An Bord Pleanála

Inspector's Report PL 91.248285

Development	Development of land to facilitate on-site handling, storage and introduction of alternative fuels/raw materials to Kiln 6, storage tanks, uploading stations, handling buildings, cooling tower, conveyors and associated works
Location	Castlemungret, Co. Limerick
Planning Authority	Limerick City & County Council
Planning Authority Reg. Ref.	16/345
Applicant(s)	Irish Cement Ltd. (ICL)
Type of Application	Permission
Planning Authority Decision	Grant permission
Type of Appeal	1st Party & 3rd Parties
Appellant(s)	Irish Cement Ltd. Kevin Feeney Limerick Against Pollution & Other Co-appellants as follows- - Educate Together Limerick East,

Board of Management

- Educate Together Limerick East, Parents Association
- Gouldavoher Residents Association
- Slí na Manach Residents Association
- Dooradoyle Estate (incorporating St. Nessan's Park) Residents Association
- Cappagh Farmers Support Group
- Residents Alliance for a Cleaner Environment
- The Grange Residents Association
- Inis Lua Residents Association
- Oakfield Residents Association
- Ken Moran
- John & Liz Morgan
- Margaret McMahon
- Ivor Casey
- Mary O'Connor
- Tara Robinson
- Billy Austin
- Alicia Bowe & John Walsh
- James Moylan
- Garry Hayes
- Brian Haugh
- Eoin Deegan
- Olive Traynor
- Sabrina Begoin
- Orla Ahern
- Jo Buckley

	- Owen Wynne
	- Patricia O'Dwyer
	- Derek O'Dwyer
	- Cian O'Dwyer
	- Siobhan Hannan
	- Eileen Hannan
	- Kieran Hannan
	- Margaret Benson
	- Anite Bowe
	- Noreen Frawley
	- Mary Cuddihy
	- Andreina Scott
	- Jeremiah Carroll
	- Luisa Araujo
	- Birgit Strohwald
	- Jason O'Doherty
	- Trish Talty
	- Ailbhe Donnelly Flanagan
	- David Harlowe
Observers	Slí na Manach Residents Association
	Mary Hamill
	Helen McGee
	Elsie McGee
	Kevin Feeney
Date of Site Inspection	8th August 2017
Inspector	Michael Dillon

Contents

1.0 **Abbreviations**

An application of this nature inevitably results in reference to a considerable amount of technical language/bodies – some of which have been abbreviated for considerations of space. For ease of reference, I have included a list of the most commonly used in this Inspector's Report-

BAT	Best Available Techniques
COT	Committee on Toxicity (UK)
ELV	Emission Limit Value
EWC	European Waste Catalogue
HHRA	Human Health Risk Assessment
HHRAP	Human Health Risk Assessment Protocol (USA)
HSE	Health Service Executive
ICL	Irish Cement Ltd.
IE	Industrial Emissions (licence)
IED	Industrial Emissions Directive
IPPC	Integrated Pollution Prevention & Control
LAP	Limerick Against Pollution
LCCC	Limerick City & County Council
LoW	List of Waste
MFSU	Manufacture, Formulation, Supply and Use
mg	microgram
MSW	Municipal Solid Waste
ng	nanogram
NO_x	Nitrogen Oxides
NTFSO	National Trans-Frontier Shipment Office (waste)
PA	Planning Authority

PCBs	Polychlorinated Biphenyls
PCDD/Fs	Polychlorinated Dibenzo-*p*-Dioxins & Polychlorinated Dibenzofurans
pg	picogram
POPs	Persistent Organic Pollutants
RDF	Refuse-Derived Fuel
SELAP	Southern Environs Local Area Plan
SRF	Solid Recovered Fuel
SRWMO	Southern Region Waste Management Office
SRWMP	Southern Region Waste Management Plan
TDI	Tolerable Daily Intake
TEF	Toxicity Equivalence Factor
TEQ	Toxic Equivalence

2.0 Site Location and Description

2.1. The site, with a stated area of 10.52ha, forms part of a much larger ICL quarry and cement works, located on the northwest side of the N69 National Secondary Route, immediately to the west of Limerick City. The appeal site is located within the extensive existing cement works. Access is from an entrance off the two lane, Dock Road Western Roundabout, which forms part of the grade-separated junction of the N69, N18 and R510 roads. The 60kph speed limit applies in this area, and there is public lighting and public footpaths at the roundabout. There are a number of older entrances to the quarry and cement works on the N69 – all of which are closed-up. The N69 was heavily trafficked on the date of site inspection.

2.2. There is a disused railway connection serving the cement works – originally crossing the N69 at a recently-removed level crossing. The 60kph speed restriction applies along the N69 – reducing to 50kph in the vicinity of Mungret village to the southwest. Public lighting is now in place on the N69 between Mungret village and the recently upgraded Moore's Road - linking the N69 to the R859 Regional Road a short way to the south. The R859 links Mungret village with the R510 Regional Road to the east.

Small sections of footpath and cycleway are in place on the N69 in connection with the upgraded Moore's Road. There is no public lighting between Moore's Road and the Dock Road Western Roundabout. There are a small number of houses flanking the N69 within Mungret village. There is a 110kV sub-station on the opposite side of the N69 – with overhead pylon connection linking to the sub-station within the cement works. There is a civic amenity site and adjoining dog compound on the opposite side of the N69. The small Castlemungret Industrial Estate and OPW Regional Office/compound are located on the opposite side of the N69 also. These apart, there is agricultural land on the opposite side of the N69. A new Bord Gais Éireann compound has recently been constructed just to the northwest of the N69, within lands outlined as being in the ownership of ICL.

2.3. The cement works is largely screened from view from public roads in the vicinity by extensive belts of mature planting. Oak trees have been planted around Bunlicky/Clayfield pond to the north of the cement works – interspersed with scrub willow/alder/ash vegetation on the southern shores. Given the height of the structures on site, they are visible in longer views, and dominate the skyline to the west of Limerick City.

2.4. The cement works was operational on the date of site inspection. The 76m long Kiln 6 was rotating and it was possible to walk in close proximity to it without hearing protection or special clothing for dealing with radiated heat. Trucks were travelling to and from the site on the same day. There are weighbridges at the entrance and exit to the cement works and a spray-bar for bulk tanker trucks leaving the premises. Petroleum coke, which feeds Kiln 6, is currently stored in an open area to the north. The areas for the proposed alternative fuels/raw materials facilities comprises a mixture of made ground which has been colonised by scrub vegetation, grass lawn area, concrete apron and stone hard-standing. All elements of the proposed development are located in and around Kiln 6, with the exception of the proposed Raw Materials Store, which is located adjacent to the large limestone store within the adjoining quarry void – at a lower level. There is a considerable amount of landscaping within the cement works – comprising mature and semi-mature trees/shrubs and grass lawns. Work is ongoing to extend landscaped areas around the cement works.

2.5. Surface water, process water, and water pumped from the quarry floor is all discharged to Bunlicky/Clayfield Pond to the north, under Environmental Protection Agency (EPA) licence, at two discharge points. There are concrete examination areas, sampling points and hydrocarbon interceptors on the two outfalls. Both were running with water on a day of heavy showers, with no visible evidence of any siltation at the outfalls. Bunlicky/Clayfield Pond is an artificial structure – constructed when alluvial clay was extracted and used as the secondary ingredient in the wet process manufacture of cement. This extraction ceased in 1981. Reclamation of the pond is ongoing through deposition of inert material; again under licence from the EPA. The new N18 has been constructed on an embankment across this pond – before entering a tunnel section beneath the Shannon River. There are piped culverts linking the two parts of the pond. Discharge from the pond is controlled by weir and three tidal flaps, which control surcharging into the pond at high tide.

2.6. The closest housing to the site is located within Mungret village to the southwest. There is two-storey housing at Ard Aulin estate, and more recent two-storey housing within the Slí na Manach housing estate to the east and southeast – which latter is not yet completed. A new playground and park has been created within the grounds of the former Mungret College to the south. Two new schools are nearing completion to the south of the R859 Regional Road.

3.0 **Proposed Development**

3.1. A ten-year permission was sought on 27th April 2017, for development at an existing cement works, comprising the following elements-

- Introduction of approximately 90,000 tonnes per annum of alternative fuels/raw materials to Kiln 6 – to include whole tyres, fine solids, coarse solids, free-flowing solids and pumpable fluids.
- Open tyre-storage area of 3,000m^2.
- Elevated conveyor belts to move waste between structures and to feed into Kiln 6.
- Series of firewater retention tanks.

- Pumpable fluids storage tank (320m^3 capacity) with associated concrete bund.
- Three external silos for free-flowing solids (maximum height 26m).
- Construction of new buildings amounting to 7,840m^2 to handle waste deliveries and storage.
- 56m high cooling tower, of approximately 3m diameter.
- Demolition of approximately 500m^2 of metal-clad, covered car-parking bays (4 in number).
- Ancillary sections of internal roadway, fencing and landscaping.
- Water supply from a pumped sump in the adjacent quarry.
- Surface water discharge to Bunlicky/Clayfield Pond.

3.1.1. The application was accompanied by the following documentation of note-

- An Environmental Impact Statement (EIS) in three volumes – Volume 1 the Non-Technical Summary: Volume 2 the Main EIS: Volume 3 containing appendices.
- A3 booklet of photomontages.
- Stage 1 Screening Report for Appropriate Assessment.

3.2. Following a request for additional information, the following was received on 2nd November 2016-

- Dividing wall within tyre storage area to prevent spread of accidental fire.
- Details in relation to odour mitigation/control.
- Classification of waste by categories – particularly the indication that up to 30,000 tonnes would comprise Solid Recovered Fuel (SRF).
- Indication of compliance with the environmental criteria of the Southern Region Waste Management Plan 2015-2021.
- Details of storage times for waste streams on the site – particularly for tyres (not more than 12-14 days' supply).
- Details relating to control of spread of invasive species.

- Air quality assessment.
- Human Health Risk Assessment for dioxins and furans.
- Details of Emergency Response Plan.
- Revised noise surveys.
- Indication of trigger levels for pollution in Bunlicky/Clayfield Pond.

3.3. Following a request for clarification of additional information, the following was received on 13th February 2017, as follows-

- Details in relation to baseline monitoring for background heavy metals at two locations.
- Rationale for excluding Polychlorinated Biphenyls (PCBs) from the risk assessment for Tolerable Daily Intake of dioxins and furans (PCDD/Fs). The Industrial Emissions Directive does not require inclusion of the mass concentrations of dioxin-like PCBs when assessing compliance with the Emission Limit Value (ELV) for PCDD/Fs.
- Details of complaints procedure in place – dedicated Site Environmental Manager. All notified complaints must be reported to the EPA.

4.0 Planning Authority Decision

By Order dated 8th March 2017, Limerick City & County Council granted planning permission subject to 16 no. conditions, the principal ones of which can be summarised as follows-

1. Development to be carried out in accordance with plans and particulars received on 27th April and 2nd November 2016, and on 13th February 2017.
2. Requires payment of a development contribution of €392,040.
3. Permission is for a ten-year period.
4. Intake of alternative fuels/raw materials shall be limited to 90,000 tonnes per annum.
5. The solid refuse [sic] fuel (SRF) component sourced from municipal waste shall not exceed 30,000 tonnes per annum.

6. All mitigation measures outlined in the EIS shall be adhered to.

8. Fuel deliveries shall take place outside peak traffic hours – 07.30 - 09.30 and 16.00 - 18.30 hours Monday to Friday inclusive.

9. Requires submission of an annual Delivery Management Plan for alternative fuels.

12. No unprocessed alternative fuels shall be delivered to the plant, and no processing of alternative fuels shall be undertaken at the plant.

14. Relates to construction hours.

5.0 Planning History

The development of this cement works took place largely before the introduction of the planning laws. There are a number of planning applications of note relating to the cement works.

Ref. 16/153: Refers to an application for a similar-type development (introduction of 210,000 tonnes per annum of alternative fuels/raw materials). The application was withdrawn.

Ref. 08/2390: Permission was granted on 25th June 2009, for substitution of a proportion of petroleum coke fuel with alternative fuels comprising solid recovered fuels, secondary liquid fuel and bio-solids - (approximately 80,000 tonnes per annum) on a site of 0.95ha. The application was accompanied by an EIS. Due to the economic downturn, the permission was never taken up, and it expired in 2014.

Ref. 08/320: Permission granted on 15th May 2008, for clinker silo, transfer station, cement silo, and associated canopies and conveyors. The application was accompanied by an EIS. Development was carried out.

Ref. 04/1958: Permission granted on 16th March 2005, for an additional kiln; pre-heater tower; raw mill building; cement mill building; silos for raw meal, clinker and cement; extension to existing storage buildings for limestone and gypsum; iron ore store; transport conveyors, hoppers and ancillary plant. The application was accompanied by an EIS. The development was a variation of development permitted under ref. 98/205. The development was never carried out.

Ref. 98/2059: Permission granted to expand output of cement works to 1.8m tonnes per annum, with provision of an additional kiln. This permission was not implemented. [The reference to this permission is within the EIS submitted, and is not referred to in the Planner's Report from LCCC].

Ref. 90/528: Permission granted to extend the limestone quarry associated with this cement works. On appeal to the Board (**PL 13/5/83147**) permission was granted on 9th April 1991.

Ref. 81/265: Permission was granted for modernisation of cement works with provision of two new kilns – only one of which was constructed – Kiln 6.

6.0 Policy Context

6.1. Development Plan

The relevant document is the Limerick City Southern Environs Local Area Plan 2011-2017 (SELAP), which has been extended to 2021.

- The Limerick County Development Plan 2010-2016 is the 'parent' document.
- Section 2.2 states- "Limerick County Council will adopt a positive and sustainable approach to balanced development, thereby enhancing the lives of people who live in, work in and visit the Southern Environs, whilst protecting the natural and built environment".
- Policy ED1 states- "It is the policy of the Council to encourage and facilitate optimal levels of sustainable economic development promoting the growth of employment opportunities within a high quality physical environment".
- Section 4.2 states- "Other major industrial activity in the Southern Environs includes the Cement Factory which is typically representative of heavy industry and has been in operation in Castlemungret since 1938. The factory is long established in the area, and it is important to continue to ensure and monitor the balance between the activities on the site and the impact on the surrounding environment".
- Section 4.3.4.2 states- "'Industry' Zoned Land: This zoning accommodates existing and proposed heavy industrial use north and south of the Dock Road.

The purpose of this land use zoning is to facilitate opportunities for industrial uses, activity and processes which may give rise to land use conflict if located within other zonings".

- Objective ED 1 states amongst other things, that extensions to existing industrial development will be considered, where it can be clearly demonstrated that the proposal: *inter alia*, would have no significant detrimental effect on the surrounding areas or on the amenity of adjacent and nearby occupiers.
- Objective ZD 6 states- "It is the objective of the Council through appropriate zoning to facilitate the development and expansion of existing and new industrial uses within the Southern Environs".
- The site is zoned for industrial use, and section 9.2.3.7 states- "Industrial land use designation is intended to facilitate general industry/transport/logistics type uses, thereby facilitating important employment opportunities within the area".
- The portion of Bunlicky/Clayfield Pond on the western side of the N18 (the site side) is indicated on Plan maps as semi-natural open space.
- Map no. 7 of Appendix 2 indicates predictive flood Zones A & B – with the western portion of the site (as outlined in red) being within one of the zones – affecting the tyre storage area and the raw materials store.
- There is a Recorded Monument – LI 013-001 – indicated within the cement works.

6.2. **Limerick 2030 Strategic Development Plan**

This is an economic and spatial plan for metropolitan Limerick – launched in 2013 – and overseen by a Designated Activity Company set up by LCCC. It brings together a diverse group of agencies to provide an overarching vision of future development. It is tasked with planning and developing key strategic sites in the city, to act as anchors for enterprise and investment. The Plan also contains a strand in relation to third level education and skills provision. Reference is made to it being incorporated into the City and County Development Plans.

