the screening for appropriate assessment. The waste hierarchy is addressed through Conditions 2.3.2.3 (Schedule of Objectives and Targets) and 8 (Materials Handling) of the RD.

12. Documentation submitted with previous licence and planning applications

Concerns were also raised with respect to documentation submitted with previous licence and planning applications. In particular, the Louth & Meath Health Protection Group (LMHPG) requested a complete review of the submission from "The No Incineration Alliance" to the original

application, in particular the report from the British Society for Ecological Medicine and the WHO report on air pollution, as regards health effects and incinerators.

Response:

I consider only documentation submitted in relation to this licence application, W0167-03, is relevant for assessment.

The submission referred to was previously addressed by the Agency, and being the same submission presents no new information.

13. Planning matters

Planning matters regarding traffic, road improvements, the community fund scheme, and the need for a community recycling park were also raised. Some were also concerned about a potential conflict of interest when Indaver sponsor community projects.

Response:

Concerns regarding traffic, road improvements, the community fund scheme, the need for a community recycling park and other community projects are not licensing issues. They are matters for the planning authorities and cannot be addressed by the Agency through the licence review.

(iv) Mr. Ollan Herr, Zero Waste Alliance Ireland, received 13/07/2012, 23/07/2012 & 16/10/2012

1. Article 5 of Stockholm Convention: Mr. Herr argues that Article 5 of the Stockholm Convention prohibits an increase in dioxin emissions no matter how small and thus argues that allowing the incineration of an additional 20,000 tonnes per annum (note that the applicant's proposal has since been revised to 35,000 tonnes per annum) would be in contravention of the Stockholm Convention.

Mr. Herr also argues that to issue a licence before finalisation of the National Action Plan to identify, characterize and address the release of persistent organic pollutants from unintentional production (ref. Article 5 and Annex C of the Stockholm Convention) would be to disregard the Stockholm Convention. Mr. Herr argues that implementation of such a National Action Plan will see to the introduction of cleaner technologies and processes and thus a reduction in the quantity of hazardous waste generated upon which he considers the application was based.

Mr. Herr considers that acceding to Indaver's proposal would be to grant the company special exemption in regard to efforts to reduce the release of persistent organic pollutants compared to other entities in the state, e.g. other industries have to stop using/producing proscribed chemicals and the prohibition of backyard burning of waste by members of the public.

Mr. Herr argues the application of BAT and BEP (best environmental practice), under the Stockholm Convention, does not permit any increase in dioxin emissions, no matter how small.

2. Aarhus Convention (Article 1): Mr. Herr requests the Agency fully implement the access to information and access to justice requirements of the Aarhus Convention. He is concerned that access to justice will not be

effective without the capacity to collect enough information on emissions and public health trends in the local area that would be necessary to mount a legal challenge.

3. Aarhus Convention (Article 2): Mr. Herr asks that if the Agency decides to grant a licence, that the Agency imposes a condition in the licence to ensure adequate funding for independent health studies (measuring health trends) in local and nearby areas in East Meath and South Louth, i.e., local studies rather than "county wide" studies. He requests this on the basis that Article 2(c) on the definition of environmental information includes the state of human health and safety and conditions of human life.

He requests such studies focus on health symptoms associated with atmospheric industrial pollution, and be carried out every few years with the initial study carried out before commencement of incineration of hazardous waste. He requests the studies consider not just dioxins, but other chemicals, heavy metals and fine particulate matter. Mr. Herr also identifies two people one of whom he requests supervises the study.

4. Aarhus Convention (Article 3) and Stockholm Convention (Article 11): Mr. Herr references Article 3(4) of the Aarhus Convention which refers to recognising and supporting organisations promoting environmental protection and Article 11(1) of the Stockholm Convention on the requirement to undertake research, development and monitoring of POPs as regards their presence, trends and levels in humans and the environment, the effects on human health and the environment, and socio-economic and cultural impacts. In regard to these matters, he is concerned that the funding awarded to community groups did not include funding for groups concerned with environmental protection.
5. Aarhus Convention (Article 4 – Access to Environmental Information): Mr. Herr states that, in the interest of transparency, he would like data on all dioxin samples to be made available on the Agency and Indaver websites. He considers that reporting biannually is too infrequent and contrary to people's rights to know about pollution levels in their area as soon as the results are available. He also requested that the reporting of the results of heavy metals are broken down into each individual element. He requests the frequency of sampling heavy metals be increased from quarterly to weekly. Mr. Herr requests that the time and date of sample be included in the reported data. He considers this level of data is required to ensure a person has access to justice if they wanted to take a case.
6. Aarhus Convention – Article 5 (Collection and dissemination of environmental information): Mr. Herr requests that the Indaver and Agency websites have all of the necessary information on pollution made easily available without having to formally request it.
7. Aarhus Convention – Article 6 (Public participation in decisions on specific activities) and Articles 5(b) and 5(c) of the Stockholm Convention: Mr. Herr requests, with reference to Article 6(6)(c) of the Aarhus Convention, that Indaver's planning application include an analysis of more environmentally friendly ways to avoid or to prevent hazardous waste being generated by their customers. In particular he considers the Agency's National Implementation Plan (under the Stockholm Convention) will include details of such measures.

He believes, as the competent authority for the Stockholm Convention, that the Agency should make a submission to An Bord Pleanála on the possible ways to prevent hazardous waste being generated, i.e., promote measures for release reduction or source elimination of POPs as per Articles 5(b) and 5(c) of the Stockholm Convention.

Mr. Herr requests confirmation that the proper advice, consideration and prioritization had been given to alternative clean technology methods for each hazardous waste stream listed in Indaver's licence application in order to "prevent" the effects or "avoid the formation and release" of dioxins.

8. Aarhus Convention – Article 9 (Access to Justice): Mr. Herr states that access to justice would be supported by the easy availability of the following:
 - A full disclosure of the date and time of sampling;
 - A more frequent (weekly) sampling and reporting of heavy metals;
 - Ease of access to the above information on the Agency and Indaver websites;
 - An individualised listing of the results of all the elements (heavy metals) sampled rather than in groups;
 - The results of the Agency's "ground monitoring" and food sampling (hens and milk) at Duleek to be made available through the Agency's website.
 - Substantial funding be made available to measure trends in public health over a range of health symptoms for electoral areas upwind and downwind of the incinerator.
9. Mr. Herr expresses his concern at the link between PM_{2.5} and premature death. In particular he is concerned that any increase in PM_{2.5} levels around Duleek and Drogheda will lead to an increase in premature deaths. He cites a talk, organised by the Agency, from Professor DW Dockery regarding the Harvard Six Cities Study, to support his concerns. As a consequence, Mr. Herr considers the Agency should apply the precautionary principle when considering the consequences of an application to burn an additional 20,000 tonnes per annum of hazardous waste (note the licence application requested 15,000 tpa hazardous waste).
10. Mr. Herr is concerned about the potential long term public health impacts from exposure to dioxins and fine particulate matter. Mr Herr is concerned that there is no formal public health monitoring system for the locality on the long term exposure to dioxins. He is also concerned that there is no PM_{2.5} monitoring at Carranstown. He requests that research be done into the long term accumulation of dioxins and other hazardous pollutants in humans living in the area, and references Article 11 (Research, development and monitoring) of the Stockholm Convention in support of this request. He also requests that pregnant mothers, unborn babies, infant children as well as pupils in local national schools be defined as "vulnerable groups" for the purposes of Article 10 (Information Exchange) of Regulation (EC) 850/2004 on persistent organic pollutants. In particular, he requests that mothers living in the area be facilitated in having their breast milk analysed for dioxins and heavy metals, and likewise in the umbilical cords of new born babies. He also requests that follow-up analysis be carried out

for any health impacts on children over the following years of their lives through primary school. He requests that Indaver should fund this monitoring programme.

Mr. Herr requests that doctors of vulnerable groups in the area be made aware of the report of the British Society of Ecological Medicine on the health effects of incinerators.

Mr. Herr requests that, if the state is not interested in PM_{2.5} monitoring in the area, that money be provided (via Indaver through the community funding scheme) to an environmental NGO to do so at selected houses and at up to 20 locations down-wind of the incinerator.

11. Mr. Herr requests the Agency formally document and make transparent any advice offered to the An Bord Pleanála inspector on waste minimisation and waste avoidance policies, as well as working examples of alternative methods in Ireland, in Europe and globally, that safely manage wastes, but that avoids incineration and the generation of dioxins.
12. Waste prevention: Mr. Herr asserts that the Agency did not previously give the Stockholm and Aarhus Conventions enough consideration, but notes the Conventions are now fully ratified. Accordingly he requests a review of the conditions of the licence as they apply to these two conventions. He requests that priority be given to the prevention of hazardous waste so there is not requirement for it to be incinerated.

Mr. Herr quotes Article 5 of the Stockholm Convention (measures to reduce or eliminate releases from unintentional production) and Article 6 of Regulation (EC) No. 850/2004 on persistent organic pollutants and amending Directive 79/117/EEC (release reduction, minimisation and elimination). He considers these articles apply to the licensing of the Indaver incinerator and that there is a legal obligation on the Agency to require Indaver to consider and prioritise alternative zero waste measures and strategies to avoid hazardous waste being incinerated/co-incinerated.

13. Inspector's report: Mr. Herr requests that the inspector's report contains the following information:
 - Analysis of the documented formal procedures being used by Indaver and its clients for each waste stream where there has been an examination of the "substitute or modified materials, products and processes" that can be, or should be, considered by Indaver and its clients in order to avoid hazardous waste for eventual incineration.
 - Confirmation that the inspector has considered the documentation of the advice given on hazardous waste reduction or recycling alternatives by Indaver as well as the responses between Indaver and the client relating to the "alternative techniques or practices that have similar usefulness" that will not eventually result in dioxin emissions.
 - Details of the assessment of effectiveness of efforts to prioritise alternatives.
 - An estimate of the time period for the implementation of any specific "substitute or modified materials, products and processes" for each specific hazardous waste stream in order to set time limits for the ending of incineration of a specific hazardous waste stream.

- An assessment, for each hazardous waste stream, of the risk of delaying or dis-incentivising efforts to avoid producing waste if there are no conditions forcing it. Mr. Herr requests that this matter be transparently addressed in the EIA, so that it is clear that the Stockholm Convention and Regulation (EC) No. 850/2004 (Article 6(3)) have been addressed.
- Details of the consideration of the feasibility of alternative measures and options and specific zero waste strategies for the hazardous waste streams.

14. Stockholm convention (Article 7 – Implementation Plans): Mr. Herr states that any decision made should not undermine Ireland’s long term efforts to promote the national sustainable development strategy as required by Article 7.3 of the Stockholm Convention.

Response:

1. Article 5 of the Stockholm Convention requires Parties to develop an Action Plan designed to identify, characterise and address the release of unintentional POPs (e.g., dioxins and furans). Ireland published its *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants* in November 2012.

Article 5 also requires Parties to promote the development and, where appropriate, require the use of substitute or modified materials, products and processes to prevent the formation and release of unintentional POPs taking into account relevant guidance detailed in the Stockholm Convention and guidelines adopted by the Stockholm Convention Conference of the Parties. Waste incineration is identified in Part II of Annex C of the Stockholm Convention, as a source of POPs (notably dioxins and furans) that comes under the scope of the Convention, in particular Article 5.

Article 5 defines new and existing sources, where a substantial modification indicates a new source. The proposal to introduce 15,000 tpa of hazardous waste may be considered a substantial modification, and thus the development constitutes a *new source* under the Stockholm Convention. Under Article 5 of the Stockholm Convention, while existing sources require the promotion of BAT, new sources must apply BAT. Article 5 also requires the promotion at new and existing sources of Best Environmental Practices (BEP) included in Part II of Annex C of the Convention, and the use of release limit values or performance standards (e.g., ELVs).

Article 5 and Annex C of the Convention provide general guidance on best available techniques and best environmental practices. More specific details regarding BAT and BEP, for the purposes of the Stockholm Convention, are provided in *Guidelines on Best Available Techniques and Provisional Guidance on Best Environmental Practices, relevant to Article 5 and Annex C of the Stockholm Convention of Persistent Organic Pollutants*, UNEP (2008). These BAT guidelines produced for the Stockholm Convention are largely based on the EU’s Waste Incineration BREF note (2006).

Annex C and the guidelines on BAT and best environmental practice, with regards to preventing and minimising the release of POPs, consider (i) the

promotion of the recovery and recycling of waste, which is achieved in this instance by the pre-treatment of waste arriving at the facility through three and two bin systems, (ii) advanced flue gas cleaning systems, (iii) the appropriate treatment of incinerator residues and (iv) process design regarding incinerator temperature and residence time.

Having reviewed the BAT guidelines issued under the Stockholm Convention, and having considered Article 5 and Annex C of the Stockholm Convention, I can confirm the facility conforms to BAT for the purposes of the Stockholm Convention, and the RD applies BAT accordingly. Furthermore, the practices at the facility are consistent with BEP as per the provisional guidance issued under the Stockholm Convention.

Granting Indaver's proposal would not, in my opinion, be granting special exemption in regard to efforts to reduce the release of POPs, because the applicant's proposal complies with the requirements of the Stockholm Convention, and is consistent with Ireland's *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants*. The application of BAT and best environmental practice under the Stockholm Convention does not mean there can be no increase in emissions of dioxins and furans from an individual incinerator, provided they comply with the requirements of Article 5 and Annex C of the Convention.