6.3. **Southern Region Waste Management Plan 2015-2021 (SRWMP)**

The pertinent sections of this document can be summarised in bullet point format as follows-

- The Waste Management Hierarchy, taken from the Waste Framework Directive (WFD), from the most to the least preferable, is as follows- Prevention, Preparing for Re-Use, Recycling, Energy Recovery, Disposal.
- The Seventh Environmental Action Programme states that by 2020, European Union and Member States are to ensure that, *inter alia*, energy recovery is to be limited to non-recyclable materials.
- The SRWMP does not comment specifically on all of the waste streams which are included in this planning application, but does state in relation to waste tyres that, those dealing in new or waste tyres must register with their local authority. This is a tracking scheme only, and not a full Producer Responsibility Initiative.
- On page 34, it is stated- "The local authorities of the region support self-sufficiency and the development of indigenous infrastructure for the thermal recovery of residual municipal wastes in response to legislative and policy requirements. The preference is to support the development of competitive, environmentally and energy efficient thermal recovery facilities in Ireland, including the replacement of fossil fuels by co-combustion in industrial furnaces or cement kilns, and ultimately to minimise the exporting of residual municipal waste resources over the plan period".
- The strategic approach over the Plan period will be to deliver balanced and sustainable infrastructure for the treatment of wastes in line with the strategic vision and waste hierarchy, where in the past the extent of available treatment capacity within the country has been unknown.
- At page 39, it is stated in relation to the 'circular economy'- "The existing make-take-dispose linear models, where products having reached their end of life are discarded as waste, are no longer viable. For the current linear approach to continue and thrive, resources would need to be plentiful and constantly available at low prices to meet demand. The economic reality is very different.

- The principles of self-sufficiency and proximity underpin the Plan. For residual, non-hazardous waste the aim of government policy is to develop indigenous recovery infrastructure to replace landfill, and for the State to become self-sufficient, where possible.
- Section 5.3.3 indicates as an objective that- "The region will encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources".
- In 2015, there was just one landfill facility operational in the region – Powerstown in Co. Carlow. This facility is located in the extreme northeast of the region, which includes County Cork.
- Table 7-1 gives an indication to the tonnes per annum of different types of waste collected in the region for the years 2010, 2011 and 2012.
- Section 11.5 deals with waste tyres – indicating that they are not classified as hazardous waste. The CSO indicated that in 2012, approximately 3 million tyres were imported into the country. The National Waste Report 2012 indicated that 24,165 tonnes of waste tyres were managed in the State in 2012. Approximately 40% of the waste tyres in Ireland were exported in 2012 – with the majority used as fuel. The main treatment activity in the State in 2012 was crumbing of waste tyres for conversion into saleable products (41%).
- In 2007, Dublin City Council was designated as the national competent authority for the export, import and transit of waste shipments under the Waste Management (Shipment of Waste) Regulations 2007. The National Transfrontier Shipment Office (NTFSO) implements the Regulations.
- The Economic & Social Research Institute states that "projecting the destination of waste streams (e.g. landfill, recycle etc.) is considerably more difficult that projecting waste generation and subject to greater uncertainty…" For example, the scale of the export of DRF/RDF material from Ireland to waste-to-energy recovery facilities in Europe was unforeseen when making projections about the possible destinations for waste streams, and highlights

the difficulty in predicting where waste will flow in a small, accessible, globalised economy like Ireland.

- In 2015, there was no EPA licensed waste facility with an R1 code (thermal recovery capacity) as its principal class of activity in the region. There is a certain amount of R1 treatment capacity in the region at IPC or IE licensed facilities; however, this is largely limited to the use of waste timber in boilers to generate heat or steam.
- The Southern Region does not contain any active thermal recovery activities for the treatment of municipal type wastes, and at present the Eastern Midlands Region is the only region in the country to have this type of treatment available. Thermal capacity is currently under construction at a cement kiln in the Connaught Ulster Region. In the State, there are six facilities fully authorised to provide thermal recovery from MSW – although only three were active in 2015. The tonnage accepted at the cement kilns is growing.
- Cement kilns accept solid recovered fuel (SRF) and refuse-derived fuel (RDF) type wastes that are generated from municipal and construction sources, as well as other wastes such as meat & bone meal, chipped tyres and high calorific fuels. Cement kiln operators are working with producers of SRF in the waste industry to agree specifications for product quality to facilitate increased rates of fossil fuel replacement. Approximately 140,000 tonnes of SRF was used in 2013, and it is estimated that this will rise to 150,000 tonnes in 2015. It is anticipated that this could rise even further with additional capacity under construction.
- The development of future thermal recovery facilities will be viewed as national facilities addressing the needs of the State and will not be defined by regional markets alone. A co-ordinated and consultative approach is required for such authorisation between the regions and national authorities i.e. the EPA and ABP.
- A national thermal recovery capacity need of 300,000 tonnes is proposed (refer to policy E15a) over and above the active and pending capacity totals in Table 16-8. Thermal recovery activities, where the principal use of the waste

is as a fuel to generate energy, sit on the other recovery tier of the waste hierarchy. The authorisation of these activities is the remit of the EPA. These facilities typically operate on a national market basis, accepting waste from all parts of Ireland.

- Table 16-8 of the Plan indicates active and pending capacity for thermal recovery – with two active cement kilns accepting140,000 tonnes (but with capacity for 215,000 tonnes per annum) and one further kiln permitted to accept 127,875 tonnes of waste per annum.
- Policy E15a states- "The waste plan supports the development of up to 300,000 tonnes of additional thermal recovery capacity for the treatment of non-hazardous wastes nationally to ensure that there is adequate active and competitive treatment in the market and the State's self sufficiency requirements for the recovery of municipal wastes are met. This capacity is a national treatment need and is not specific to the region. The extent of capacity determined reflects the predicted needs of the residual waste market to 2030 at the time of preparing the waste plan. Authorisations above this threshold will only be granted if the applicant justifies and verifies the need for the capacity, and the authorities are satisfied it complies with national and regional waste policies and does not pose a risk to future recycling targets. All proposed sites for thermal recovery must comply with the environmental protection criteria set out in the plan".
- Finally, section 17.1 of the Plan states- "The National Coordination Committee for Waste Management Planning (NCCWMP) coordinated the preparation of the three waste plans, namely for the Southern, Connaught-Ulster and Eastern-Midlands Regions. The coordinating committee consists of the DECLG, EPA, NWCPO, NTFSO and members from each of the three Regional Waste Management Plans".

6.4. **Natural Heritage Designations**

- The River Shannon and River Fergus Estuaries SPA is the closest European site to the proposed development – the eastern portion of the Bunlicky/Clayfield Pond forming part of the SPA. The Lower River Shannon SAC is located to the north of the site, and comprises the Shannon Estuary.

- All of Bunlicky/Clayfield Pond forms part of the Inner Shannon Estuary South Shore proposed Natural Heritage Area (pNHA). The Fergus Estuary and Inner Shannon North Shore pNHA is hydraulically linked to the site via the pond and the Shannon River – the pNHA being located on the opposite side of the Shannon River.

7.0 The Appeal

7.1. 1st Party Appeal

The appeal from Brady Shipman Martin, agent on behalf of the applicant, ICL, received by the Board on 4th April 2017, can be summarised in bullet point format as follows-

- The appeal is against conditions 8 & 9 only. ICL seeks to have condition 8 deleted and condition 9 modified.
- The aims and objectives of condition 8 are contained within condition 9. The requirement for a Delivery Management Plan is contained within both conditions.
- The restriction placed on the times for delivery is unnecessary. The delivery of alternative fuels/raw materials results in little change to traffic patterns, even during peak times – as outlined in Section 12.4 of the EIS.
- The Planner's Report of 20th December 2016, accepted that there would be no major effect on the road network.
- The cement factory runs 24 hours a day for approximately 330 days of the year – roughly eleven months. There is requirement for a consistent and regular supply of fuels during the eleven-month period. Minimal storage is proposed. The restriction on delivery times would place unnecessary constraints on the management of fuel storage.
- The wording of condition 9 provides the planning authority with the necessary flexibility to ensure that there will be no adverse traffic impact.
- The introduction of alternative fuels/raw materials will take place over a period of up to ten years – and at the beginning of the period, delivery levels could

be very low, as perhaps only one alternative fuel/raw material source will be introduced.

- The delivery of alternative fuels/raw materials will displace the delivery of petroleum coke to the cement works.
- Condition 9 should be modified to read- "Prior to commencement of this permission, the applicant shall submit an Outline Delivery Management Plan setting out the predicted range and quantities of alternative fuels to be consumed in the cement works. Thereafter, the applicant shall submit an annual Delivery Management Plan for the alternative fuels to be consumed in the cement works in the forthcoming year that will capture the increasing tonnage and delivery times for agreement in writing with Limerick City and County Council".

7.2. 3rd Party Appeals

7.2.1. There are two 3rd Party appeals from the following-

- Kevin Feeney, 18 Ard Aulin, Mungret, Co. Limerick – received 3rd April 2017.
- Limerick Against Pollution (c/o Tim Hourigan, 12 Cedar Court, Kennedy Park, Limerick) & Others – received 3rd April 2017.

7.2.2. The issues raised can be summarised in bullet point format as follows-

- The development will impact on the safety of residents of the area due to emissions of carcinogens, ultrafine particles and metals. This is not compatible with the expanding residential nature of this part of Limerick, and the contents of the Limerick Southern Environs Local Area Plan. The development may in fact discourage future residential developers.
- The cement works does not utilise filters to capture ultrafine particles PM0.1.
- A large number of the Ordnance Survey images used in the EIS do not show recent housing developments, and so under-represent the residential nature of lands within 1km of the cement works. The Slí na Manach and Ard Aulin housing estates are within 700m and 750m respectively of the cement works.

- This development will bring noise levels above the EPA night-time licence limits. A number of noise complaints have been registered with ICL, and the responsible personnel have not acted upon them. Noise complaints have not been properly recorded by ICL. Noise measurements carried out on just one day (7th May 2015) are not an accurate representation of noise from the cement works.
- Axis Environmental Services (on behalf of ICL) measured the noise outside 18 Ard Aulin, Mungret, on 12th August 2016. The noise level measured between 23.05 and 23.35 hours (1.1km from the Kiln 6 emission point) was 44dB(A) L_{Aeq} or 39dB(A) L_{AF90}. Whilst this is below the 45dB(A) night-time level, it would not be so for properties located within 500m of Kiln 6, and the same would apply for the proposed new kiln by-pass cooling tower.
- The development will adversely impact on the biodiversity of the Lower River Shannon SAC, due to risk of blowouts of partially-burned materials, fumes from tyre fires, increased risk of dioxins, and water contamination during flooding events. This area is known to flood – as indicated in the SELAP. Bunlicky/Clayfield Pond is used for winter feeding by over-wintering species and feeding for wader species of birds.
- The cement works has a history of blowouts and filter bag failures, which will result in unacceptable impacts on human health from carcinogens released by burning toxic fuels. There have been two significant blowouts in 2006 and 2015. Apart from these major incidents, there are other incidents of dust deposition from the cement works. Lesser failures of bag filters are likely not reported to the EPA.
- The AWN Report, commissioned by LCCC, casts doubt on the accuracy of the self-monitoring carried out by ICL. This is particularly the case in relation to NO_x emissions following an EPA inspection on 28th June 2016, when levels were found to be above the licenced ELV of 800mg/Nm^3. ICL disputed the results, and the EPA decided to take no further action. The new Best Available Techniques (BAT) level is 500mg/Nm^3, but ICL has requested a derogation for eighteen months. There is a complete lack of effective regulatory oversight of this cement works.

- There has been no effective consultation with the local community. Local people were not given sufficient notice and were not allowed sufficient time to deal with what is a very complex application requiring extensive knowledge of regulation and processes.
- It is noted that the alternative fuels/raw materials to be used is 90,000 tonnes per annum – a reduction from the application for 210,000 tonnes per annum, which was subsequently withdrawn. No information is given on the ratios of alternative fuels to be used.
- The EIS seems to be mostly copy and paste from the previous application in 2008.
- The proposed development will turn the cement works into a makeshift incinerator. Waste incineration and co-incineration operations, with limited energy recovery, must be regarded as waste disposal.
- To allow tyres to be incinerated is contrary to the EU Waste Framework Directive – rubber can be re-used and re-cycled, and should not be incinerated. The proposal to burn tyres would require an amount larger than is currently available in the state. If 90,000 tonnes of tyres were to be used, this would require up to 32 HGV loads per day to feed the kiln.
- The Incineration of Waste Directive (2007/76/EC) prohibits the burning of End of Life Tyres in older cement kilns from 2008.
- Storage of tyres could lead to contamination of the aquifer beneath the site.
- By switching from petroleum coke back to coal, the same savings in CO_2 emissions could be effected. Petroleum coke has 10-30% more carbon footprint than coal. Therefore, this project is not necessary to achieve reductions in greenhouse gas emissions.
- The future sustainability of incinerators is in question. Permission for more incinerators should not be granted.
- The Seveso Directive deals with major accidents. Important in this Directive is the separation distance between establishments and residential areas, buildings and areas of public use, major public transport routes, recreational

areas and areas of particular natural sensitivity or interest. The consultants engaged by the Council did not address the risks from this establishment.

- The Council did not address the issue of the risk of spread of malaria through the import of tyres containing water residues which provide breeding ground for mosquitoes. Epidemiologists have identified this as a real risk. Shredding tyres would remove this risk. ICL has not specified any measures to mitigate against the spread of malaria from tyres to be stored within the cement works.
- Limerick City is without an Air Quality monitoring station. There will be no way to check emissions from this development.
- There is concern that dioxins will be emitted by burning alternative fuels. There are housing estates and schools located within 700m of the cement works.
- More trucks will be required to deliver fuels of lower density and lower calorific value than petroleum coke. This will increase congestion on roads. The cement works is not currently operating at capacity, and were it to so operate, the additional traffic volumes necessary to deliver additional alternative fuels would result in a considerable increase over existing traffic levels.
- The precedent permission for 80,000 tonnes (2008) of alternative fuels should not be used as a reason for granting this current application – as the mix, now proposed, is different.
- If the cement works continues to operate at less than maximum output, there is a possibility that it could be entirely fired using alternative fuels. There is no indication that the cement works will ever return to full production.
- Application drawings are incomplete – referring to features which are not included in relation to the back end of Kiln 6.
- Planning permission exists for a nearby private hospital – permission live until 26th June 2018. Incinerators should not be located in the vicinity of hospitals.
- There is no indication given of any consultation in relation to safe navigation of aircraft – particularly ones which fly at low level in the area.

- There is a gas main 200m from this cement works, and additional construction traffic could obstruct emergency vehicles from accessing the gas main in the event of an accident.
- Kilns will have to rotate longer to burn alternative fuels – thereby leading to higher electricity consumption at the cement works, which transfers the CO_2 footprint to the electricity generation plant at Tarbert.

7.2.3. The appeals are accompanied by the following documentation of note-

- Report of Axis Environmental Services in relation to noise monitoring at 18 Ard Aulin, Mungret, on 12th August 2016, (for both day-time and night-time surveys).
- Series of letters from groups and individuals, indicated as co-appellants.

7.3. **Observations**

7.3.1. There are five observations, all opposed to the proposed development, from the following-

- Elsie McGee, Rosbrien House, Rosbrien, Limerick – received 27th April 2017.
- Helen McGee, 2 Greenview Close, Glencairn, Dooradoyle, Limerick & Others – received 27th April 2017.
- Mary Hamill, 54 Rosnaree, Church Road, Raheen, Limerick – received 27th April 2017.
- Kevin Feeney, 18 Ard Aulin, Mungret, Co. Limerick – received 28th April 2017.
- Slí na Manach Residents Association – received 28th April 2017.

7.3.2. The issues raised, where different from those already raised in 3rd Party submissions, can be summarised in bullet point format as follows-

- Natural gas should be used to power this cement works, particularly where a new gas feeder to Castlemungret has recently been constructed.
- There is no indication of how ICL will prevent the burning of halogenated materials.
- Noxious odours may result from the combustion of solvents and sludges.

- Insects, viruses and unknown contaminants could enter the country in tyres, industrial plastics and bio-solids which might be combusted at this cement works.
- The cement kiln on this site is too old and was not designed to burn waste.
- The use of the word etc. after all of the categories of waste to be burned (except tyres) is unacceptable, as it leaves it open for the ICL to burn anything in Kiln 6.
- The 90,000 tonnes selected seems to be designed to avoid the 100,000 tonne threshold which would turn this cement works into a waste disposal facility.
- There is concern that HGVs delivering hazardous wastes to the cement works could be involved in road accidents – thereby affecting the health of residents in the area.
- The development is located too close to a large city – with a population of up to 100,000 within 5km of the cement works.
- Contaminated waste is being burned in cement kilns in Ireland. This issue should be addressed in the EIS.
- ICL should have a Waste Licence to burn waste.
- There have been more dust depositions in the area in April 2017, and the incidents were reported to the EPA.
- Condition 8 of the permission needs to be retained to reduce traffic congestion. The Dock Road Western Roundabout is congested every morning with tailbacks in every direction. Mungret primary school, which is near this roundabout, caters for up to 800 children. Three new schools are being built in Mungret with 2,000-3,000 children expected to attend.
- Blowouts from the cement works are frequently deposited on nearby housing developments, including Ard Aulin and Slí na Manach. ICL is cleaning cars for residents, using Deox acid.