2. All information regarding emissions from the facility is, and will continue to be, publicly available through the Agency. Information on public health trends is a matter for the HSE.
3. There is no evidence to support the view that health studies should be carried out in the vicinity of the incinerator. In particular, the HSE has not raised concerns in this regard. The competent authority for health data and health studies is the HSE.
4. Concerns regarding the community fund should be addressed to the planning authority.
5. The data on dioxin samples is available to the public for viewing at the Agency's Regional Inspectorate in Dublin. I consider this conforms to the requirements of Article 4 of the Aarhus Convention. The licensee must notify any non-compliance with emission levels to the Agency as soon as they occur, and a record of such incidents will be publicly available. I see no value in increasing the frequency of reporting of results.

Reports of heavy metal analysis should record the data for individual metals, but any omission can be followed up with the Agency's OEE. The emission levels of heavy metals are not likely to vary to the degree that would justify weekly monitoring, and the current frequency is in line with Annex VI of the IED. The time and date of sampling should be recorded on all reports, and any omission can be followed up with the OEE.

6. All information related to the licence is available to the public at the Agency's offices and are required to be available at the licensee's facility. The Annual Environmental Reports and licence application are available on the Agency's website. I consider this availability of information conforms to the requirements of Article 5 of the Aarhus Convention.
7. The obligation to prevent hazardous waste from being generated rests with the waste producer rather than the entity that recovers or disposes

of the waste (Indaver in this instance). The Indaver incinerator at Carranstown is consistent with the measures outlined in the *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants*, and is referenced within this plan.

The Agency made a submission to An Bord Pleanála regarding this development on 01/08/2012 and An Bord Pleanála granted permission for the development on 04/02/2013. In its submission, the Agency made reference to the National Hazardous Waste Management Plan 2008-2012 and its stated objective of reducing the export of, and increasing the indigenous treatment of hazardous waste. The Agency also stated in this submission that the Agency considers the proposed development is consistent with the plans and targets in the National Hazardous Waste Management Plan as well as Ireland's renewable energy targets under EU Directive 2009/28/EC, Ireland's obligations regarding greenhouse gas emissions under the Kyoto Protocol, and the Landfill Directive 1999/31/EC targets for the diversion of biodegradable waste from landfill.

Relevant measures to reduce the release and eliminate the sources of POPs included in the *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants* include source segregation of waste (e.g., three and two bin systems) and the application of BAT, both of which are present in this situation.

8. As noted above the date and time of sampling are required to be provided with sample results, I do not consider it necessary to increase the frequency of analysis for heavy metals, and I consider that the current access to information associated with this development is adequate and conforms to the requirements of the Aarhus Convention. The results of dioxin monitoring in cows milk is available on the Agency's website. Other data related to food may be available from the Food Safety Authority of Ireland. The Agency does not carry out other "ground monitoring" in the vicinity of the facility.

In the absence of any advice from the HSE to measure health trends in the vicinity of the facility, or evidence that would support the need for carrying it out, I see no reason to recommend the EPA fund the measuring of health trends. Concerns regarding health trends should be addressed to the HSE.

9. The Agency is aware of the research carried out by Professor DW Dockery and the significant health implications regarding fine particulate matter. The air dispersion model indicated the facility would have a negligible impact on PM_{2.5} levels (less than 1% of background), the proposed development would not increase PM_{2.5} levels above that already indicated for the existing development and that levels of PM_{2.5} would be well within that required by the CAFÉ Directive. Accordingly, I am satisfied that it is safe for the development to proceed with respect to PM_{2.5}.
10. In regard to monitoring of PM_{2.5}, the Agency has a monitoring station in nearby Drogheda as well as a number of monitoring stations in rural areas. In tandem with air dispersion modelling of major sources of PM_{2.5}, I consider this sufficient to assess (PM_{2.5}) air quality in the vicinity of the facility.

As noted earlier, the Agency monitors dioxins in cows' milk in the vicinity of the facility, and these are within levels required by the EU. There is no evidence to indicate other hazardous pollutants associated with incineration are a problem for people living in the vicinity of the facility. Accordingly, I do not consider it necessary to carry out a study on the long term accumulation of dioxins and other hazardous pollutants in people living in the area, or long term health studies on children.

The HSE is the appropriate competent authority to advise doctors working in the area.

11. The Agency's communication to An Bord Pleanála regarding this licence application is available on the Agency's website.

The Agency has published a number of documents regarding waste management, e.g. the National Hazardous Waste Management Plan, *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants*, and the BAT guidance notes for a number of industrial sectors. These documents are available on the Agency's website, as is the Bref note on waste incineration, and can be considered by any planning authority in decisions on planning applications.

12. The Agency has recently published the *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants*, and decisions on licence applications will be consistent with this Plan. In regard to the Aarhus Convention on *Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters*, the Agency's licensing process provides the public with access to the information (e.g. the licence application and guidance documents) relevant to its decision making processes and provides the public with an opportunity to participate in the decision making process through making submissions. Access to justice is provided through these measures and through the objection phase with respect to licence decisions, as well as through the courts (judicial review) if necessary.

The licensing process will be carried out and the licence conditions will be drafted in line with the requirements of the Aarhus and Stockholm Conventions.

Waste prevention is prioritised in the National Hazardous Waste Management Plan and other waste strategies including the Regional Waste Management Plans. Waste prevention is also a requirement in the licensing of industrial installations under the Industrial Emissions licensing regime and Waste Directive. Practices for the prevention and management of wastes at industrial installations are identified in the BAT guidance notes for different industrial sectors, as well as other guidance notes available on the Agency's website. However, it is not the responsibility of Indaver to prevent waste at other installations, as long as waste accepted at the facility has undergone (or undergoes) pre-treatment in line with the Agency's *Municipal Solid Waste – Pre-treatment & Residuals Management An EPA Technical Guidance Document (2009)*. The prevention of waste at industrial installations is the responsibility of those industrial installations.

I have addressed the requirements of Article 5 of the Stockholm Convention above. Article 6 of Regulation (EC) No. 850/2004 on persistent organic pollutants, relates to Article 5 of the Stockholm Convention and the requirement for national release inventories and

national implementation plans. Article 6 of Regulation (EC) No. 850/2004 also requires member states to give priority consideration to alternative processes, techniques or practices that have similar usefulness but which avoid the formation and release of substances listed in Annex III (i.e. dioxins and furans). The role of waste incineration has been addressed in the *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants* and the proposed development is consistent with this Plan.

13. This request for information relates to the planning inspector's report for the planning application. It is not the responsibility of Indaver to look at the alternatives for its clients with regard to its clients' waste streams. Accordingly the RD does not require it of Indaver.