8.0 Response Submissions

8.1. 1st Party Response to 3rd Party Appeals

The response of Brady Shipman Martin, agent on behalf of ICL, received by the Board on 2nd May 2017, can be summarised in bullet point format as follows-

- Full and proper consultation with the local community was undertaken. Public notices were erected on the site and notice placed in a national newspaper.
- The ratio and quantity of alternative fuels cannot be predicted in advance, as use will depend on market demand, calorific value (which may vary over time) and price.
- The EIS notes that there are residential properties within 1km of the site. Houses in Mungret village and on the edge of the village are the closest to the cement works.
- The factory will remain a cement works, and it is not intended to operate an incinerator on the site. This application is for the use of alternative fuels/raw materials in the cement kiln. This cement works is the only one of the four cement works in Ireland which does not have a permission for use of alternative fuels/raw materials. The ICL sister cement works at Platin, Co. Meath, has been burning 120,000 tonnes of alternative fuels per annum since 2011. The SRWMP supports thermal recovery of residual municipal wastes – including co-combustion in cement kilns.
- No aspect of the development will increase the likelihood of accidental dust emissions such as occurred in October 2006 and July 2015.
- ICL submitted a Human Health Risk Assessment to the Council, to deal with the issue of dioxins and furans.
- In June 2016, the ICL continuous monitor for NO_x measured a level of 794.7mg/Nm^3 which did not exceed the ELV of 800mg/Nm^3, notwithstanding that and EPA-sponsored measurement registered 940mg/Nm^3. Reference to a limit of 500mg/Nm^3 is one which will only apply once the EPA implements

the Best Available Techniques (BAT) Conclusions under Directive 2010/75/EU on the production of cement, lime and magnesium oxide.

- Incineration of certain wastes provide an effective and energy-efficient alternative to landfill or export of residual wastes.
- A ten-year permission is required to allow for flexibility to take account of market availability of particular fuels and subsequent approval of test-burn programmes in agreement with the EPA.
- Limerick Cement Factory is not an establishment for the purposes of the EC Control of Major Accident Hazards Directive – 2012/18/EU of the European Parliament and of the Council of 4th July 2012 on the control of major accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC. This is because the threshold quantities of dangerous substances are not exceeded. The maximum quantities of materials are approximately half the threshold quantity for classification of an establishment as a "lower tier" site and approximately 5% of the threshold quantity for classification of an establishment as a "top tier" site.
- Some 210,000 tonnes of tyres were incinerated in the German cement industry in 2015.
- The air dispersion modelling assessment concluded, that even if the factory was operating at maximum ELV for 365 days, predicted ground level concentrations are in compliance with air quality standards.
- Emissions of dioxins from cement kilns are low – whether using petroleum coke or alternative fuels. A Human Health Risk Assessment was carried out. The methodology was the U.S. Environmental Protection Agency's Human Health Risk Assessment Protocol (HHRAP). The criterion specified in the request for additional information from the Council was the 'Tolerable Daily Intake recommended by the UK Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT) for dioxins, furans and dioxin-like PCBs, of 2pg/kg bodyweight/day. The findings were that the intake

of PCDD/Fs that could arise from potential emissions was within the limit of 2pg/kg bodyweight/day for all receptor scenarios.

- There are currently no ambient air quality standards for ultra-fine particles. Fabric filters are proven to be efficient at removing dust.
- Tyres are burnt in cement kilns throughout Europe, and use is regulated by the Industrial Emissions Directive. The exact quantity of tyres to be used is not known – and will depend on availability.
- Three new schools under construction south of the R859 are due to open in 2018. Construction at the cement works is unlikely to commence before 2018, and so the construction projects will not likely overlap and cause traffic problems. The proposed development will be carried out over a period of ten years, and so there will not be any significant degree of overlap between the construction projects. There will be no more than 76 trips associated with any day of construction (38 vehicles).
- Any reference to 9,000 tonnes per annum of alternative fuels/raw materials is a typographical error.
- Permission ref. 08/2390, was limited to 80,000 tonnes per annum of three types of alternative fuels. The current application is for 90,000 tonnes of a much wider range of alternative fuels/raw materials. Any reference in the EIS to 210,000 tonnes is at section 2.3.4, and related to the potential maximum amount of alternative fuels which would be required to replace all of the petroleum coke burnt at maximum output.
- CO_2 emissions of 40,000 tonnes per annum are not overstated. Burning 131,000 tonnes of petroleum coke would result in emissions of 392,000 tonnes of CO_2, whereas burning 90,000 tonnes of alternative fuels (with petroleum coke making up the balance) would result in emissions of 352,000 tonnes of CO_2.
- Whilst some of the materials to be burnt in the kiln are classified as hazardous, SRF and tyres are not classified as hazardous. The percentage of hazardous alternative fuels/raw materials is likely to be small.

- Table 3.1 of Chapter 3 of the EIS contains Item 3c which relates to development for the introduction of Fine Solids to the back end of Kiln 6. This comprises an associated conveyor (from screening building to transfer building to dosing building (back end Kiln 6). The detail of the development is shown on Drgs. LK14-009-008-05 & 06 submitted with the planning application. Label 3c was omitted in error from Figure 3.1 of the EIS. A copy of the corrected Figure 3.1 is attached under Appendix 1.1 to this response.
- Some 70,000 tonnes of petroleum coke was used in the cement works in 2015. This figure increased to 88,000 tonnes per annum in 2016.
- The cement works has existed at Castlemungret since 1938. Many housing developments in the area post-date the cement works. No new residentially zoned lands adjoin the cement works site.
- The report “Safe management of Wastes from Health-care Activities”, published by the WHO in 2014, is not relevant to this application/appeal.
- The proposed infrastructure will be significantly lower than existing plant at the cement works.
- Residents within 500m of the cement works have been outlined at Figure 4.1 of the EIS. Section 4.3.4 of the EIS correctly states that there are no residential properties within 1km of the application site to the west, north or east of the cement factory.
- There will be no change to the noise regime at the cement works, as ICL will have to operate within the terms of the IE licence limits.
- The Appropriate Assessment screening determined that the development would not have an adverse impact on the environment or the ecology of area.
- The proposed development is unrelated to previous accidental dust emissions, and no aspect of the proposed development will increase the likelihood of such incidents of cause such incidents to reoccur.
- ELVs set down in the IE licence for this premises will protect the welfare of residents as well as school children.

- An additional internal fire wall has been provided within the tyre storage area, and a firewater retention tank is also provided.
- Figures used in the EIS were from the latest OS maps available at the time. The assessment of the proximity of residential properties to the proposed development is included in Chapter 4 of the EIS. Ard Aulin estate is located over 500m southeast of the boundary of the cement factory and over 700m from the application site.
- The August 2016 noise survey carried out at the Feeney residence, was in response to a specific complaint. Noise monitoring is carried out at the nearest noise sensitive receptors in accordance with the requirements of the IE licence.
- Night-time noise monitoring results show compliance with the IE licence limits.
- Night-time sound pressure level at 500m from the proposed new cooling tower would be 39dB. Adding this value to an existing night-time baseline of 38dB results in a cumulative level of 42dB.
- Additional flow rates of alternative fuels/raw materials to Kiln 6 will not result in any increase in noise level.
- ICL maintains a record of all complaints received, and details are included in the Annual Environmental Report to the EPA.
- The Local Area Plan utilised the findings from high level flood modelling to delineate floodplains. These maps have been superseded by the Shannon CFRAM floodmaps. The site is defended against flooding by embankments constructed along the edge of the Shannon estuary. In the event of failure of the embankments, bunds would act as a second line of defence.
- Air dispersion modelling showed that there would be no significant impact on Bunlicky/Clayfield Pond, and consequently on the wintering and breeding wader species which use this waterbody.
- There have been no recent incidents of filter bag failures at the cement works. ICL regularly tests, maintains and upgrades bag filters as necessary.

- The Safety Data Sheet for Deox acid is included in the response at Appendix 2.1.
- The new NO_x limit of 500mg/Nm^3 will only apply once the EPA implement the BAT conclusions under Directive 2010/75/EU. This review is currently under way by the EPA.

8.2. **2nd Party Response to 1st & 3rd Party Appeals**

There is no response from LCCC to the grounds of appeal submitted.

8.3. **First 3rd Party Response to 1st Party Response to 3rd Party Appeals**

8.3.1. The response of Kevin Feeney, received by the Board on 11th July 2017, can be summarised in bullet point format as follows-

- Ultra-fine particles can affect the central nervous system, pulmonary system and cause cancer. The precautionary principle should ensure that an incinerator would not be permitted so close to houses.
- Parents will be deterred from sending their children to local schools because of the proximity of this incinerator.
- People residing in the area will leave if this incinerator is permitted.
- There are a number of housing estates within 1km of the appeal site – to the southeast – and Ard Aulin estate is to the east.
- The Ordnance Survey updates maps every year since 2010. It is incorrect for ICL to state that up-to-date maps were not available.
- There are no specifications for the bag filters at the Castlemungret cement works. Visitors to the site state that only PM_{10} is captured by bag filters.
- The EPA measured sound levels of 45dB at 57 Ard Thomáin, Slí na Manach (935m from the flue stack). Additional noise from the proposed cooling tower would bring the noise levels to above the 45dB night-time permitted level. Houses closer to the cement works will experience an even higher level of

noise. In particular, the residents of Mungret are likely to experience higher noise levels – being closer to the cement works.

- The air dispersion modelling for the proposed development does not factor in blow-outs, nor does it consider fires in the tyre storage area. These occurrences would be accidental, but are probable and foreseeable. Going on past occurrences there is a blow-out every nine years.
- Cement has been deposited on Raheen residents' houses and cars in 2017. This deposition originated from the ICL cement works.

8.3.2. The submission is accompanied by and EPA Site Visit Report, carried out by 'Enfonic', on 6th April 2017, to investigate noise complaints, at three noise-sensitive locations in Ard Aulin and Ard Thomáin estates, when the receptors were downwind of the cement works.

8.4. Second 3rd Party Response to 1st Party Response to 3rd Party Appeals

8.4.1. The response of Limerick Against Pollution & Others, received by the Board on 12th July 2017, can be summarised in bullet point format as follows-

- The site notice was not erected in a place on the N69 which was convenient for passers-by to stop at.
- It is likely that ICL has more detailed information on the types of alternative fuels that will be used, but that this information has not been made available to the public.
- Ard Aulin is not southeast of the cement works, but is located much closer to due east.
- Recent blowouts show that the cement works is not being operated as would be expected of a well-regulated industry.
- No derogation from the 500mg/Nm^3 for NO_x will be permitted after 1st January 2016, according to Directive 2010/75/EU.
- It is likely that tyres will have to be imported to feed this kiln. This will have a knock-on effect for jobs in recycling tyres in Ireland.

- Thermal recovery is only one step above disposal in the waste hierarchy. Ten years for the permission seems excessively generous, in the light of changes which may happen in waste management in the country.
- The consultant hired to advise the Council in relation to air quality, is also advising ICL.
- The Council failed to seek expert advice on the likelihood of pests being imported into the country in whole tyres. The fact that tyres are burnt in cement kilns in Germany is not of relevance, the origin of the tyres is of importance. ICL cannot guarantee that the supplier of tyres to the cement works will have appropriate pest control in place.
- Air quality monitoring over a two-day period indicates that neither of the monitoring points was downwind of the stack at the cement works.
- It is the understanding of the appellant that tyres are not currently being burned at Platin.
- Dioxin is not water-soluble, and enters into the food chain by being deposited on vegetation, subsequently eaten by animals/insects. It does not percolate to the soil.
- It is surprising that ICL does not have solid data on the use of alternative fuels, given that they are claimed to have been in use for the past forty years in the cement industry.
- People may be discouraged from buying houses in this area if this incinerator is permitted.
- There is permission to build an hospital close to this site, and there is concern that toxins released from the incinerator could impact on health of inmates.
- Dust could cause problems for low-flying aircraft. This issue was raised in relation to the incinerator at Cork, and ICL is well aware of it.

8.4.2. The response submission is accompanied by a copy of a compass rose, and two aerial photographs of the cement works and its location relative to nearby housing estates.

8.5. **Prescribed Bodies Responses**

8.5.1. Arising from proximity of the site to the River Shannon and River Fergus SPA, and proximity to protected structures/recorded monuments, the Board circulated the appeal to the following Prescribed Bodies for comment on or before 19th July 2017-

- An Chomhairle Ealaíon.
- Fáilte Ireland.
- The Heritage Council.
- Development Applications Unit of the Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs.
- An Taisce.

Three was no response received from the Prescribed Bodies.

8.5.2. The appeal was referred by the Board to the EPA for comment. The response of the EPA, received by the Board on 6th October 2017, indicated that a review of IE licence P0029 03 was initiated on 18th January 2017, in compliance with EC Implementing Decision (CID) on BAT conclusions for the production of cement (2013/163/EU). ICL has separately sought a review of licence P0029 03 to allow for introduction of alternative fuels/raw materials to Kiln 6. It is noted that the EIS submitted with the licence application appears to be the same EIS submitted with the planning application. Where the Agency is of the opinion that the activities, as proposed, cannot be carried on, or cannot be effectively regulated under a licence, then the Agency cannot grant a licence for such an activity. Should the Agency decide to grant a licence in respect of the activity, as proposed, it will incorporate conditions that will ensure that appropriate National and EU standards are applied, and that BAT will be used in the carrying on of the activities. In accordance with Section 87(1D)(d) of the Environmental Protection Agency Act, the Agency cannot issue a Proposed Determination on a licence application, which addressed the development above, until a planning decision has been made.

9.0 **Oral Hearing**

9.1. **Oral Hearing Request & Direction**

Limerick Against Pollution & Others, one of the two 3rd Party appellants, requested that an oral hearing be held. A Memo of 14th July 2017, from this Planning Inspector to the Board, recommended against the holding of an oral hearing. The Board directed that an oral hearing be held (dated 20th July 2017) in light of the significant public interest in this case and the complex technical issues raised in the application and appeals.

9.2. **Oral Hearing Details**

An Oral Hearing was held at the South Court Hotel, Raheen, Limerick – commencing on Tuesday 29th August 2017. The hearing sat until Friday 1st September, including one evening sitting on Wednesday 30th August 2017, to facilitate the parties. The proceedings of the hearing were recorded, for the convenience of the Board. The parties/individuals represented/speaking at the oral hearing are listed below-

Applicant

- Mr. Jarlath Fitzsimons, SC.
- Mr. Brian Gilmore, ICL.
- Mr. Seamus Breen, ICL.
- Mr. Thomas Burns, Brady Shipman Martin.
- Ms. Sinéad Whyte, Arup Associates.
- Dr. Martin Hogan, FRCPI.
- Mr. Tony Lynch, Arup Associates.
- Dr. Don Menzies, Arup Associates.

Planning Authority

- Mr. Dermot Flanagan, SC.
- Mr. Stephane Duclot, Senior Planner.

Elected Representatives

- Cllr. Daniel Butler.
- Ms. Liadh Ní Riada, MEP.
- Cllr. Malachy McCreesh.
- Cllr. Séighin Ó Ceallaigh.
- Cllr. James Collins.
- Senator Kieran O'Donnell.
- Senator Maria Byrne.
- Deputy Jan O'Sullivan.
- Cllr. Cian Prendiville.
- Cllr. John Gilligan.
- Cllr. Paul Keller.
- Cllr. John Costelloe
- Cllr. Cathal Crowe.
- Deputy Willie O'Dea.
- Cllr. John Loftus.

Third Parties

- Mr. Kevin Feeney
- Mr. Tim Hourigan
- Mr. Jack O'Sullivan, Environmental Management Services.
- Dr. Paul Connett, Executive Director AEHSP.
- Dr. Gordon Reid, Physiologist.
- Dr. Angus Mitchell, Historian and Lecturer in Corporate Social Responsibility and Business Ethics.
- Mr. Derek O'Dwyer.
- Mr. Joseph Burke.
- Ms. Tara Robinson.
- Mr. Martin Gleeson, Dooradoyle Estate and St. Nessan's Park Residents Association.
- Ms. Trish Talty.

- Mr. Colin Moran (on behalf of his father Mr. Ken Moran).
- Ms. Margaret McMahon.
- Mr. Ivor Casey.
- Cllr. Malachy McCreesh (on behalf of Ms. Sabrina Begoin).
- Cllr. Malachy McCreesh (on behalf of Mr. Jason Doherty).
- Mr. Denis Ryan, Gouldavoher Residents Association.
- Ms. Luisa Araujo.
- Mr. Tim Hourigan (on behalf of Educate Together Limerick East, Parents Association).
- Mr. James Tuohy (on behalf of Educate Together Limerick East, Board of Management).
- Mr. Martin Corcoran, Inis Lua Residents Association.
- Ms. Claire Keating, Slí na Manach Residents Association.
- Ms. Nuala Geoghegan.