As regards the consideration of this licence, the RD has considered the relevant documentation on the prevention and minimisation of waste as well as dioxin emissions, e.g. the *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants*, the National Hazardous Waste Management Plan, the Agency's *Municipal Solid Waste – Pre-treatment & Residuals Management An EPA Technical Guidance Document (2009)* and the BREF note for Waste Incineration (2006).

14. Ireland has published its *National Implementation Plan for the Stockholm Convention on Persistent Organic Pollutants*. The proposed development is consistent with this Plan and Ireland's sustainable development strategy as envisaged in the National Hazardous Waste Management Plan and the Regional Waste Management Plans.

(v) Mr Patrick Boyle & Mr John Short, Hollywood & District Conservation Group, received 03/10/2012, 04/09/2013, 10/09/2013, 07/04/2014, 18/07/2014, 09/08/2014, 29/09/2014 and 31/10/2014 and James Lunney, Nevitt Lusk Action Group, received 19/04/2013.

The Hollywood & District Conservation Group (HDCG) are concerned about the impact of depositing bottom ash at the MEHL landfill (Licence review application Reg. No. W0129-03, currently authorised under licence register number W0129-02 for the disposal of inert waste). They consider that fresh bottom ash is not inert. They reference the BREF Note 08-06-WI and other studies indicating fresh bottom ash has a pH up to 12 and requires "aging" for approximately 12 weeks to bring the pH below 10 so that it can be considered non-hazardous. They are concerned about potential for leaching of heavy metals from the ash. They make reference to guidelines on how bottom ash should be deposited at landfills and consider that separate risk assessments are required for proposed landfills to ensure compliance with the Landfill Directive.

The HDCG are concerned that Indaver and MEHL have disregarded the BREF note and consider it unacceptable to deposit fresh bottom ash in a MSW¹ landfill.

The HDCG request a condition that "fresh bottom ash" can only be deposited in a manner prescribed and in a landfill suited to method described in BREF 08-06-WI and the associated reference studies.

The HDCG also referred to and submitted a paper "Innovative and BREF proven material recycling of bottom ashes", published on behalf of Indaver

¹ MEHL is not and does not propose to be a MSW landfill.

where the method of treatment and results of physical and chemical properties of the bottom ash were considered to represent BAT by the Flemish authorities and the EU. The HDCG stated they expect a similar standard. They are concerned that the current method of ash disposal is obsolete. They are also concerned that the site may not be suitable for the plant and facilities that would be required for the "aging" of the ash which they consider requires three months storage capacity.

The HDCG is concerned the applicant is engaged in incremental applications for permission on a major infrastructural project on a site which has no current planning permission for such future undertakings and they are concerned is in breach of the EIA Directive, because the EIS does not contain the complete plans and has therefore excluded full public participation. The HDCG requests the Agency to require the applicant to provide full details of the complete project in a revised EIS.

The HDCG raised concerns about the generation of hydrogen gas during the 'curing' of bottom ash.

The HDCG noted in its more recent submissions the Agency's proposed determination to refuse a licence sought by MEHL (W0129-03) and in particular to the concerns regarding the landfilling of bottom ash referred to in this proposed determination. They also expressed their concern that the Indaver licence application does not have a proposal for the treatment of bottom ash and that it does not meet BAT standards in this regard. The HDCG are concerned there is no overall national policy for the treatment and disposal of incinerator bottom ash which meets current EU BAT standards.

The concerns raised by the HDCG were re-iterated by James Lunney, Nevitt Lusk Action Group.

In their most recent submission, the HDCG requested that an AA Screening Determination be made on the White River/River Dee catchment with particular reference to the disposal of MSW bottom ash at the White River landfill site (where Indaver currently send their incinerator bottom ash).

Comments from Indaver on the submission from Mr. Patrick Boyle and the HDCG:

Indaver outlined their management of bottom ash. The ash is discharged into a water bath before being sieved to separate out oversized particles. Ferrous and non-ferrous metals are then separated out for recycling before the remaining ash is stored in an ash hall prior to dispatch to other licensed facilities.

Indaver state that the removal of metals significantly reduces the potential for exothermic reactions, although their motivation for removal of metals is for commercial and market reasons and not concerns about exothermic reactions.

Indaver state that the ash generated by their installation has been classified as non-hazardous and consists mostly of inert materials such as glass, sand, metal pieces and stones. They stated that, in the absence of an alternative recovery outlet, bottom ash is currently sent to nearby non-hazardous landfills.

Response:

The operation of the proposed MEHL landfill (licence review application Reg. No. W0129-03), including waste acceptance criteria and the depositing of waste at the landfill, is not a matter for Indaver's licence review application. The incinerator residues will have to meet the acceptance criteria for the receiving recovery or

disposal site. This matter is enforced through the licence for the receiving disposal site. Condition 8.4.1 of the RD specifies that waste generated at the Indaver site can only be dispatched to other authorised facilities.

Under the RD that accompanies this Inspector's Report, the licensee will have to regularly analyse the ash residues to confirm their waste classification, which will inform their suitability for any particular disposal/recovery facility.

The RD has applied BAT, as per the Waste Incineration Bref, regarding the treatment and handling of incinerator residues. Condition 8.11.2 requires that bottom ash is suitably treated either off-site or on-site prior to disposal/recovery. Suitable treatment is defined in the Waste Incineration Bref.

The applicant has planning permission for the proposed development and in particular the management of residues. The Agency and An Bord Pleanala have communicated on the applicant's proposal and I consider the project is not in breach of the EIA Directive.

The AA Screening Determination for this licence application only needs to consider European sites potentially impacted by emissions from the Indaver incinerator. The concern raised above by the HDCG relates to emissions from the White River landfill.

(vi) Veolia Environmental Services TS Ltd (VESTS), received 21/03/2013. VESTS, a subsidiary of Veolia Environmental Services (VES), operates a Solvent Blending Plant and Hazardous Waste Transfer and Recovery facility in Fermoy, Co. Cork under Licence W0050-02.

VESTS consider that Indaver have not adequately demonstrated the need for an increase in tonnages nor justified the reason for additional EWC codes. They feel the additional EWC codes in the application will allow Indaver incinerate large variations of waste types, including hazardous wastes. They consider the application has not given due consideration to the infrastructure required for the acceptance, handling and management of these waste types. VESTS consider Indaver has not carried out a proper site selection survey. They also feel Indaver has not adequately addressed the potential increase in traffic volumes.

In particular VESTS put forward the following objections.

1. Objection to increasing tonnage from 200,000 tpa to 220,000 tpa¹, and acceptance of low CV wastes without applying for class D10 (Incineration on land) on the following grounds:
 - They consider Indaver has not justified why the additional waste will make up the shortfall in thermal capacity. They consider Indaver's application contradicts itself on why it needs the additional waste, because they are proposing some low CV wastes yet need to increase CV to meet thermal capacity.
 - VESTS also objects to Indaver's requests that the upper limit restriction of 50,000 tpa for EWC code 19 12 12 (which VESTS considers to represent SRF/RDF) be removed, because it considers this high CV material will be used to cancel out the negative calorific value of aqueous wastes and divert materials from a higher tier of waste hierarchy to a lower tier (i.e., from energy recovery (R1) to incineration

¹ Subsequently increased to 235,000 tpa on foot of planning permission from An Bord Pleanala, 01 August 2014.

on land (D10)). VESTS consider Indaver are proposing to increase the intake of high CV wastes to enable it to take in low CV wastes like aqueous wastes yet maintain the required average calorific value for optimum thermal output.

VESTS make other arguments to support their position that Indaver should have applied for D10 activity to incinerate low CV wastes and hazardous wastes at their MSW incinerator, including referencing Article 3(15) of the Waste Framework Directive¹, the European Commission's "Guidelines on the Interpretation of the R1 Efficiency Formula for incineration facilities"² and legal advice requested by an industry group³, as well as referencing position papers from industry groups, and reviewing the list of European incinerators referenced by Indaver in their licence application as a means to support their case for expanding the waste types at the incinerator.

- VESTS state their position is supported by authorities in Finland, Denmark and Sweden. In this regard they state that the authorities in these countries have made decisions that designate class D10 activity in the circumstances that are here proposed by Indaver.
 - VESTS also consider that Indaver should be able to demonstrate that, at the design stage, they adopted a sufficiently wide process envelope with respect to the heterogeneity of wastes (e.g., variation in CV and moisture content).
2. Objection to the request for the deliberate acceptance of hazardous waste at the facility and the use of EWC codes to determine what waste can be accepted at the facility, on the following grounds:
- VESTS responds to Indaver's statement that the majority of the proposed hazardous waste types are already inadvertently accepted at the facility, by stating that it may only be true for small volumes of paint tins, rags and contaminated wipes. However VESTS state the quantity should be less than about 25 tpa with sufficient waste acceptance and inspection procedures. VESTS continue by identifying a number of the proposed hazardous waste streams they consider would not be currently accepted at the facility, e.g., dredging spoil from firewater retention ponds, potentially contaminated soil and stones from construction sites, wastes from pharmaceutical factories, medical/infection wastes from clinics, nurses stations, etc. and waste fuel oil and diesel⁴. VESTS consider that Indaver are effectively applying to operate

¹ Article 3(15) of the Waste Framework Directive (2008/98/EC) defines 'recovery' as "any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II sets out a non-exhaustive list of recovery operations;".

² The European Commission's "Guidelines on the Interpretation of the R1 Efficiency Formula for incineration facilities", state that "Hazardous waste is usually treated in the most appropriate way in incinerators specifically dedicated to the treatment of hazardous waste which are not under the scope of the R1 formula" and that "authorisation of any waste input except for mixed municipal solid waste shall be in line with BREF on waste incineration...".

³ 'Recovery' in *European Waste Law and its Importance to the Operation of Waste Facilities*. Legal Opinion at the Request of EURITS (Industry group) from Professor Dr. Martin Beckmann (Honorary Professor at the University of Munster), Munster, August 2012, which stated that the R1 formula only applies to the incinerator of municipal solid waste.

⁴ Subsequent to this submission, Indaver have decided not to accept infectious medical waste.

a hazardous waste incinerator. They consider that it is essential that hazardous wastes (include those they have identified) be managed at a dedicated facility supported by the technology and procedures specifically designed for hazardous waste. VESTS note that the CV of some of the proposed wastes would not be similar to MSW, e.g., aqueous wastes.

- VESTS notes that EWC codes refer to the process from which waste materials have arisen, but do not identify full chemical composition, complete physical properties or highlight the hazards associated with the wastes. VESTS does not accept that some of the EWC codes applied for could be considered municipal waste. VESTS are concerned that granting permission for all the proposed EWC codes would effectively give Indaver "carte blanche" to accept any waste type they choose to accept under that EWC code, despite their claim of having appropriate waste acceptance procedure. VESTS put forward the example of clinical waste (which Indaver are no longer proposing to accept) where the EWC code 18 01 03* could also include liquid and solid cultures and biological agent stocks, limbs, organs, biopsies, tissue samples, HEPA filters from laboratories, and discarded clinical specimens, and consumables. VESTS state that peaks and variability in contamination in these streams are very common. VESTS consider that it is not sufficient to state that the waste streams associated with the proposed EWC codes are going to have low level of contamination. VESTS argue that Indaver will have no idea of the contamination level of the waste streams before they arrive on-site unless they carry out a detailed analysis.
- To support their position VESTS also make reference to the report of Professor Broderick to An Bord Pleanála where he stated, "The use of EWC codes does not appear to be a good method of regulating this approach (*limiting hazardous waste types*), which may rely excessively on operator judgment and on-going decision-making by the facility staff."
- VESTS also state that the applicant has not clarified at what level of contamination the hazardous waste is no longer low level hazardous waste and will be rejected. VESTS contend that Indaver cannot delineate between low level and non-low level hazardous waste as there is no legal definition for so called "low-level" hazardous waste documented in legislation and literature. VESTS conclude by stating they consider prudence and caution and the "precautionary principle" is the best solution and the applicant should not be allowed deliberately accept hazardous waste into the facility for incineration as sought in the application.

3. Best Available Techniques Reference Document

- VESTS do not consider it best practice for the facility to accept both hazardous and non-hazardous waste. They contradict Indaver and assert that the prevailing consensus throughout European waste incinerator operators and legislators is that hazardous waste should not be co-incinerated in a non-hazardous waste incinerator. They suggest the proposal could encourage waste producers to mix hazardous and non-hazardous waste, contrary to the regulations.