<u>Observers</u>

- Ms. Mary Hamill.
- Ms. Helen McGee.
- Mr. Derek O'Dwyer (on behalf of Ms. Elsie McGee).

9.3. **Oral Hearing General**

9.3.1. What follows is a summary of what transpired on each of the four days of the Hearing. A total of 38 written submissions were made (some of which contained a number of sub-documents). These are indicated in bold numbering in this Inspector's Report (e.g. **Document 14**), and the documents are contained within two pouches which accompany the file.

9.4. **Day One**

9.4.1. After the Inspector's opening comments, this day commenced with the submission of the 1st Party, ICL.

9.4.2. Jarlath Fitzsimons stated that the appeal was before the Board *de novo*. The separate functions of the EPA and ABP were pointed out in relation to applications/appeals for a development which requires an Industrial Emissions (IE) licence from the EPA, and attention was drawn to section 34(2)(c) of the Planning and Development Act 2000 (as amended). The original IPPC licence for the Castlemungret cement works was amended in December 2013, to bring it into line with the requirements of the Industrial Emissions Directive of the EU.

9.4.3. Brian Gilmore presented **Document 1**, and stated that 1,450 degrees Celsius was the temperature at which clinker formed within the cement kiln – with flame temperatures of up to 2,000 degrees Celsius. This is the only cement kiln in the country which does not have permission to use alternative fuels. ICL's sister cement works at Platin is already using 120,000 tonnes per annum of alternative fuels. Dust particles are trapped inside a fabric filter on the gas extraction flue before being returned to the cement kiln – ensuring that there is no fly ash residue.

9.4.4. Brian Gilmore presented **Document 2 & 2A**, and stated that Kiln 6 was commissioned in 1983. Prevailing economic conditions prevented the implementation of permission ref. 08/2390 – to introduce 80,000 tonnes per annum of alternative fuels. Document 2A illustrates, in diagrammatic form, how Kiln 6 operates. It was indicated that ICL was committed to establishing a Neighbourhood Forum. The proposal is not a makeshift incinerator. It could not burn 90,000 tonnes of tyres per annum, as this would not allow for appropriate temperature regulation in the kiln. ICL has been permitted to burn only 30,000 of SRF per annum.

9.4.5. Seamus Breen presented **Document 3**. Clinker from the kiln, when ground with gypsum, produces cement. No derogation from the NO_x emissions standard is being sought by ICL. The ELV for NO_x in the IE licence review will be of the order of 450-500 mg/Nm^3 (where the 'N' stands for 'normalising'). ICL has sought a six-month derogation to a new ELV in the proposed draft licence P0029-05. Time is required to implement equipment alterations and/or replacements to ensure compliance. There is an ambient air monitor on the site boundary and seven dust gauges. An explanation was given for the two dust emission incidents at the cement works in 2006 and 2015. Following complaints from neighbours relating to dust emissions in 2017, it was concluded that they were likely due to ambient dust being raised during a spell of dry weather – not specifically from the cement works.

Blowouts occur with electrostatic precipitators. The electrostatic precipitator at the cement works was replaced by a bag filter in 2010. Noise surveys carried out by ICL, over and above what is required by way of IE licence, are reported to the EPA. No surveys indicated levels above the night-time limits of the licence. ICL has a greenhouse gas CO_2 permit issued by the EPA. Solely as a result of the number of complaints made during April and May 2017 concerning fugitive dust and the related compliance investigation, the cement works has been placed on the 'Priority List' for environmental enforcement by the EPA. EPA inspectors or the agents for the EPA visit the site regularly, for the most part unannounced. The number of visits is 4-5 per annum.

9.4.6. Thomas Burns presented **Document 4 & 4A**. It was stated that 900,000 tonnes of cement had been produced in 2016. Kiln 6 is shut down for 3-4 weeks every year for maintenance. There were no 3rd Party objections to application 08/2390 to burn 80,000 tonnes per annum of alternative fuels. Development commenced on a hospital on Dock Road East in 2007, but has not been completed. Permission has been granted for an extension to an existing Greenstar Waste facility at Dock Road East, as well as for a waste transfer facility for Mr. Binman.

9.4.7. Sinead Whyte presented **Document 5**. The proposed draft IE licence P0029-05 contains ELVs for new parameters not previously specified within older licences. These include hydrogen chloride, hydrogen fluoride, dioxins, furans, mercury and a range of other metals. Once the licence is finalised, ICL will be required to monitor all of these parameters, regardless of the use of alternative fuels/raw materials. Air quality standards require monitoring for PM_{10} and $PM_{2.5}$. There are no EU air quality standards for ultra-fine particles $PM_{0.1}$. The use of fabric filters to abate particulate emissions is in accordance with Best Available Techniques for the Production of Cement, Lime and Magnesium Oxide (EC 2013). All noise monitoring carried out showed that emissions were within limits set down by licence.

9.4.8. Martin Hogan presented **Document 6**. The submission largely contains quotes from scientific studies into the incineration of alternative fuels at cement kilns. Alternative fuels are incinerated at Platin since 2009. Monitoring indicates an average concentration of PCDD/Fs of 0.0033ng/Nm^3 – which is 0.33% of the ELV. Even if the Irish climate was suitable for breeding of disease-bearing mosquitoes, there is no shortage of standing water in the country, and tyres would not be needed to form a

suitable breeding ground as they might be in other countries. Two locations used for predicted highest concentration in air and the potential highest dust deposition rates, identified by the air dispersion modelling, are "worst case". The locations are almost on the eastern boundary of the cement works – closer than any housing or schools. Dust deposition on cars in the vicinity is predominantly of a diameter greater than 30 microns, and is not inhalable, and cannot, therefore, have an impact on human health.

9.4.9. Tony Lynch presented **Document 7**. Traffic and transportation assessment within the EIS allowed for the fact that the density of alternative fuels was less than petroleum coke – by a factor of 25%. The introduction of the delivery time restrictions in Condition 8 has the potential to impact on 15-20 two-way truck movements out of a daily truck movement total of 66 HGVs. During the restricted time periods at peak hours, approximately 5,000 vehicles were recorded (Tuesday 15th March 2015) at the Dock Road Western Roundabout. The introduction of the delivery time restrictions has the potential to reduce traffic flows by 0.3% to 0.4% during the restricted time period. This level of traffic reduction is extremely small, whilst the impact on the operation of the cement works would be onerous. The wording of Condition 8 applies to deliveries of all fuels – including petroleum coke – something which is not within the planning application. A suggested wording for a composite condition 8 & 9 is included.

9.4.10. The submission of Tony Lynch closed the applicant's submission to the Hearing.

9.4.11. Dermot Flanagan, on behalf of LCCC, pointed out that the application was now before the Board *de novo*. AWN Consulting was commissioned by LCCC to report on the application. The response of AWN consulting contained nine [sic] bullet points – eight [sic] of which related to aspects which were the concern of the EPA. [I note that the report contains eight bullet points – seven of which refer to aspects of concern to the EPA]. The Southern Region Waste Management Office (SRWMO) made reports on the application to LCCC. Screening for Appropriate Assessment was carried out by the Heritage Officer of LCCC. The planning authority acknowledged the clumsiness of the wording of conditions 8 & 9 and presented **Document 8** containing revised wording. Of note is the contraction of the restricted hours to 0800- 0930 and 1630-1830. Demand management has been included by

way of planning conditions in the past for developments such as Ikea in Dublin and the Port of Cork at Ringaskiddy.

9.4.12. The Hearing continued with submissions of elected representatives. All of the representations were in support of the 3rd Party appellants and the observers. The issues raised tended towards restatement of the grounds of appeal/observations already submitted to the Board.

9.4.13. Cllr. Daniel Butler

- The development has possible health implications for residents.
- The emphasis should be on people who have to live in this area.
- There are issues of historical dust nuisance from the cement works.
- A more volatile process is now proposed.
- The area is densely populated.
- The cement works is in a growing residential area where new schools are being built, together with a new park and playground.
- The setting has changed hugely since the cement works was constructed in 1938. If an application was made for a cement works at this location now, it would be refused permission.
- It is acknowledged that ICL provide employment and sponsor community groups.
- It is the responsibility of ABP to protect citizens.

9.4.14. Liadh Ní Riada MEP

- This is an agriculturally rich area. Produce must have a clean image – particularly for beef and dairy industry.
- The application is for an incinerator.
- There was inadequate public consultation.
- The new gas connection to Castlemungret should have been considered for firing the kiln.
- The EPA has shut down its air monitoring facility in Limerick.

- ICL has lost the trust of the local community.
- The kiln is old and may not be able to burn alternative fuels at a sufficiently high temperature.
- The storage of tyres will result in a fire risk.
- The proposal may deter developers investing in this area.
- Industrial leachate will be fed into the kiln.
- There is concern that alternative fuels may result in malodours.
- The application will impact negatively on nearby SACs.
- The use of tyres will provide a large revenue input for ICL.
- There are health impacts relating to importing tyres and storing them.
- Pollution may impact on those in the area with respiratory illnesses.
- The proposal may deter employment generation in the area.

9.4.15. Cllr. Malachy McCreesh

- ICL will effectively end up operating an incinerator.
- The Hearing gives the community a chance to vent its concerns.
- Hazardous materials are to be introduced into the confines of a residential area.
- LCCC has a responsibility to protect air quality.
- Dust emissions have impacts on those with respiratory illnesses. More research is needed in this area.
- The community has no confidence in ICL.
- The EPA has issued notices to ICL in the past, in relation to dust emissions.
- Long-term development of the region will be affected.

9.4.16. Cllr. Séighín Ó Ceallaigh

- This development will have impacts on the surrounding area – up to 30km.
- Burning sewage is not acceptable.

- Elected representatives had no say in this decision of LCCC.
- It is not acceptable to use the phrase “virtually none” when it comes to pollution.
- Limerick City has invested time and capital in trying to redevelop the city. This development will deter inward investment.
- There will be knock-on effects for other proposed developments in the area.
- Jobs which might otherwise have come to Limerick may go elsewhere.
- Agriculture is on the brink of collapse with Brexit, and this development will not help the image of Limerick agriculture. The reputation of the beef industry will be damaged by dioxin emissions.
- A few extra jobs will not compensate for the loss of clean image of agriculture.

9.4.17. Cllr. James Collins

- Limerick does not need a toxic waste incinerator.
- It would not be possible to pick a worse location for this type of development.
- The development is not necessary. It is purely profit-driven.
- Natural gas could be used instead.
- Most of the risks will be to future generations.
- This development is contrary to the proper planning and sustainable development of the area, as outlined in the City & County Development Plan and Southern Environs Local Area Plan.
- In the past Limerick was renowned for hides, cement and bacon. However, the vision for Limerick is now much wider and there are plans to double the population.
- There are only 80 people working at the Castlemungret works.
- Clean, professional-type industries are what is needed in Limerick. Limerick 2030 is seeking to bring housing to the City, where a national shortage has been identified.
- Three schools opened in the area this week, and not in 2018 as stated.

- The views of the elected representatives and the community are not reflected in the decision of LCCC. This scheme is not compatible with the vision of the elected representatives for the area. Foreign direct investment is being sought for Limerick, and this permission will set back the work of Limerick 2030.
- LCCC has a food strategy, and clean food is what is wanted. Limerick 2030 is trying to promote a food culture and strategy. Contaminants can enter the food chain – particularly via the dairy industry.
- The area is being promoted for arts, culture, tourism and leisure.
- A toxic incinerator, not operating to BAT, will not help the area.
- An existing use is not an entitlement to change the zoning. A change of use is now proposed. ICL is selling carbon credits and proposes to accept toxic waste. This application was not on the radar when the zoning of the site was decided.
- Waste could be imported to feed this kiln.
- It is open to the councillors to insert a clause in the development plan restricting the incineration of waste.
- The elected representatives want Limerick to have a green image.
- ICL will simply be deriving another income stream from incineration of waste.
- Incineration is a risk to public health.
- The community has lost trust in ICL, which is deemed incompetent, due to its appalling track record. It is admitted that ICL cannot operate with the limits set by the IE licence. It should not be allowed to burn hazardous waste.
- The local community will be carrying all of the risk.
- It has taken the local community a long time to get ICL into a room to answer questions.
- The public meeting organised by ICL before lodging the application was not well-attended.

- The existing 80 jobs at the cement works are not at risk if permission is refused.
- Objectors have taken time off work to be present at the Hearing.
- Elected representatives made their objections clear to the City & County Manager before permission was granted.

9.4.18. Senator Kieran O'Donnell

- ICL can continue to operate without this permission.
- This cement works needs more stringent regulation.
- It is not agreed that dust is harmless.
- The proposal will have negative impacts on tourism and agriculture.
- Area is now hugely built-up.
- Tyres will be burnt in what is now a residential area.
- The EPA is investigating dust emissions from this cement works.
- The EPA needs to be called as a witness to the Hearing. It is not acceptable that a separate process to review the licence is taking place at the same time. The Board cannot make a decision without the EPA being present at the Hearing.
- The Hearing is being held in the month of August when most people are on holidays.
- The Hearing should be adjourned to allow the EPA to appear.
- Heavy industry is not appropriate in this area.
- Heat in the kiln has to be controlled.
- There is no way of knowing what the EPA will licence for burning in this kiln. This Hearing is an example of the cart before the horse.

9.4.19. Senator Maria Byrne

- Limerick Against Pollution has conducted business in a very professional manner.

- 2,500 houses are planned for the area around Mungret in the coming years.
- A respite unit for people with disabilities is to be built across the road.
- People in the area are afraid of what will happen if this development proceeds.
- The development may have an impact on business.
- The Senator visited the cement works and all seemed above board. Notwithstanding this, in May 2017 there was dust in O'Connell Avenue. There have been dust emissions from the cement works in the past.

9.4.20. Deputy Jan O'Sullivan

- The environment and human health are the principal concerns.
- The Board is entitled to take environmental considerations into account, even though it is the role of the EPA to control emissions.
- In the past fuel came only from Foynes. Now it will be coming from all directions.
- A number of different waste contractors will be hauling waste to the cement works.
- The area has been zoned for a considerable amount of new housing. There are a number of schools in the area. The seriousness of concerns of residents needs to be taken into account.

9.4.21. Cllr Cian Prendiville

- Whilst the proposed development would reduce carbon emissions, there is a global consideration – and energy will be consumed elsewhere in the manufacture of alternative fuels to be incinerated at the cement works.
- The sale of carbon credits is a major source of income for ICL, and which is now switching from cement production to trading in carbon credits.
- Rubbish will be burnt in this kiln. There is no large quantity of tyres in Ireland waiting for incineration. Recycling of tyres is a slow process. Less investment has been made in finding alternative uses of old tyres. Brexit may have an impact on availability of tyres.

- Peak incineration may already have been reached – 600,000 tonnes per annum at Poolbeg and 240,000 tonnes per annum proposed at Ringaskiddy – at the same time as waste producers are cutting down on waste. Much of municipal waste is being recycled. All of this would undercut the need for a cement works of this type to be burning waste.
- There will be no extra employment created. Recycling has a better record for creation of jobs than does incineration.
- Dooradoyle is important in the strategy to create more housing units across the mid-western region.
- The population has risen considerably since this kiln was permitted in 1980, and the proposed development could put future development of housing at risk. Mungret is a key area for housing growth.
- Dangerous metals and dioxins could be emitted from the stack.
- Recent operational history at Castlemungret has not clearly demonstrated the ability of ICL to make cement within the limits imposed by EPA licence.
- Dust measurements have been contaminated with bird droppings, insects and leaves. This means that there are too few annual dust results. If gauges are being vandalised, then the ability of ICL to self-monitor must be questioned.
- NO_x emissions from the cement works breach EU limits.
- ICL has no expertise in handling mosquitoes.
- Wind direction will determine where dust will be deposited.
- AWN Consulting, hired by LCCC, relied on figures supplied by ICL. AWN Consulting has subsequently been employed by ICL.

9.4.22. Cllr. Cathal Crowe

- Elected representatives of Clare County Council were not made aware of this application.
- This development will affect tourism and leisure facilities in the area – particularly Adare Manor.
- Airborne pollution from this cement works could impact on nearby Co. Clare.

- Clare County Council has made a submission to the EPA in relation to this cement works.
- The materials to be incinerated are wide and varied – particularly the range of hazardous substances.
- Many of the emissions from the cement works may be colourless and odourless.
- Fine particles can carry other pollutants.
- The proposal to incinerate landfill leachate must be questioned – what can the calorific value of this be?
- REPAK are paying €4 per tyre, and so incineration will be very profitable for ICL.

9.4.23. Deputy Willie O'Dea

- This development is of significant public importance.
- Fear, anxiety, distress and concern has been caused to residents.
- Dioxins in the food chain will have a catastrophic impact on the dairy industry.
- This application has been raised as in issue in the Dáil, by the Deputy.
- Experts are differing on the implications of this development. Heavy arms have been brought out by ICL to prove its case.
- This Hearing is not about the environment, but rather about money and profit. The price of petroleum coke has been steadily increasing.
- That incineration is an alternative to landfill is not true. This development will lead to the importation of waste.
- The Draft EU Waste Framework Directive will insist that countries dispose of their own waste within their own borders.
- Some countries are now saddled with facilities such as this one. There are movements afoot to close them down.
- Facilities such as this are generally in rural areas – this one is too close to an urban area.

- The calculation of CO_2 reduction is a fake formula.
- Some US states prevent the burning of tyres.
- Objectors are up against a corporate giant.

9.4.24. The second 3rd Party submission from James Tuohy, on behalf of Limerick East Educate Together Board of Management, stated that all stakeholders should have been consulted by ICL. This development involves an experimental and unspecified mixture of waste. There is no faith in ICL due to history of dust nuisance. The application is not clear on the amount and nature of waste – particularly hazardous waste. ICL should abandon this proposal and find a better alternative to the operation of Kiln 6. There are a large number of schools in the immediate area. No local people are in favour of this development. Recycled material should not be fed into this kiln.

9.4.25. Hearing closed at 17.35 hours.

9.5. **Day Two**

9.5.1. The first 3rd Party appellant, Kevin Feeney, presented **Documents 9**. The SELAP states- "It is the policy of the Council to provide appropriately zoned lands to cater for the sustainable growth of the southern environs area ensuring all residents can enjoy safe and assessable environments". Burning toxic waste is inherently unsafe, and ICL has a poor record of process management. ICL does not respond to complaints in a quality manner. Gases will be released each time a tyre is released down a chute – whereas before they were released through scrubbers and filter bags. New schools in the area will be made potentially unsafe. In a flood event, it is not clear that ICL has sufficient preventative measures in place. Shannon embankments may not withstand worst case wind and tide events. There is no indication of an emergency plan in the event of embankment failure. The appellant has been highlighting noise concerns since 2014: results regularly above the 45dB night-time limit, have been recorded at the appellant's house using a hand-held noise meter. Whenever complaints are made about noise or dust, the response from ICL is that the cement works was operating normally. EPA monitoring of dust deposition indicated a good match for cement dust from ICL. Future dust emissions will likely be of a more dangerous composition due to incineration of hazardous waste.

Complaints are not properly recorded and acted upon. [Copies of three e-mails complaining about noise and dust residues]. **Document 9A** was presented – site visit report by the EPA relating to noise complaints (SV12145) on 6th April 2017. **Document 9B** was presented – ICL response to the EPA in relation to complaint COM005996 on 10th April 2017. **Document 9C** was presented – site visit report by the EPA relating to dust complaints (SV12052) on 6th April 2017. **Document 9D** was presented – ICL response of 20th July 2017, to Site Visit Report of EPA (SV12135). **Document 9E** was presented – Annual Environmental Report (AER) of 2016 from ICL to EPA, which does not include complaints made by the appellant.

9.5.2. Paul Connett (on behalf of Kevin Feeney) presented **Document 10**. Burning waste in cement kilns is unsustainable. The emphasis should be on zero waste. There is embedded energy within the products being incinerated – through their manufacture and transport. Recycling is the preferred option. It is acknowledged that cement kilns are better than incinerators when it comes to burning plastics. The cumulative impact of all facilities in the area on the Golden Vale needs to be assessed – particularly from bauxite processing at Aughinish and from a proposed gasification plant for creation of gas from municipal waste. The linear economy needs to be converted to the circular economy, where waste is recycled and reused. There are huge energy savings to be gained from recycling rather than incinerating. Air emissions from kilns produce carbon dioxide and water (CO_2 & H_2O), acid gases such as hydrogen chloride, hydrogen fluoride, sulphur dioxide and nitrogen oxides (HCl, HF, SO_2 and NO_x), toxic metals such as lead, cadmium, mercury, arsenic and chromium (Pb, Cd, Hg, As, Cr), and new compounds such as dioxins/furans and polychlorinated biphenyls (PCDD/Fs, PCBs) and others. Technical documents have been published showing the dangers involved in burning waste at cement kilns. The EIS fails to provide adequate assessment of dioxin emissions for routine operation; fails to provide any assessment of dioxin emissions under upset conditions; fails to indicate how dioxin emissions will be monitored at the stack and other outlets (e.g. tyre feed); provides no details on how it is estimated that likely dioxin exposure to farmers, residents and their children (as indicated in Table 6 of the Human Health Risk Assessment Report) was calculated; does not discuss the dangers posed by nanoparticles; and fails to provide an accident analysis for handling and storage of alternative fuels.

9.5.3. The significance of risks is not clearly indicated. Workers at the cement works may be exposed to toxic fly ash or clinker. Mixing of fuels could result in explosions. Some actuarial evidence should have been provided in relation to accidents at cement kilns. The image of agricultural produce may be harmed by a facility of this nature. Of the 210 dioxins and furans, some 17 are very toxic – with toxicity based on the location of chlorine atoms in their structure. Polychlorinated biphenyls are a family of compounds where chlorine atoms are substituted for hydrogen on benzene rings. There are 209 polychlorinated biphenyls. There are other dioxin-like compounds which substitute bromine for chlorine in the structure. To destroy dioxins and furans, a high temperature is needed in the furnace, but a low temperature (<200 degrees C) is needed before gases enter the air pollution control devices to prevent post-combustion reformation. At present, the industry is only monitoring for PCDD/Fs, and not for PCBs.

9.5.4. Dioxins are a major health concern – as they accumulate in animal fat – much more contentions than inhalation. It is acknowledged that backyard burning of waste is the principal source of dioxins in the environment. Infants are particularly at risk. Ireland has a very low concentration of dioxins in cow's milk – compared with other European countries. ICL carried out a risk assessment for predicted intake of PCDD/Fs – the results of which are indicated at Table 6 of the Human Health Risk Assessment. ICL did not add any estimate for emissions during upset conditions. There is no evidence that ICL used data from either Platin or any other cement works currently burning alternative fuels. Cement kilns use spot measurements (samples of flue gas for six hours), and these are generally taken 1-3 times per annum. If there are upset conditions, the tests are halted. Advance notice is given for testing of cement kilns. No data is collected during start-up, shut-down or upset conditions. There is no continuous monitoring for PCDD/Fs. A two-week test can result in an emission rate 30-50 times higher than the results of a six-hour test within the same two-week period. This cement kiln is old, is not part of a waste facility and is operating 24 hours a day. Continuous 2- to 4-week testing is available on a commercial basis, but very few cement kilns use it.

9.5.5. The alternative is to monitor cows' milk and mothers' milk to find out what real emissions are. There is no indication given of how accurate the air dispersal model is or how accurate is the estimate of exposure to humans from air, soil, vegetables,

eggs, chicken, milk, beef, pork, fish and water. There is no information given of what the inputs to the model were. It is known that dioxin exposures are underestimated because the air emissions are underestimated. A rough idea of the accuracy of ICL's method could be got by comparing the ratio of exposure of farmers and residents with the Tolerable Daily Intake (TDI) of 2pg/kg bodyweight/day of some countries in Europe. It would be more appropriate to add increments to the current background exposure level for the local population. It is important to consider the location of the facility, in the event of an accident. In this instance there will be an immediate impact upon agriculture and a large residential population living nearby. No accident analysis has been submitted. The worst ramifications of this development may not be seen for 20-40 years.

9.5.6. There are several toxic metals emitted from kilns – including mercury, cadmium, lead and thallium. No metals can be destroyed in combustion, no matter how high the temperature. Mercury is a particular problem, as it is not absorbed by the clinker. Exposure to mercury comes largely through consumption of fish. Fish are caught and consumed by humans from Bunlicky/Clayfield Pond and in the adjoining Shannon River. Cement kilns recycle fly-ash back into the cement product – thereby placing toxic metals in cement products, which will ultimately decay and be released back into the environment. Recycling the fly ash defeats the purpose of air pollution control for key toxic metals like mercury. There is no beneficial use for mercury in cement. Other countries bag the fly ash and store it in salt mines. Grinding or crushing clinker will produce dust which will contain toxic metals – which will be of health concern to workers.

9.5.7. There is no monitoring of nanoparticles at this cement works. Toxic substances can attach themselves to nanoparticles. Only $PM_{2.5}$ is regulated in the cement industry. Ultrafine particles are not monitored. Nanoparticles are not captured efficiently in bag filters. When inhaled, they can penetrate deep into the lungs and enter the bloodstream. Neither the industry nor Government agencies have addressed this issue. There is a long history of fires at tyre storage areas – releasing PCDD/Fs into the atmosphere.

9.5.8. Burning waste in incinerators should be kept in the hands of professionals. Those operating cement kilns are amateurs. Cement operators think in terms of tonnes, whilst toxicologists think in terms of nanograms and picograms. Cement companies

instead of paying for fuel, get paid to burn waste. The more toxic waste they burn the more money they are paid. The gas flow rate in cement kilns can be 5-6 times higher than in standard waste incinerators – thereby resulting in more pollution. Does the current operation of the cement works give confidence that ICL can control such complicated issues as dioxin emissions? And how well is the cement works monitored by the EPA? Incineration is an attempt to perfect a bad idea. ICL should join up to the natural gas supply which is within its site. This will be more expensive, but will be better and safer for the community.

9.5.9. Paul Connett presented **Document 10A,** list of qualifications and publications: **Document 10B,** EPA publication "Dioxin Levels in the Irish Environment: Sixth Assessment (Summer 2008) – Based on levels in Cows [sic] milk"; **Document 10C,** "EU-Wide Environmental and Exposure Monitoring of Dioxins, PCBs and Other Persistent Organic Pollutants (POPs) in Butter and Correlations to Published Air Data" (2010); **Document 10D,** "A Worldwide Survey of Polychlorinated Dibenzo-*p*-dioxins, Dibenzofurans, and Related Contaminants in Butter" (2005); **Document 10E,** Letters to "Scientific American" (1986) in relation to dioxins; **Document 10F,** Chemosphere, Volume 16 (1987) – "An estimation of the Relative Human Exposure to 2, 3, 7, 8-TCDD Emissions via Inhalation and Ingestion of Cows' Milk"; **Document 10G,** Chemosphere, Volume 19 (1989) – "Cumulative Impact of Incineration on Agriculture: A Screening Procedure for Calculating Population Risk"; **Document 10H,** Chemosphere, Volume 20 (1990) – "The Use of Bioconcentration Factors in Estimating the 2, 3, 7, 8-TCDD Content of Cow's Milk"; **Document 10I,** Chemosphere, Volume 23 (1991) – " Estimating Bioconcentration Factors and Half-lives in Humans Using Physiologically Based Pharmacokinetic Modelling: 2, 3, 7, 8-TCDD"; **Document 10J,** "Underestimation in Dioxin Emission Inventories" – Organohalogen Compounds, Volume 36 (1988); and **Document 10K,** "A Simple Model to Predict Accumulation of PCDD/Fs in an Agricultural Food Chain" – Chemosphere, Volume 34 (1977).

9.5.10. Jack O'Sullivan, on behalf of Limerick Against Pollution (LAP), suggested that the EPA should be required to attend the Hearing.

9.5.11. Angus Mitchell, (for second 3rd Party appellant) presented **Documents 11 & 11A**. Companies like ICL have a corporate social responsibility to the community. Ireland has a Corporate Social Responsibility Plan 2017-2020. The production of rubber

has had a particularly disruptive history and an impact on sustainable development. Huge flooding in the Shannon River makes the location of the cement works location dangerous in the event of a large-scale flooding event. ICL has lost the trust of the community. ICL has abused the word "sustainable" in its application. There is no such thing as "sustainable growth". The words "sustainable development" is shape-shifting, used to justify many projects. What is "sustainable cement production"? The Brundtland Commission (1987) definition for "sustainable development" remains the best – "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Although ICL operates in accordance with the standards of ISO 14001:2004, it does not operate in accordance with ISO 14001:2015, and it has not been explained why this is so. The switch from petroleum coke to incineration of waste is entirely profit-driven, as the price of petroleum coke has been rising. Reduction of visual impact seems to be the only commitment that ICL has to reducing the impact of this cement works on the environment. The cement works is hidden behind a barricade of trees. Air is a shared resource. ICL has been pouring pollutants into the atmosphere for decades. Poor air quality has resulted in premature deaths. One in five Limerick citizens use 'Ventolin' inhalers. The Health Service Executive (HSE) should be present at the Hearing. The HSE and LCCC have shown lack of leadership. There is no explanation for high levels of pulmonary disease in the area. ICL is engaged in a game of optics only. Zero waste solutions should be implemented, instead of the incineration of waste. This application is a cynical instance of 'green washing'. The precautionary principle has not been applied to this development.

9.5.12. Derek O'Dwyer (for second 3rd Party appellant) presented **Document 12**. The HSE does not have sufficient data and information to explain cancer clusters in the area. Fields surrounding the cement works were frequently covered in white dust in the past. Members of the speaker's family have died from cancers and suffer from bronchial disorder – even though it cannot be proved that the cement works is the cause. ICL cannot be trusted to adhere to EPA licence ELVs. It is the responsibility of state organisations, including ABP, to ensure that the health of the speaker's family is not jeopardised. The project is unsustainable and flawed, due to the lack of due diligence by statutory bodies in assessing the application.

9.5.13. Tara Robinson (for second 3rd Party appellant) presented **Document 13**. If this development goes ahead, the speaker would have to look at her decision to remain in Limerick. Limerick is fortunate in having, for the most part, good air and water quality. Solvent and chemical spills could contaminate groundwater. There is strong probability of a tyre fire at the cement works. It is not clear if ICL or the Fire Service has the experience to deal with such a large fire outbreak. Dioxins in the food chain will harm the reputation of agricultural produce. There will be no additional employment. The only beneficiaries are ICL and its shareholders. ICL should work in a more transparent manner with the community.

9.5.14. Martin Gleeson, on behalf of Dooradoyle Estate & St. Nessan's Park Residents Association (for second 3rd Party appellant), presented **Document 14**. Residents of the estate, when they purchased houses in the 1960's, were aware of ICL and the chimneys spewing smoke and dust. There was no knowledge of how dangerous the emissions were. Residents are concerned about dioxins and other harmful particles which will be released with the burning of alternative fuels. The tall chimneys are gone and smoke is being emitted from a lower level. The Council purchased the grounds of Mungret College and has been developing them for schools, a park and housing. This development flies in the face of the good work which LCCC has done in the area.

9.5.15. Trish Talty (for second 3rd Party appellant) presented **Document 15**. Industries and businesses should be leading by example in improving the environment. ICL is no longer a good neighbour. Blowouts at the cement factory are evident by dust deposited on cars and windows of houses. ICL is not compliant with EPA licence requirements. How much longer will it take ICL to reach proper maintenance of their environmental performance – given that they have not managed it in eighty years? There have been problems in the past, and it is confidently predicted that there will be more problems in the future.

9.5.16. Colin Moran (for second 3rd Party appellant), on behalf of his father Ken Moran, stated that this was a high risk proposal. Extra jobs are welcomed with new developments. Land, animals and humans will be poisoned by what is emitted from this cement works. A fire is inevitable at this cement works. People will have to be evacuated from their homes. Incinerators should not be permitted to burn waste – there is not a good record in this regard. Incineration should be carried out by

professionals and under proper supervision. Ash clouds from the factory have caused pollution. Incineration of dangerous substances will result in contaminated ash – such as at Seveso and Bhopal. Better alternatives need to be considered. ICL should withdraw the application and liaise with residents. This application is an accident waiting to happen.

9.5.17. Margaret McMahon (for second 3rd Party appellant) presented **Document 16**. The principal concern is for school children (2,500 within a 3km radius of the cement works). Industrial traffic will cause increased congestion on the roads. Council officials granted permission in the full knowledge of the risks to the community. ICL is aware of health issues arising from emissions from the cement works since the 1950's. Students may not enrol in Mary Immaculate College in the future, if they are subjected to emissions of dioxins on a daily basis.

9.5.18. Ivor Casey (for second 3rd Party appellant), on behalf of Residents Alliance for a Cleaner Environment, presented **Document 17**. Blasting at the quarry shakes the foundations of the speaker's house in Mungret village. Noise from the cement works is much more obvious at night-time, which often is such as to keep residents awake. Four complaints about dust have been made to the EPA in 2017. Dust is a constant nuisance. Results of tests carried out on 6th April 2017, indicate the likely source as ICL. Permission has been granted for a private hospital approximately 200m from the ICL landholding. The completion of this hospital may be affected by the granting of this permission to burn alternative fuels. It has been clearly shown that ICL does not have the ability to operate safely as things stand.