- VESTS consider that it would not be progressive for a modern MSW incinerator based on Bref to copy older facilities in operation. VESTS state that from 01/01/2013, France have stipulated that the CV of hazardous waste must be equal or greater than 10.467 MJ/kg in order that the incineration of hazardous waste be granted energy recovery status.
- VESTS consider that if Indaver add hazardous waste directly into the pits in the incinerator then all the waste in the pits would have to be considered hazardous and incinerated as hazardous waste in accordance with the requirements of WID and the requirements of the Waste Incineration Bref, which specifies BAT regarding operation and design. VESTS also state that specific BAT for hazardous waste incineration specifies the “use of a combustion chamber design that provides for containment, agitation and transport of the waste” (the example given is rotary kiln, either with or without water cooling).
- VESTS ask if Indaver proposes to accept liquid waste in drums, IBCs, or bulk iso-tanker and state that waste similar to municipal waste does not normally get delivered in iso-tankers. They state each delivery type would require a different injection system and different storage/handling systems. VESTS are also concerned about the allowances made for containment of these materials in segregated areas.
- VESTS also consider that, in the event that the facility ceased operation due to unforeseen circumstances, all waste in the pits would have to be removed to a hazardous waste treatment facility, which could prove difficult.
- VESTS state that peaks and variability in contamination of the proposed hazardous waste streams is common and that upstream controls with respect to waste acceptance criteria are essential. Accordingly VESTS consider the Indaver facility should have a laboratory capable of analysing incoming waste streams for a range of parameters including, the calorific value, the flashpoint, PCBs, Halogens (e.g. Cl, Br, F) and sulphur, heavy metals, waste compatibility and reactivity. Without such analytical capabilities, VESTS contend that there is no opportunity to address the risk associated with the variability in the waste and the potential incompatibility of waste streams.
- VESTS state that Indaver did not include in their application, details of the risks associated with the handling of hazardous waste in the bunker. They expressed concerns that there may be no control on the impact these waste streams could have on the operation of the plant, combustion, air emissions, residue quality or compliance with WID. VESTS alluded to an odour issue at the facility that it considered unresolved, and suggested vapours from hazardous wastes might exacerbate the issue.
- VESTS are concerned there is no provision for additional waste reception, storage and quarantine of off-specification waste. VESTS state that all the facilities with which Indaver have compared their application have such provisions and carry out a full assessment prior to adding the waste into the pits. VESTS consider controls around waste

reception and provision for storage and segregation of the proposed waste stream to be crucial for waste streams that could contain volatile organic compounds (VOCs), heavy metals, POPs, flammables, etc. VESTS consider there will be no opportunity for analysis of the materials and segregation of incompatible waste streams prior to combustion without the necessary dedicated and bunded waste reception, storage and quarantine infrastructure.

- VESTS contend that, regardless of what prior knowledge Indaver feels it may have of the wastes to be delivered to the facility, a completed analysis must be carried out to determine the suitability and compatibility of the wastes before they are mixed or added. They state that samples collected by customers are not always representative of the actual waste stream.
- VESTS state that there is no proposal to pre-treat or homogenise the hazardous waste streams prior to tipping in the existing municipal waste bunker or direct feeding onto the grate. Given the variability in chemical composition and physical characteristics, VESTS consider this could result in spikes in contamination in the waste and ultimately spikes in emissions to air and composition of residues and problems with incomplete combustion. VESTS state hazardous wastes should be homogenised prior to being fed into the bunker to demonstrate control on the wastes entering the facility and facilitating control of combustion. Alternatively waste should be sampled, analysed, segregated where appropriate and stored prior to feeding at a prescribed recipe. VESTS state that all of these requirements have a need for dedicated infrastructure which the applicant does not appear to have considered necessary in their application. VESTS cite a report prepared by Okopol (Institute for Environmental Strategies, Hamburg) in 2009 to support this position¹. The report states that: -

The further development of the R1-formula will not support the incineration of hazardous wastes in installations that have a lower environmental protection level than installations which are built for the incineration of hazardous wastes".

4. Residues

VESTS refer to the applicant's request to include the EWC codes 190107*, 190113* and 190112 in its licence to allow it to accept back flue gas treatment residues, bottom ash and boiler ash temporarily before being re-sent for treatment. This relates to Indaver's request to take back such wastes in transit, but these wastes would not be put back into the incinerator and these EWC codes are not included in the RD (see inspector response below for further details). VESTS considers this implies Indaver may already have issues with the disposal of the residues or Indaver is concerned that there will be a significant increase in contaminant loading of these residues due to the level of contamination in the hazardous waste streams which may cause issues at the receiving outlets. VESTS state that additional contaminant loading of these residues could ultimately affect the outlet for these

¹ Brief expertise on the application of the energy efficiency formula of Annex II of the Waste Framework Directive 2008/98/EC and potential adverse effects, Okopol GmbH, 2009.

materials and whether or not the current disposal or recovery routes can still be used.

- VESTS also make reference to the possibility that the applicant is proposing to reintroduce the FGT residues to the incinerator.
- VESTS also state that Indaver has issues related to incomplete combustion of the current non-hazardous waste streams. They state that incomplete combustion is extremely unusual in a new constructed/designed MSW incinerator and contend that this could imply that the incinerator cannot manage the current waste volume throughput, let alone the proposed increased throughput. VESTS state that if incompletely combusted hazardous waste drops into the ash heap, then all of the ash collected during that time would have to be considered hazardous waste and managed accordingly.
- VESTS consider, if approval to accept these residues is permitted, that the EWC code for the bottom ash should include a mirror entry (19 01 11*) and a more vigorous testing programme be required.

5. Infrastructure

- VESTS expresses concern about the adequacy of the infrastructure to accept hazardous waste and clinical waste. They state that Indaver has not described the proposed infrastructure for these materials, in particular the infrastructure required under Bref for the incineration of clinical waste.
- VESTS are concerned that, other than the fuel storage tank, the applicant has not considered the delivery, acceptance and handling requirements of hazardous waste for the site. In their submission VESTS outlined three possible scenarios where significant infrastructure is required, but which VESTS are concerned the applicant has not considered.

Case 1 – Delivery and handling of aqueous waste.

- VESTS state that aqueous waste could arrive in tankers, IBCs and/or barrels. They refer to the need for a bunded area for the tanker and IBCs and barrels, which they state can only be injected at no more than a few at a time. They state that it is best practice to sample prior to injection and consider that a large bunded area may be required.

Case 2 – clinical waste

- VESTS are concerned that the infrastructure required for the incineration of clinical waste is greater than that proposed by the applicant. They consider that no infrastructure outside a direct feeding mechanism has been proposed. VESTS consider that significant space is required for the storage of bins pending incineration; empty bins post incineration and empty sterilised bins awaiting collection.
- In addition VESTS state that, because clinical waste arrives in bins, there will be a requirement for internal storage of full and empty bins, for an area to accommodate the loading and unloading of these bins using forklifts/ tail-lift devices as they cannot be directly tipped in the

waste bunker upon arrival and for a requirement for a quarantine area for any unacceptable clinical waste.

- VESTS also consider the need for sterilisation of bins post incineration in line with BAT (as per Bref note), and the subsequent treatment of these washings. VESTS were also concerned if any consideration had been given for the storage of anatomical waste 18 01 03* (this EWC code has been withdrawn and is not included in the RD).
- VESTS also express concern regarding the incineration of clinical waste on moving grate incinerators due to the development of hot spots on the grate as a result of the high CV and combustion properties of this waste stream. VESTS state, based on their experience, that the flue gases from the combustion of this waste has a higher corrosivity which can have an impact on the construction materials, thereby affecting the performance and availability of the incinerator. VESTS also express concern about the potential for an unplanned shut-down and in particular the apparent absence of a contingency in place for the subsequent management of unprocessed waste.