9.5.19. Cllr. Malachy McCreesh (for second 3rd Party appellant), on behalf of Sabrina Begoin, presented **Document 18**. The Raheen/Dooradoyle area has seen many improvements in the recent past. The proposed development will jeopardise these improvements. ICL has refused all along to engage with the community. Traffic will disrupt the area. Recent road works in the area have caused constant disruption – especially at Quinn's Roundabout. Dust is a continuous nuisance for residents. If there were further blowouts with tyres, plastics and solvents being burned, this could impact on the safety of the community. The objector wishes to continue to reside close to the factory without fear for the health and future of her family.

9.5.20. Cllr. Malachy McCreesh (for second 3rd Party appellant), on behalf of Jason O'Doherty, presented **Document 19**. A wonderful new park was created in Mungret in 2016. Dust from the cement works exacerbates the asthma of the objector's two children. Incompetence of ICL has allowed blowouts to occur. The importation of tyres may bring mosquitoes. The objector will have no option but to move from the area if this development goes ahead. Food exports will also be decimated by this development: there is already downward pressure on food prices for Irish farmers. Those engaged in sporting activities would be breathing dioxins if this development goes ahead.

9.5.21. Cllr. John Gilligan

- Not one of the councillors of LCCC supported this application.
- The councillor went to visit an incinerator in Denmark.
- Fly ash needs to addressed – putting it in salt mines is, at best, a temporary solution. Putting fly ash back into the cement is not an acceptable solution.
- The decision of LCCC to grant permission was not made in the name of the people of Limerick.

9.5.22. Denis Ryan (for second 3rd Party appellant), on behalf of Gouldavoher Residents Association, presented **Document 20**. The association has worked with state agencies since the 1970's to deal with anti-social behaviour. The greatest threat to the community is the current proposal by ICL. The dioxins produced would be harmful to human health. Tin and nickel in tyres increases the toxicity of ultrafine particles. ICL did not engage the local community in the planning process. ICL is in breach of current licencing requirements set by the EPA. The community has lost faith in ICL. Government policy is wrong to support incineration of waste.

9.5.23. Luisa Araujo (for second 3rd Party appellant) presented **Document 21**. The use of the word 'etc.' after all fuel types is not acceptable, as it will allow ICL to burn whatever it wishes in the kiln. There is no description from ICL as to the ratio of fuels to be used. There would be increased NO_x emissions from trucks needed to transport additional fuel. Whole tyres are used because it is cheaper than shredding them, whilst whole tyres would more likely result in kiln upsets. The facilities proposed will be able to handle far more than the 90,000 tonnes per annum

proposed. The application for 210,000 tonnes per annum (subsequently withdrawn) had similar-type handling facilities. Municipal Solid Waste (MSW) is not suitable for cement production. Many German cement works have mercury stations within the cement works and surrounding countryside, to monitor emissions of this metal. The EPA does not, at present, have a monitoring station in Limerick. Monitoring for heavy metals and dioxins should be done on a regular basis.

9.5.24. Tim Hourigan (for second 3rd Party appellant), on behalf of Limerick Educate Together School Parents Association, presented **Document 22**. The Parents Association is not comforted by information provided by ICL. Previous blowouts are a cause of concern at an old kiln and where ICL is struggling to get its cement works into compliance with current regulations. Figures as recent as last month suggest that it still has not managed to do so. The community is expected to act as guinea pigs whilst it sorts out the settings and controls for a for a far more complex process which will involve the burning of hazardous waste. The EPA, the Council and other statutory bodies should do a better job in controlling emissions from this cement works. The Parents Association has the deepest concern for the health of children attending the school. The current application should be withdrawn, Kiln 6 decommissioned, and a new Kiln 7 commissioned using cleaner fuel. The cement works might then be a place in which people would aspire to work, rather than to fear.

9.5.25. Mary Hammill (for second 3rd Party appellant) presented **Document 23**. The new park will be blighted by this proposal, if it goes ahead. A well-publicised meeting should have been held to alert the community to the proposed development, as required by the Aarhus Convention. The planning notice was placed in the Irish Independent, where it should have been placed in a Limerick newspaper. ICL will be paid to burn some of this waste. There are no safe levels of dioxin emission. Mosquitoes will be imported in tyres. Removal of metals makes the burning of shredded tyres safer. The HSE was concerned that no risk assessment was undertaken for Tolerable Daily Intake of dioxins, furans and PCBs had been undertaken. The HSE accept statements from ICL at face value. The HSE does not have sufficient expertise to adjudicate on this this application. There seems to be a large degree of self-regulation at this cement works. Is there a permit limit on the length or duration of a major upset in hours and minutes? The EPA seem to allow

ICL to manage complaints made to the EPA. In March/April 2017, there were a number of dust complaints relating to the cement works. Residents had to almost force the EPA to take dust samples, which when analysed, proved a match for cement dust. This cement works is too close to residential areas and local schools. ICL will steadily look to increase the amount of waste it burns at Castlemungret, as it has done at Platin, where there is an application before the Board to incinerate 600,000 tonnes of alternative fuels/raw materials per annum. The submission was accompanied by **Document 23A**, letter to ICL from the EPA, dated 18th October 2016; **Document 23B**, Letter from HSE to EPA, dated 14th June 2016; **Document 23C**, e-mail from Department of Public Health, Limerick re visit to cement works – 16th June 2016.

9.5.26. Sinead Whyte addressed the issue of air dispersion modelling assessment. ELVs set out in the IE licence were supplied to Dr. Menzies who carried out the Human Health Risk Assessment (HHRA). Modelling for dioxins was based on the worst case ELV. Temperature and flow rate were modelled at limits set in the IE licence: included in table 8.5 of the EIS. Modelling is based on worst-case scenario – the worst hour for over 40,000 hours of meteorological data. Maximum emissions from stack are modelled for the worst-case receptor. Results are set out in Table 8.8 of the EIS.

9.5.27. Don Menzies (for ICL) addressed the hearing for first time, on intake model methodology. He prepared HHRA with respect to dioxins. Intake model was based on the US-EPA Human Health Risk Assessment Protocol, as requested by LCCC. Comprises a large number of calculations – to estimate human intake of dioxins by various routes. Farmer, fisherman and resident are the three classes of human receptor – subdivided into adult, child and breast-feeding infant. Used computer model provided by Lakes Environmental in the US. Some parameters have default values – set in the model. Site specific parameters were added by ICL. Did not need to generate a set of manual calculations. Benchmark Tolerable Daily Intake (TDI) was specified by Public Health England (as requested by LCCC) at 2pg/kg bodyweight/day. Low level of dioxin in milk in Ireland. The EPA report "Air Quality in Ireland 2015 – Key Indicators of Ambient Air Quality" reports that across 25 EU countries the main source of dioxin emissions are residential combustion and back-

yard burning of waste. Soil sampling and air monitoring for dioxin was carried out in vicinity of cement works. Dioxins do not exist in air, soil or milk to any great extent.

9.5.28. **Document 24** was presented to the Hearing by Jarlath Fitzsimons. Dr. Connett referred to dioxins in cow's milk 0.2pg/gram of milk fat. Second source referred to by Dr. Connett was contained within the EPA document "Dioxin Levels in the Irish Environment: Sixth Assessment (Summer 2008)" which showed at Figure 1 (p.2), some county measurement points A1-A25 and some potential impact measurement points (B1-B17), with indications of EU limit value at 3pg/gram of milk fat and an action value of 2pg/gram of milk fat. Page 24 indicates the measurement points. B samples are areas of perceived potential risk. Ranges for dioxins in milk fat were 0.19 to 0.673, which are well below the EU limits. Subsequent Air Quality in Ireland reports – 2015 Report was submitted as Document 24. Equivalent section 11 commences at p.31. Type A and B stations are used again. The difference between the 2008 and 2015 Reports is addition of a new B18 sampling location.

9.5.29. Seamus Breen referred to new sampling point B18 – Kinnegad, Co. Westmeath – proximate to licenced Lagan Cement facility. Alternative fuels were introduced in 2006 to include SRF, Meat & Bone-meal and Liquid Recovered Fuel. Results for B18 (0.27) are very much in line with other results A1-A25 and B1-B18.

9.5.30. Sinead Whyte addressed issue of mercury. Requirement for mercury monitoring in BAT is for periodic monitoring for at least half an hour. Two-week monitoring is not required.

9.5.31. Paul Connett wants independent verification of the model used for the HHRA. Does not have skills to do it himself.

9.5.32. Sinead Whyte – EPA has a modelling section which verifies models.

9.5.33. Jarlath Fitzsimons stated that the EPA has not yet progressed its decision on the licence review application.

9.5.34. Paul Connett – HHRA gives Table 6 only – bald figures of exposures. No explanation of how it was arrived at. Computer model only. What level of dioxin in air, soil, water, eggs, chicken, beef, pork? Can computer model not give this data?

9.5.35. Don Menzies stated that applicant did what was requested – predicted intake of dioxins and compared with benchmark of 2pg/kg bodyweight/day.

9.5.36. Paul Connett – needs the information to run the calculations to ascertain if Table 6 is giving accurate results. This EPA model has given strange results in the speaker's experience in other countries, such as Puerto Rico. Without the data inputs he cannot see if the results of the model are accurate – as presented in Table 6.

9.5.37. Don Menzies stated the levels of dioxin in milk, air and soil in Ireland and in the vicinity of the site are low. No issue with dioxins in this area.

9.5.38. Paul Connett has found some questionable assumptions in the US-EPA protocol. Cannot check the model presented by ICL, as it only gives the final figures in Table 6. Levels of dioxin predicted in air, soil and foodstuffs is needed.

9.5.39. Jarlath Fitzsimons stated that methodology is presented in the additional information submission to LCCC of 2nd November 2016 – Appendix 10.1 is the HHRA, within which the methodology is summarised at Section 4. This in turn refers to Appendix E, which sets out the detailed methodology (Pages E1-E3).

9.5.40. Paul Connett – this appendix does not list the levels of dioxin. Question has not been answered.

9.5.41. Don Menzies – software from Lakes Environmental Software is an integrated model. ICL was not asked to predict any concentration of dioxins in any particular element of the food chain.

9.5.42. Paul Connett – applicant cannot produce the data on which the model was based – just presented with final results in Table 6.

9.5.43. Don Menzies – took the worst case at the IE licence ELV: based on what is happening in Platin, it is thirty times higher. Approach is very conservative. Applicant did not interrogate the model; did discuss the model with the suppliers.

9.5.44. Paul Connett – worst case scenario should include upset conditions. A six-hour test is not satisfactory for predicting a year's worth of emissions. One upset event can be up to 60% of predicted annual emissions. No data for input to programme for two- or four-week periods.

9.5.45. Jarlath Fitzsimons – p. 20 of Dr. Connett's submission: second slide on left hand column – summary of dioxin problems for cement kilns – last point no. 8 "If you can't get continuous 2-4 week sampling then you need to monitor the environment (cows' milk and mothers' milk) to get a handle on REAL emissions". 2008 and 2015 EPA

reports do give information on monitoring within the country, and particularly the addition of B18 in the vicinity of the Kinnegad cement works in the 2015 report.

9.5.46. Paul Connett – has there been monitoring of dioxins for two or four weeks in Platin? Are there any measurements for mercury other than for half an hour? Can be change in feedstock – with up to 8,000 hours of operation. Is an half hour sample, extrapolated for a whole year, acceptable?

9.5.47. Sinead Whyte – the half hour monitoring is in accordance with BAT guidance.

9.5.48. Jarlath Fitzsimons – Board is obliged to have regard to BAT guidance for cement manufacturing facilities – the opinion of the appellant on the adequacy of the guidance is not of concern. This is EU guidance, to which ICL and the Board must have regard.

9.5.49. Paul Connett – asked Ms. Whyte to put herself in the place of parents concerned about mercury emissions – based on only half hour test – where fuel may change on a daily basis.

9.5.50. Sinead Whyte – air dispersion modelling assumed that mercury is being emitted on a worst case basis.

9.5.51. Paul Connett – half an hour monitoring is not sufficient to put the concerns of appellant to rest.

9.5.52. Sinead Whyte – BAT conclusions are based on scientific data from all around Europe. The BAT guidance shows that limits can be met.

9.5.53. Paul Connett – the ELV is established. Does measurement for half an hour give confidence that ELV can be met over 8,000 hours of operation? Cement kilns in Germany are doing a good job. Data is unacceptable, because based on ideal testing. Prior notice is given to operator – so fuel types which may contain elevated levels of mercury or even dioxins can be avoided. Where, in cement kilns in Europe, has continuous monitoring for mercury and dioxin been used?

9.5.54. Brian Gilmore – Platin used 120,000 tonnes of alternative fuels in 2016. Has a different set of licensing requirements – mercury and dioxins are not licenced in Limerick at present, but they will be if the licence review is successful. Started using alternative fuels in 2011. Model assumes emissions at ELV for twenty-four hours a day and 365 days a year. The cement works does not operate 365 days a year. In

Platin have continuous monitoring for NO_x and SO_x. Licence in Platin has some periodic and some continuous monitoring. Similar will be applied in Limerick if licence application is successful.

9.5.55. Paul Connett – Ireland cannot be compared with Germany, where limits are strictly enforced and there is strong regulation and monitoring. Cement kilns are adopting municipal waste incinerator rates, but do not take into consideration that gas flow rates in cement kilns are 5-6 times higher. Are there six hour tests in Platin?

9.5.56. Jarlath Fitzsimons – EPA controls emissions. The Board can consider environmental issues – but cannot consider the control of emissions.

9.5.57. Brian Gilmore – measurements at Platin are carried out in compliance with IE licence ELVs.

9.5.58. Paul Connett – is six-hour sampling used or two/four week testing used?

9.5.59. Brian Gilmore – document referred to is Document 2A – table comparing cement industry with other sources of dioxin – source of data is from the EU in 2006. Most significant sources of dioxins in the environment are from residential combustion back-yard burning in Ireland.

9.5.60. Paul Connett - testing under normal conditions only does not give an accurate picture of dioxin emissions from cement works. Upset conditions need to be included – as does continuous monitoring as fuel types and loads vary. Cement kilns do not produce ash – stated by Mr. Gilmore. The bag house does gather ash.

9.5.61. Brian Gilmore – ash means material left over after combustion. Incineration facilities do have bottom and fly ash. Within process at cement kilns, dust is collected in fabric filters and returned to the process. Chemical analysis shows the dust is almost identical to raw meal input. Approximately 1 million tonnes of raw materials used every year. No ash goes off-site from this cement works.

9.5.62. Paul Connett – why do municipal waste incinerators send ash off-site for disposal?

9.5.63. Brian Gilmore – ICL produces cement. The facility is not a waste incinerator. The two cannot be compared.

9.5.64. Paul Connett – is mercury needed to make cement?

9.5.65. Brian Gilmore – mercury occurs naturally in rocks and soils within Ireland. Natural rock is the largest contributor of mercury. It is not specifically needed in cement production, but it is a component in natural rock.

9.5.66. Paul Connett – does bag house collect mercury?

9.5.67. Brian Gilmore – bag house fabric filter was installed in 2010 and is BAT. Identical to cement factories in Ireland and Europe.

9.5.68. Paul Connett – activated charcoal is needed to remove mercury (well-established method in incineration industry), at a temperature of not greater than 140 degrees Celsius.

9.5.69. Brian Gilmore – IE licence for Platin facility requires measurement of mercury: same will apply in Limerick, if licence review is successful.

9.5.70. Paul Connett – regulations may change over the years. Citizens would be reassured if ICL were using the most up-to-date equipment to reduce mercury emissions using more sophisticated equipment, which might not be required by law, but which would be needed to re-establish the trust of the community.

9.5.71. Brian Gilmore – ICL has an environmental policy which requires the company to reduce environmental impact. Understand that there is a trust issue, and the company has to redouble efforts to re-establish trust.

9.5.72. Paul Connett – would ICL go beyond the law to protect the citizens of Limerick from neuro-toxicity of mercury? Answers of ICL have not been satisfactory. Would like data behind the model which produced the results of Table 6, could file a separate report. Limerick Against Pollution needs the information behind Table 6 – and the Board should request this. Real data is needed.

9.5.73. Kevin Feeney – Dr. Connett asked a number of questions of ICL, to which he did not get specific answers: - dioxins; mercury; temperature of bag house; use of activated charcoal; what happens to mercury when there is demolition of building; sequestering of fly-ash, as is done in Germany; and nanoparticles

9.5.74. Brian Gilmore – activated charcoal is not used in Limerick or in other cement factories. Temperature is 140 degrees at bag house.

9.5.75. Paul Connett – if you cannot measure nanoparticles, the risk cannot be assumed to be zero. Increase in morbidity and mortality from air pollution in cities like Limerick.

Particulate levels are connected to morbidity, particularly smaller diameters. Particles less than one micron are going to cause more health problems.

9.5.76. Jarlath Fitzsimons – applicant provided response in relation to this issue of ultrafine particles in pages 5-6 of Ms. Whyte's evidence.

9.5.77. Paul Connett – Mr. Gilmore specifically stated that cement kilns pose zero risks to the environment.

9.5.78. Brian Gilmore – No such thing as zero risk.

9.5.79. Paul Connett – agrees that there are risks from emissions at cement works.

9.5.80. Brian Gilmore – EC guidance has been provided for the cement sector.

9.5.81. Paul Connett – governments often state categorically that there are no risks. This does not mean that it is true. Pronouncements must be treated with care – particularly where there is lobbying power and a large amount of money at stake. Must come back to looking at the data.

9.5.82. Mary Hamill – ICL needs to engage better with the public. Requests for public meetings were not met. Small groups were invited into the cement works on an *ad hoc* basis. Why will the ICL not meet with the public? ICL stated it had been advised not to meet the public. Councillors did not advise against holding a public meeting.

9.5.83. Brian Gilmore – ICL is engaged with the community. Visit of Ms. Hamill is recalled. Try to allow visits to the cement works to reassure local residents – to de-mystify process. Not everything which he says is trusted in the community. Committed to establishing a Neighbourhood Forum'. Admitted that more public information is needed. ICL underestimated the level of interest in the proposed development.

9.5.84. Derek O'Dwyer (for second 3rd Party appellant) – struggling to understand the divide between the jurisdiction of the Board and the EPA. Modelling carried out by ARUP was done at the request of LCCC. LCCC approved the necessary works. This would allow the EPA to make a subsequent determination on a licence review. Notwithstanding this, LCCC were in contact with ARUP in relation to modelling for air dispersion.

9.5.85. Dermot Flanagan, for LCCC – requests for additional information were made by LCCC. Ultimate decision of LCCC and 16 no. conditions imposed – reflect the view

of the PA in relation to planning permission. The PA has the right to seek further information and to engage with advisory bodies. There is a dual consent process. No need to look behind the decision of the PA. The appeal is now to the Board *de novo*. Some degree of technical information gathered – the decision of the PA did not relate to emissions.

9.5.86. Derek O'Dwyer – still trying to understand the separation between the PA and its planning decision, and also to its consideration of emissions. Trying to understand if there are any limitations as to how far this process can explore the environmental consequences of the decision of the PA.

9.5.87. Dermot Flanagan – nothing further to add.

9.5.88. Inspector outlined the different jurisdictions of ABP and EPA.

9.5.89. Derek O'Dwyer – seems to be significant overlap between the powers of the ABP and EPA. Concerned about health of family. How can dialogue continue independently of the EPA? The two are not unconnected. Struggles to understand the practicalities of the system.

9.5.90. Jack Fitzsimons (for second 3rd Party appellant) – message seem to be coming from the PA – that there should be no questioning as to how it arrived at its decision.

9.5.91. Dermot Flanagan – all issues are now before ABP *de novo*.

9.5.92. Jack Fitzsimons – any questioning of the PA is okay?

9.5.93. Dermot Flanagan – Inspector can decide if it is appropriate to question the PA on how it arrived at its decision.

9.5.94. Joseph Burke (for second 3rd Party appellant) submitted **Document 25**, letter to Dr. Mai Mannix, Director of Public Health, HSE, Limerick (dated 14th August 2017) from the speaker and other members of LAP; **Document 25A**, letter from Dr. Mai Mannix to LAP (dated 4th August 2017); **Document 25B**, Statement of Evidence on Particulate Emissions and Health of Prof. C Vyvyan Howard to Hearing into proposed Ringaskiddy Waste-to-Energy Facility (dated June 2009); **Document 25C**, article from Chemical Engineering Journal 86 (2002) on "Dioxin characterisation, formation and minimisation during municipal solid waste (MSW) incineration: review" by Gordon McKay; **Document 25D**, report prepared for the EC in the framework of the reform of the EU Emissions Trading Scheme – "Cement, waste and carbon

markets – Problems related to waste incineration in cement kilns under the EU ETS" (undated – but sometime after 2006); **Document 25E**, article from Environmental Health Perspectives, Volume 123, Number 6 (June 2015) on "Associations of Mortality with Long-Term Exposures to Fine and Ultrafine Particles, Species and Sources: Results from the California Teachers Study Cohort" prepared by Bart Ostro et al; **Document 25F**, newspaper article from Limerick Post (May 2017) reporting views of former Cllr. Jim Long on level of public confidence in PA, ABP and EPA at all-time low.

9.5.95. The speaker is a member of board of management of local school. Can all agree that there is no level of dioxins that is good for humans. Level of public confidence in PA is at an all-time low in relation to planning decisions. LAP had a meeting with Department of Public Health in May 2017. Statutorily required to provide independent assessment of health impact on community as a result of proposed development. Department of public health examining if there are health issues related to particular areas and activities within those areas. Baseline monitoring for dioxins will be required. Food Safety Authority will be consulted. Ongoing contact with LCCC for air quality monitoring to be made available to the public. Suggest that if such plans by Public Health Department were before LCCC prior to making this decision, the decision might not have been given to grant permission. Applicant could then resubmit application without dangers to public health – based on the results of the Department of Public Health findings. Future legal implications for all concerned can be well understood if these warnings are not heeded.

9.5.96. Jack O' Sullivan presented **Document 26**. Environmental and planning issues can be deeply intertwined. The types of waste which can be considered acceptable is a planning matter, and not just a matter for the EPA. There are better uses for end-of-life tyres than incinerating them. The percentage of waste tyres unaccounted for in Ireland is estimated at 51% - from a 2013 report commissioned by the Department of Environment, Community & Local Government. Existing Producer Responsibility Initiative schemes do not provide for specific recycling or recovery targets. An EPA report of 2017, gives 2014 figures of 27,989 tonnes of waste tyres in the country. Rubber and metals in waste tyres are suitable for recovery. Rubber can be shredded and crumbed and used for various products. There are no detailed figures for imported tyres to Ireland. The used tyre market must be considered as an all-

Ireland market. Any permission to allow incineration of tyres is premature in the absence of reliable statistics on the availability of used tyres in Ireland. It is likely that used tyres will be imported to feed Kiln 6. Tyres contain toxic components such as copper compounds, cadmium, lead, organo-halogen compounds, and poly-aromatic hydrocarbons. Chlorine is present in butyl rubber liner. The energy recovered from tyres in combustion is only a small fraction of the energy used in their manufacture. Reuse and recycling are better options for used tyres. It is acknowledged that shredding and granulation of tyres is difficult because of the very toughness of the manufactured product, where textile and metal have to be separated out. The cement works will now be competing with plants which recycle rubber in the market for used tyres. This may render recycling economically uncompetitive. Rubberised asphalt for road surfacing is not currently used in Ireland. Better uses for used tyres are available than incinerating them. The Board should discourage the incineration of tyres. The grant of planning permission would be premature pending the full exploration of alternative uses and technologies for treating used tyres. Re-use of tyres has a significant potential for job creation.

9.5.97. Where tyres are stored, compounds may leach out with rainwater into the surrounding soil. The stockpile may catch fire, and it is difficult to extinguish the blaze quickly. Such fires give rise to very significant levels of air pollution. Fires can be caused by lightning strikes or arson. Tyres may be breeding grounds for insects – particularly disease-bearing mosquitoes. Introduction of tyres from other countries may result in importation of alien species – such as insects. Storage of tyres will create an unacceptable environmental and public health hazard and risk. Use of whole tyres will require the creation of new openings in the cement kiln to admit the tyres. Some hot gases may be released. This part of the development has not been properly described.

9.5.98. It is also proposed to incinerate plastic and wood. Such products can be recycled. Paper and cardboard can also be recycled. Much of this type of waste is exported from Ireland. There are no glass smelters, paper mills or metal smelters in Ireland. Permitting these materials to be burnt perpetuates Ireland's poor status in re-using and re-cycling waste. Some animal waste tissue would be better used as feedstock for anaerobic digestion rather than incineration. It is accepted that some needs to be incinerated due to risks of transmissible animal diseases. Animal effluent should be

returned to the land as fertiliser. Allowing incineration of hazardous agrochemical waste and halogenated organic solvents is the equivalent of moving the cement works in the direction of a toxic waste co-incineration facility. Mine tailings and red mud from alumina production are also proposed for co-incineration. This will increase the levels of residual heavy metals in the fly-ash, and ultimately, in the clinker. There does not appear to be any facilities for quarantining loads of unacceptable wastes, which would be the norm at landfill and major waste treatment facilities.

9.5.99. The proposal is in direct contravention of the EU Waste Hierarchy, which places thermal recovery just one step above disposal on the scale of least desirable alternatives. Burning recyclable materials is contrary to the intention and focus of the hierarchy. The EIS refers to the circular economy, but does not show how this proposal will contribute to the creation of a circular economy, at either construction or operation phases. Burning recyclable materials does not constitute a circular economic model. The SRWMP, promotes a move to the circular economy, replacing the outdated industrial take-make-consume-and-dispose models. The Plan states at section 5.3.3- "The region will encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources". NESC research recognises the increasing benefits of the circular economy. Export of discarded materials and products which could be recycled and reused in the circular economy (or even in a partial implementation of the circular economy) is a loss of employment, economic benefit and revenue to the State. Government policy is increasingly recognising the loss to the Irish economy of export of waste and lack of recycling facilities within the country.

9.5.100. There has been insufficient engagement by ICL with the local community. Lack of community engagement has led to significant opposition to wind farms and water charges. Civil society must be engaged when it comes to consideration of large projects. The Aarhus Convention guarantees the right of the public to participate in environmental decision-making (Article 6). Article 6(4) states that- "Each party shall provide for early public participation, when all options are open and effective public participation can take place". This has been incorporated into the revised EIA Directive. Ireland has ratified the Stockholm Convention which requires

the country to reduce and eliminate emissions to the atmosphere of Persistent Organic Pollutants (POPs) – in this case relevant to PCDD/Fs. Any processes which may result in an increase in emissions of these POPs would be contrary to Article 5 of the Convention. Any combustion of material which may lead to an increase of POPs in the atmosphere, or failure to reduce such emissions by not substituting combustion by some other process which does not involve combustion, is a breach of the Convention. The reuse or recycling of used tyres should be further researched before any permission is granted by the Board under the requirements of the Convention. Monitoring of the local population should be undertaken, where people are likely to be affected by emissions. Public consultation and access to monitoring data are required by both the Stockholm and Aarhus Conventions.

9.5.101. ICL did not engage in any real consideration of alternatives, as required by the EIA Directive – locations, designs and processes. Whilst it is obvious that alternative locations were not a consideration, ICL looked at only a very limited set of alternatives – no alternative fuels, the proposal for 90,000 tonnes of alternative fuels use, and relying on alternative fuels to fully fire the kiln. Other alternatives such as use of natural gas were not explored.

9.5.102. The Board is aware of the complications that arise from the sharing of responsibility with the EPA for consideration of environmental impacts. The EPA is in the course of considering two separate reviews for the IE licence for this cement works. The EPA may require modifications to the cement works to comply with licence requirements. It is clear that the EPA will not grant a licence revision until planning permission is granted (for the alternative fuels/raw materials application). The Board may be left to grant planning permission based on a design and detail which will have to be agreed with the EPA.

9.5.103. Martin Corcoran (for second 3rd Party appellant), on behalf of Inis Lua Residents Association, stated that ICL is 2km from homes and will impact on air quality and health. Alternative fuels will be imported and stored and would represent a fire threat. There was a large fire already at a waste facility on Ballysimon Road. Health of children at schools will be adversely affected.

9.5.104. Billy Austin (for second 3rd Party appellant), stated that he had only recently heard of the Hearing – notwithstanding that he is a co-appellant. The Board had not

informed him of the Hearing, and he was entirely opposed to the proposed development.

9.5.105. Helen McGee, an observer to the appeal, indicated that she strongly objected to incineration of hazardous waste at Castlemungret. ICL case seems to imply that they are compliant with licences and willing to work with the community. There is a complete lack of trust. No evidence that ICL has taken the community into consideration. Dust on cars and houses highlight sad reality of why trust is damaged. Issues are dismissed by ICL. Dust is the problem. Poor maintenance of equipment is nothing to be proud of. This is not a good sign for proposal to burn hazardous waste. A free car-wash will not solve the problem. Increase in health issues of communities who reside in proximity to incinerators. Pilot programmes to achieve zero waste in Cashel, Co. Tipperary at present. Worry that contamination in ICL's dairy herd will be passed into the food chain. There is an ash residue. LCCC only got clarity on some issues by attending the Hearing. The EPA needs to be present. Money cannot make up for contaminated water. Fugitive dust emissions have caused coughing bouts. Steroids have been prescribed to deal with health issues.

9.5.106. Hearing closed at 20.47 hours.

9.6. **Day Three**

9.6.1. Claire Keating (for second 3rd Party appellant), on behalf of Slí na Manach Residents Association, presented **Document 27**. There remain parcels of land which are yet to be developed for housing at this estate. There are currently 50 houses, with permission for a further 87. This is the closest residential estate to the cement works. The speaker was aware of the ICL cement works when purchasing her house, but expected ICL to fully adhere to the EPA licence conditions, be properly regulated and for regulations to be enforced by appropriate authorities. Instead, residents have been forced to monitor dust and follow-up on complaints relating to dust and night-time noise. This has seriously reduced residential amenity. Constant feeling that health is under threat. This cement works is on the EPA blacklist. This has caused a good deal of stress – dealing with the existing situation: and it is likely to be considerably greater if permission is granted for this development. The safety record of the cement works gives great cause for concern. ICL has had to be forced

to admit it was the cause of dust blow-outs. Car-washes have been offered as a gesture of good will by ICL. ICL cannot be trusted to burn industrial waste in an aged kiln. LCCC has invested a considerable amount of money in roads and community facilities in the area – facilities which will allow for the development of more housing. The PA is undermining its own investment by granting permission for this development. The gas line adjacent to the cement works should be used for firing the kiln. The reason it is not being used, is likely to be because ICL will be able to charge gate fees for the burning of waste. The solution ICL has chosen is a short-term one. Tougher environmental regulations and enforcement will increase their costs in the long-term. Burning waste will not be environmentally acceptable within a few years, as the Government faces up to the reality of climate change. A refusal of permission might, in fact, be the best thing for ICL, as it would be forced to innovate and re-examine its processes.

9.6.2. Gordon Reid (for second 3rd Party appellant), presented **Document 28, 28A & 28B**. Comments relate to the Human Health Risk Assessment carried out by ICL for the TDI of dioxins, furans and dioxin-like Polychlorinated Biphenyls (PCBs) using the United States EPA's Human Health Risk Assessment Protocol (HHRAP), to be compared with the Tolerable Daily Intake of 2pg/kg bodyweight/day recommended by the UK Committee on Toxicity of Chemicals in Food, Consumer Products and the Environment (COT).

9.6.3. The additional information submission of 2nd November 2016, did not allow for the independent verification of assumptions and calculations; omitted dioxin-like PCBs from intakes; omitted fish from dietary intake of all theoretical receptors; omitted existing baseline intakes of dioxins and furans; did not provide estimation of likely baseline intakes of dioxin-like toxicity for the farmer and farmer child receptors. No clear information is given on the diet of the theoretical receptors (farmer and resident), even though such information is available in the form of a National Nutritional Survey carried out by Irish universities (Document 28A). There is a very substantial nationwide dataset on dioxin, furan and dioxin-like PCB content in cows' milk originating from the EPA's long-established sampling programme. Table 5 of the HHRA does not give any quantities of ingestion by receptor type – just boldly stating yes or no for each of the food types and soil. The model assumes that inhalation can be assumed to be zero. AWN Consultants, engaged by LCCC, stated

that it could not review the model, as the files which show the model equations and calculations were not submitted. It is not possible to undertake EIA in the absence of full information on the model used. The HHRA omits consideration of PCBs, notwithstanding that this was requested by LCCC on two separate occasions. ICL argues that the IED does not require PCB's to be measured; that the WHO Toxicity Equivalence Factors (TEFs) for most of the dioxin-like PCBs are extremely low compared to those of PCDD/Fs; and that a conservative approach was taken in assuming that the IED ELV of 0.1ng/Nm^3 is accounted for entirely by PCDD/Fs rather than assume that any part of it would be ascribable to dioxin-like PCBs. The arguments do not justify failure to comply with the request of LCCC. The fact that a substance is not regulated by the IED does not mean that it is not emitted by a cement works or that it is not already present in the environment. PCBs can be created in the combustion process, even where there are no PCBs in the feed material to the kiln. An incinerator in Sheffield, which does monitor for dioxin-like PCBs, found concentrations of one sixth of the human TEF for dioxins and furans. Dioxin-like PCBs are ubiquitously present in the environment. From EPA milk monitoring results from 2012, it is evident that dioxin-like PCBs contribute 43% on average in TEQ terms of total dioxin-like toxicity.