Case 3 – handling of solid hazardous waste

- VESTS are also concerned about the handling of solid hazardous waste. They state that, instead of skips and/or ejector trailers, solid hazardous waste (other than contaminated soils/ C& D waste) is delivered by curtain-sided trailers and/or 20ft/40ft container boxes. VESTS state that the unloading of these must be via a loading ramp and with fork-lifts, and that these should be representatively inspected and sampled prior to incineration. VESTS are concerned that there will not be an area allocated to store this material pending approval for incineration. Furthermore, VESTS state that, depending on the CV of the material, the addition of solid hazardous waste to the bunker may need to be staggered to ensure an even feed to the grate.

VESTS consider that all three scenarios would require a significant storage area and stated that such concerns were raised by Professor Broderick in his report to An Bord Pleanála.

VESTS state that if the types of wastes received are diversified (as is proposed), then greater waste inspection requirements can be expected. VESTS state that such inspections will need to take place in the enclosed delivery area, and adequate provision will be needed for waste considered unsuitable for treatment following inspection.

VESTS are concerned that the applicant has not provided detailed information on what arrangements will be put in place in this regard, and consider it is unlikely that the current practice of unloading directly from delivery vehicles to the waste bunker will suffice for all the additional waste types received. VESTS also consider that operational and safety challenges may also arise due to the mixing of hazardous and non-hazardous wastes in the bunker, as all waste in the bunker will then potentially need to be managed and handled as hazardous waste.

6. Site Selection

- VESTS argue that because a facility is suited for a non-hazardous waste municipal facility does not automatically infer that the same location is suitable for hazardous waste. They query if a proper scoping exercise relating to the siting of the facility for hazardous waste was carried out and thus ask if the EIS can be considered to be valid.

Conclusions

VESTS concludes by stating it is of the opinion that the proposed amendments sought will require significant changes to the process, waste handling procedures and infrastructure. They state that Indaver has not allowed for these in their application as they consider the opposite to be true. They also state that the proposed hazardous waste types will not contribute to the CV of the waste accepted on-site

Indaver subsequently responded directly to VESTS's submission, and I have incorporated any relevant points raised by Indaver in the response to VESTS's submission detailed below.

Response:

1. A waste to energy plant's design is largely based on its thermal capacity (MW). A lower mean calorific value of waste means the plant requires more waste and vice versa. I consider Indaver have justified their need to increase waste and adjust the mean calorific value of the waste in order to meet the thermal capacity design of the plant. It is up to Indaver to mix and match waste quantities and types to meet the design of the plant, providing the incinerator is authorised to take the relevant materials, can process the materials in line with its licence and will not pose an undue risk to the environment.

VESTS made their submission when Indaver had applied for class R1 (energy recovery). Indaver have subsequently applied for D10 (incineration on land), as well as R1. With the implementation of the Industrial Emissions Directive and its applicability to this installation, Indaver are now to be licensed under the EPA Acts (class 11.3(a) and (b) of the First Schedule), instead of the Waste Management Acts. However the Waste Framework Directive will still apply directly to the installation and the licensee and its requirements will be applicable through the proposed Industrial Emissions licence.

Indaver also noted that EWC code 19 12 12 should not be interpreted as SRF or RDF, whose code is better described as 19 12 10. Rather 19 12 12 should be interpreted as organic fines and other mechanical treatment residues. The R1 formula, applicable to MSW incinerators only, will determine if the incineration of MSW is classified as recovery or not.

There is no requirement on Indaver to give further details on the calorific values of non-hazardous wastes than has been submitted in the licence application.

2. In regard to VESTS's assertion that the proposed hazardous wastes are normally sent to dedicated hazardous waste incinerators, Indaver responded by stating that the IED, Bref and the R1 guidance reference the treatment of hazardous wastes in MSW incinerators. They also noted that other companies, including Veolia Umweltservice in Soest, send

hazardous waste to MSW incinerators with the same technology as Indaver's Meath installation.

The CV of the proposed wastes are in line with the CV of the wastes currently authorised by W0167-02.

In regard to VESTS's concerns about the use of EWC codes to determine suitable wastes for the installation, the RD requires the licensee (Condition 8.4.3) to agree with the Agency specific waste acceptance criteria, regardless of the EWC code. Since the submission from VESTS, Indaver have proposed detailed waste acceptance criteria for hazardous wastes as part of the licence application. The criteria do not just relate to chemical properties of the waste, but include matters related to packaging and unloading aspects, and physical properties (e.g. shape, size and density). The criteria also require information regarding the source of the waste to be obtained and Indaver has access to laboratories to carry out relevant analyses. The criteria consider the requirements of Article 45(2) of the IED (included in the RD under Condition 8.4). I consider the proposed waste acceptance criteria are sufficiently restrictive to prohibit unacceptable waste streams at the incinerator. The waste acceptance criteria are to be agreed with OEE to ensure practicality regarding operational and enforcement aspects.

3. The Bref note for waste incineration does not indicate hazardous waste should never be allowed at a non-hazardous incineration installation, and this occurs elsewhere as noted in this report. The fact that different waste streams from a waste producer are destined for the same incinerator does not mean the waste streams will be mixed. The RD requires the licensee to identify details regarding the source of the waste and as waste producers are prohibited from mixing hazardous and non-hazardous wastes except with the approval of the Agency, I consider this matter to be addressed in the RD.

Energy recovery status will be granted in line with the R1 formula, as per the Commission's guidance, and the Waste Framework Directive.

In regard to the concern that a rotary kiln will be required because the addition of hazardous waste to the bunker may mean all waste could be considered hazardous, the Waste Incineration Bref BAT requirement relates to dedicated hazardous waste incinerators where the calorific value of the waste may be much higher than MSW and also where special wastes may be incinerated. In this instance the hazardous wastes will be a small fraction of the total waste accepted and will be of a similar character to already accepted non-hazardous wastes. Accordingly I consider the facility still conforms to BAT. The BAT requirements for handling and processing specific hazardous waste streams are applied in the RD.

Indaver already accept non-hazardous aqueous wastes by tanker and have a system for direct injection. This same system will be used for hazardous aqueous waste streams, which will similarly only be accepted in tankers. Liquid wastes in different systems will not be accepted at the installation.

The implications of all the waste in the bunker being classified as hazardous, will be addressed in the reviews of the ELRA (Condition 12.2) and the DMP (Condition 10.2).