9.6.4. Any increment in PCDD/Fs and PCBs arising from emissions from ICL, needs to be added to the existing baseline level. The overall contribution in TEQ terms of dioxin-like PCBs is only slightly lower than that of dioxins and furans combined – due to higher concentrations (although lower toxicity). PCB-126 and PCB-118 are found at very high concentrations in milk sampling carried out by the EPA – at levels much higher than dioxins or furans. ICL can exclude consideration of PCBs because the IED lets it get away with it – requiring only PCDD/Fs to be considered in the 0.1ng/Nm^3 limit.

9.6.5. ICL argues that consumption of locally-grown fish is likely to be infrequent, and therefore omitted fish from consideration in the model – notwithstanding the proximity of Bunlicky/Clayfield Pond and the Shannon River. However, farmers and residents would be likely to consume fish purchased from shops, and thus be exposed to prevailing levels of dioxin-like toxicity in Irish retail fish. The Food Safety Authority of Ireland indicates levels of dioxins and dioxin-like PCBs in Irish fish – in salmon the mean toxicity is 1.47pg/g TEQ. Food consumption in Ireland indicates

that the fish component of diet would give a child approximately 1.65pg/kg bodyweight/day TEQ. Fish is the largest single contributor to dioxin-like toxicity in the average Irish diet (contributing on average 39%) of total intake. For this reason, the exclusion of fish from the diet (whether locally caught or shop bought) is not a safe or conservative approach by ICL.

9.6.6. Table 6 of the HHRA gives only a single value for each of the receptors. It would have been more useful to give baseline values, the increment arising from the operation of the proposed development, and total predicted intake with the cement works in operation. Values in Table 6 would appear to be particularly low – given the information which is available for PCDD/Fs from EPA sampling for points B1-B18 – a mean of 0.321pg/g milk fat TEQ. The Irish universities diet survey indicates a farmer adult intake of about 33.5g/day of milk fat, whilst the resident adult intake would be lower at about 23.7 g/day of milk fat. Intakes of PCDD/Fs from dairy fat would be close to the figures given for farmer adult and resident adult in Table 6 of the HHRA, whilst for farmer child and resident child, the intake indicated is less than would be got from the average diet (only considering dairy fat). Based on these calculations, it seems that the reported values in the PCDD/F report take no account at all of existing intake and consider only the increment due to the operation of the cement works. This renders the report non-compliant with the EIA Directive, which specifically requires the consideration of baseline conditions. Total exposure is the relevant consideration, as this determines a person's health. The COT TDI of 2pg/kg bodyweight/day refers to total intake from all sources, and not the intake from any given plant. The Report submitted makes the mistake of treating the TDI as if it were analogous to an ELV.

9.6.7. Soil concentrations of PCDD/Fs is given in the report. It is possible to estimate the transfer from soil to the food chain, which when added to fish consumption, gives an estimate of total dioxin-like PCB and PCDD/F intake. Based on work carried out on the Ringaskiddy incinerator application, it is possible to make an evidence-based link between soil concentration (given for five soil samples in Table 3 of the HHRA) and total intake of dioxin-like toxicity (Document 28B). The Ringaskiddy case only considered the farmer and not the resident. The estimated intake for both farmer child and farmer adult (based on the five soil samples) ranged from 5.02-13.07pg/kg bodyweight/day TEQ for farmer child and ranged from 2.00-5.21pg/kg

bodyweight/day TEQ for farmer adult. All but one of the ten results exceed the TDI of 2pg/kg bodyweight/day TEQ. This would suggest that it would be inappropriate to grant permission, and that serious efforts should be made to reduce existing levels of dioxin-like POPs in order to reduce the existing risk for those living nearby. The Board's own Inspector recommend refusal of permission at Ringaskiddy in 2009, for reasons that any increase in PCDD/Fs would be contrary to the policies of the WHO, EU and the Stockholm Convention.

9.6.8. POPs can accumulate in adjacent European sites. LCCC requested ICL to supply information on accumulation in wildfowl and habitats within the neighbouring European sites. ICL argued that operation within the terms of IE licensing would ensure that there would be no deterioration in quality of the European sites. There is a worrying example of bio-accumulation in muds in Cork Harbour – set out in Document 28A. PCDD/Fs in mudflats rose significantly between 2009 and 2015. This was against a background of declining large industry, removal of lead from petrol, and stricter controls on back-yard burning of waste. At this time a number of plants around Cork Harbour were operating under EPA licences to emit dioxins and furans, within the same licence limits that apply to the current applicant. This raises the possibility that the licence limits in force do not give sufficient protection against accumulation in the environment. The NIS for the Indaver application contained a dioxin/furan risk assessment for fish-eating birds of similar species to those protected in the River Shannon and River Fergus Estuaries SPA. There is no baseline information for POPs within the adjacent European sites. The toxicity of dioxin-like PCBs is higher in birds than humans (as indicated by figures from the Sheffield incinerator). The precautionary principle operates in relation to the Habitats Directive. There has been inadequate screening for AA in relation to this application. Observations from a similar environment in Cork Harbour seem to raise more than a reasonable scientific doubt about the risk of adverse effects on European sites close to the ICL cement works.

9.6.9. There ought to have been an assessment of PCB emissions based on emissions from municipal waste incinerators (where measurements have been made) particularly as it is likely that residual municipal waste could be incinerated in the kiln. There has been no dispersion modelling carried out for PCBs.

9.6.10. Jack O'Sullivan stated that PCBs were extremely toxic and had been responsible in 1980's for massive seabird deaths in the Irish Sea. No responses had been forthcoming from ICL to Dr. Connett's questions on the basis of the modelling.

9.6.11. Gordon Reid – concentrations of PCBs are generally higher than PCDD/Fs. There are other PCBs which are not dioxin-like. Brominated flame retardants are also of concern at Ringaskiddy. These can bind to aryl hydrocarbon receptors. Biological function is not well understood. Class of substances regulated is small in relation to total amount of POPs. ABP is concerned more widely with human health and impact on the environment. Appeal to applicant to release background information on how figures in Table 6 were arrived at. Table 6 cannot possibly include the baseline. Likely baseline has been given from work on soil concentrations – only a small amount of information.

9.6.12. Jack O'Sullivan – seabird deaths were caused by bioaccumulation of PCBs. Pathway was from electrical transformers leaching into seawater. Birds were top of the food chain. Metabolisation of fatty tissue in cold weather caused the bird deaths. Stockholm Convention has been ratified. Ireland is bound by membership of the EU.

9.6.13. Jarlath Fitzsimons – 2014 EIA Directive is not applicable to this appeal, where the application was made to LCCC before 16th May 2017. The 2011 EIA Directive is the one which applies: 2011/92/EU. Draft EPA Guidelines 2017 on preparation of EIA Reports is not relevant as they are predicated on the 2014 Directive. The Board must carry out EIA, but under the 2011 Directive. Indaver plant is a waste incinerator dedicated to the thermal treatment of waste. Cement kiln is not dedicated to thermal treatment. Cement production is the purpose of this application. Dr. Reid has reservations in relation to ambit or scope of IED, and is entitled to his opinion. ABP must apply EU law – and this includes the IED. Board does not have luxury of *a la carte* selection of European law.

9.6.14. Don Menzies presented **Document 29**. Extract from HHRAP – dealing with food consumption rates (6.2.2.2) – states that only food produced at the exposure location is assumed to be contaminated by emissions from the facility being assessed. "Food not produced at the point of exposure is not assumed to be contaminated, and is irrelevant to the assessment. Therefore, the consumption rates we recommend in

the HHRAP are for food that is both produced and consumed at the exposure location (i.e. at home)".

9.6.15. Sinead Whyte – air dispersion modelling identifies all emissions data, methodology, assumptions and dimensions (on p.1 of Document 29). Worst case assumptions made – five years of meteorological data, used worst case hour out of 40,000 hours of data. Worst case maximum concentration for worst case receptor – immediately adjacent to the N69 to southeast. Considered topographical information and building heights. Table 8.8 of EIS identifies maximum predicted concentrations, background concentrations and cumulative totals compared to air quality standards. This information was transferred to the HHRA. Point of 24-hour maximum PM_{10} concentration is indicated on OS map extract on fifth page of Document 29 – same as the maximum deposition location for PCDD/Fs.

9.6.16. Don Menzies – air was sampled at two locations (p.6 of Document 29) for 17 PCDD/F congeners. At location one, next to the security hut, a number of the congeners were below the rate of detection, and at location two, within the ICL dairy farm to the northwest, no congeners were above the rate of detection (measured over a three-day period). Soil sampling for five locations – Table 3 of Document 29 – indicated an average value of 0.7116 ng/kg of soil. Table 4 shows rural and urban soil values for England, Northern Ireland, Scotland and Wales – all of which are in the HHRA. The soil values for the site are low by comparison. Table 5 of Document 29 shows Resident Adult & Resident Child and Farmer Adult & Farmer Child (with infants removed from this synopsised table) – in relation to food intake. Table 7 shows Toxicity Equivalence Factors for 17 most toxic PCDD/F congeners for air, soil or intake. 2,3,7,8-TCDD is considered to be the most toxic – with a TEF of 1.0. The next most toxic is 1,2,3,7,8-PeCDD – with a TEF of just less than one, with the next most toxic being 0.3. Dioxin-like PCBs are considered by the WHO to be less toxic than PCDD/Fs – with a TEF of 0.1 at highest, and many much lower. Hourly and annual averages were used for PCDD/F intake, and 0.1ng/Nm^3 IED limit was used. Looked at sources of measurement for 17 congeners and how they behaved – one source from US-EPA (150 municipal incinerators) and the second from Her Majesty's Inspectorate of Pollution (set out between Tables 7 & 8 of Document 29). This exercise was for the purpose of distributing the 0.1ng/Nm^3 IED limit between the different congeners – results indicated at Table 8. Emission rate was calculated by

multiplying by the gas flow rate at the stack in ng/second TEQ. Based on results from the Platin cement works – the rate of 0.1ng/Nm^3 is very conservative – with actual emissions being lower by a factor of thirty. Table 9 gives assigned deposition for different particle sizes – measured in microns. Rainfall and how it behaves was factored into the model as was wind direction. Site parameters for the behaviour of water was also used – particularly in relation to how water reacts with soil. HHRAP gives useful information – provided by Lakes Environmental. Track and model dietary intake of dioxins through various food sources into the individual. These are default values and were not changed by ICL. Table 6-1 lists the food intake for farmer, resident, fisher and children of each. Table 6-2 indicates what people do with the home-produced food – and it can be seen that it is a complex model of how dioxins pass through the food chain and into different classes of individual. Table 6 of the HHRA is the final result.

9.6.17. Took all data from modelling on air dispersion and soil sampling. Data from weather stations and water bodies was input. Calculated emission rate of dioxins from cement works, and broke them down into 17 congeners – and did not take PCBs into account, as this is not required by IED. The approach used was conservative, as the 0.1ng/Nm^3 IED limit was distributed among the 17 dioxin congeners (which are more toxic than the PCBs). If PCBs had been included in the distribution of the 0.1ng/Nm^3, then the results would not have been so robust. Model was run – predicting the total intake of PCDD/F for each of the congeners, for each of the receptors, which were then summed. This is the increment of what someone might take in over background. Background level of soil dioxins and dioxins in the air is extremely low. Have applied a factor of emissions from the cement works which is probably thirty times too high. Have selected the worst location (with the highest dust deposition rate) for the worst day, worst hour and worst year. Assumed that livestock and humans will live at this location all of the time. Very conservative approach adopted – with the worst case being the farmer infant (breastfeeding) at 0.483pg/kg bodyweight per day. The modelled intakes for all classes of individual were below the UK COT standard of 2pg/kg bodyweight per day. This standard is one which has been devised to protect people from the potentially harmful effects of dioxins – cancers, fertility impairment for example.

9.6.18. Jarlath Fitzsimons – all but four pages of Document 29 are already included in HHRA submitted – these being the four pages before the last page of the submission.

9.6.19. Martin Hogan – very conservative model in relation to human health. Worst case scenario is the farmer – with food coming from the land. For food from water, this is not the case, as there is a large throughput of water in the Shannon River. Deposition rates from the cement works on water will not be so high as on land. Cement factory on this site since 1938 – with low levels of soil dioxin compared to the UK, which should be reassuring to local people.

9.6.20. Gordon Reid – quotes from 2014 Directive were in his report – open question whether 2011 Directive will apply. The two are quite similar in any event. The fact that the cement kiln is not a municipal waste incinerator does not matter. Baseline measurements are what is important. IED doesn't compel ICL to measure PCBs. Applicant has claimed the modelling approach was conservative is not correct – the sum of toxicity from PCDD/Fs which are already right up to the limit, must be higher (particularly if dioxin-like PCBs are included) where the proposed development will be an increase on what already exists at background level and in foodstuffs. HHRAP states that food from elsewhere is assumed not to be contaminated by PCDD/Fs. May be valid for a plant producing a contaminant which is not ubiquitous in the environment, but is found only in the vicinity of that plant. PCDD/Fs and PCBs are not the same. Food does contain contaminants. EPA reports confirm PCDD/Fs in milk. Receptors cannot distinguish PCDD/Fs which come from ICL or from elsewhere. POPs are ubiquitous in the environment – so this part of the HHRAP should not have been followed slavishly. Not enough information has been presented to allow the model to be critically assessed. Need to know components of diet of receptors – useful to know that default options in Table 6-1 were used. It would have been useful to have been informed of this earlier. Would allow comparison with the Irish average. Somewhere in software must be a value for dioxin content of different foodstuffs. Does Dr. Menzies have access to these values?

9.6.21. Don Menzies – ran the model as an integrated model to generate the end result. Did not interrogate it or challenge its results. Did not generate intermediate figures. Model was run pursuant to guidance. Does not have access to that data right now.

9.6.22. Gordon Reid – must be able to critically judge the model. There are elements of the model which can be compared with real values – such as PCDD/F content of certain foods, such as milk. Possible to test the model at Ringaskiddy – by comparison with content of PCDD/F in milk. Uptake from each of the pathways – only for the resident can it be ascribed to vegetables. For the farmer there is no breakdown for dairy, fish, beef. We know real PCDD/F component of the Irish diet. These proportions should be coming through in the model for the various individual groups. Should always be intermediate checks when running a model, to see if it reflects real life situation where information is available – such as PCDD/Fs of Irish food and the diet of Irish people. Soil dioxin values (five of them) from 2016 are much lower than the UK in 2001-2002. This is not a valid comparison. Would need to get current UK values. Should be compared to Irish soil values. Castlemungret values are substantially higher than those around Cork Harbour. Farmer infant is consuming breastmilk. What would be the expected PCDD/F intake for the infant?

9.6.23. Don Menzies – Table 6 – data was generated by the model.

9.6.24. Gordon Reid – infant drinking milk – locally produced – does the model accurately reflect PCDD/F in breastmilk? Does ICL have any knowledge of what would be the expected PCDD/F content of breast milk for a woman living in Limerick?

9.6.25. Don Menzies – result is for worst case farm. It is 25% of the TDI for farmer infant.

9.6.26. Gordon Reid - is value of 2pg/kg per day then an acceptable one? COT is not a regulatory body – it is an advisory body. Page 20 of Document 28B (submitted by Gordon Reid) deals with breastmilk. Lifetime exposure of young mother to PCDD/Fs. Irish average breastmilk – from Food Safety Authority of Ireland. Table on top of page gives dioxin intake in pg/kg bodyweight/day for mothers over six months – highest at birth and decreasing over six months – meaning that the baby is the receptor. When compare lowest value on table of 24.6pg/kg bodyweight/day with resident infant value given in Table 6 – the HHRA gives an underestimation of 1,500 times of PCDD/F. This is an infant drinking locally produced milk. The model is calculating the increment from the proposed development only – assuming that the world is a perfectly clean place, which is not the case at all. World is dirty and we must try to make it no more dirty. PCBs are less toxic, picogram for picogram. Amounts of PCBs in the environment are far bigger than PCDD/