Indaver noted that they operate a hazardous waste transfer station in Dublin Port under reg. No. W0036-02 and stated they are experienced in identifying the most suitable treatment technology for hazardous wastes. At the hazardous waste transfer station they have access to a laboratory that can determine a wide range of parameters, in line with those required to meet BAT as per the Waste Incineration BREF. Indaver also has access to other Indaver and third party laboratories in Europe to ensure potential waste streams meet the set waste acceptance criteria.

Indaver have addressed the risks associated with the actual hazardous wastes they are proposing to accept at the facility and taken into account the impact on the various operational aspects mentioned, e.g. combustion, air emissions, residue quality and compliance with WID (now IED). The matter related to odour has been addressed (see above), and the introduction of the proposed hazardous wastes should not adversely impact on the odour situation.

In regard to VESTS' concern about providing additional waste reception, storage and quarantine of off-specification hazardous wastes, the analysis and classification of hazardous wastes is to be carried out prior to the waste arriving at the site. Much of the proposed hazardous waste streams come from industrial customers where the process is known, and the composition does not vary significantly. The management of the loading of the waste at the site of production will be carried out by an employee of Indaver in most cases, and by a suitably qualified person in other cases. Hazardous waste streams arriving at the installation will go directly to the bunker, so there will not be a requirement for significant storage. In addition, Indaver are limited to 10,000 tpa hazardous waste of similar character to the non-hazardous waste already incinerated at the installation.

In regard to VESTS concerns about the need to homogenise hazardous wastes prior to feeding into the incinerator, this relates to an installation where large quantities of a wide variety of hazardous wastes are to be incinerated. In this instance, hazardous wastes with similar characteristics to the already incinerated non-hazardous wastes are proposed, so the level of pre-treatment indicated in VESTS's submission is not required. In addition, Condition 8.4.3(vi) of the RD requires the licensee to agree with the Agency the procedures for mixing, blending and pre-treatment of waste prior to entering the incinerator. The mixing of most hazardous wastes in the bunker and the direct feeding of specific streams (e.g., aqueous waste) should ensure material of a uniform calorific value enters the incinerator. In this way a more uniform combustion is generated and spikes in emissions mitigated.

4. Residues

Indaver's request to be allowed to temporarily store incinerator residues relates to the potential for shipments of waste to be cancelled or delayed and to situations of unplanned shut-down at a receiving outlet. In such circumstances Indaver may wish (or be requested) to take back

incinerator residues that are in transit. Such scenarios would be carried out with the agreement of the TFS (Transfrontier Shipment of Waste) Office. The licence does not need to be amended to enable the take back of waste they have produced and dispatched from the installation.

Indaver are not proposing to re-introduce any residues into the incinerator and this is not permitted in the RD.

Indaver have responded to VESTS's concerns regarding incomplete combustion and stated they achieve complete burn-out and that they comply with the requirement (Chapter IV of the IED) that the Total Organic Carbon (TOC) content of the slag and bottom ashes is less than 3% or their loss on ignition is less than 5% of the dry weight of the material, and this requirement is included in the RD (Condition 3.20.4).

Extensive analysis of the bottom ash is required to ensure an appropriate disposal route is chosen.

5. Infrastructure

Since the submission from VESTS, Indaver have confirmed they do not currently plan to accept infectious hazardous waste and will not, therefore, be installing a direct feeding mechanism. I do not consider that Indaver need to identify any further infrastructure, save that specified in the RD, in order to accept the proposal to expand the types of waste to be accepted at the installation.

Case 1 – Aqueous wastes:

In regard to the delivery and handling of aqueous waste, Indaver only propose to accept this via tanker and have a dedicated area, with secondary containment, for this purpose. As only small amounts of aqueous waste are to be accepted at the installation, I consider the current arrangements sufficient.

Case 2 – Clinical waste:

EWC code 18 01 03*, referred to in VESTS's submission, refers to *Wastes whose collection and disposal is subject to special requirements in order to prevent infection*. Indaver only plan to take in non-infectious healthcare/clinical waste and the RD does not authorise the acceptance of waste with the EWC code 18 01 03*. The clinical wastes permitted in the RD are also permitted in the existing licence (Reg. No. W0167-02), e.g., EWC code 18 01 02, *Body parts and organs including blood bags and blood preserves (except 18 01 03)*. Indaver are not proposing to take in material in where there is a need to wash the containers. They are proposing to take in relatively dry healthcare waste.

The quantity of clinical waste proposed would be too small to adversely impact the incinerator and the proposed material is similar in character to that of material already accepted. The RD (Condition 3.28) limits the calorific value of waste in line with BAT for an air-cooled grate incinerator.

Un-planned shutdowns and the requirement to have a contingency in place for un-processed wastes is managed through the Emergency Response Procedure, required by Condition 9.2 of the RD.

Case 3 – Handling of solid hazardous waste:

In regard to the concerns about the storage and unloading of solid hazardous wastes, as noted earlier such wastes will go directly to the bunker. Materials will be tipped into the bunker or else unloaded by forklift onto the ground and pushed into the bunker. Containers such as FIBCs that cannot be so processed will not be accepted at the installation. Condition 8.4.3 of the RD requires the licensee to establish, maintain and implement to the satisfaction of the Agency procedures for the acceptance and management, including bunker management, of new wastes.

I do not consider greater storage requirements than that proposed by Indaver are required.

6. Site selection

VESTS did not define what they mean by a proper scoping exercise and how it impacted on the siting of the facility for hazardous waste. Under the planning regulations prevailing at the time, scoping was a matter for the applicant. Indaver did, however, have formal pre-application consultation with An Bord Pleanála under the Planning and Development (Strategic Infrastructure Act) 2006. The Agency was also consulted by the licensee in its EIS preparation. The EIS considered alternatives for the disposal of the hazardous waste. I am satisfied with the suitability of the site as far as considerations under Industrial Emissions licensing are concerned.

I consider Indaver's proposal to accept hazardous waste is acceptable provided the installation is operated in line with the RD.

15. Charges

The 2014 annual fee invoiced by OEE is **€42,814**. The RD recommends an annual charge of **€44,998**, which takes account of the inspection, audit, report evaluation, sampling and analytical costs associated with enforcement of the RD, as well as a new test programme for the incineration of hazardous wastes.

16. Recommendation

In preparing this report and the Recommended Decision I have consulted with Agency technical and sectoral advisor Mr. Brian Meaney. I have considered all the documentation submitted in relation to this application and recommend that the Agency grant a licence subject to the conditions set out in the attached PD and for the reasons as drafted.

Signed



John McEntagart
Inspector
Environmental Licensing Programme

Procedural Note

In the event that no objections are received to the Proposed Determination on the application, a licence will be granted in accordance with Section 87(4) of the Environmental Protection Agency Acts 1992, as amended, as soon as may be after the expiration of the appropriate period.

Appendix 1. Site Layout

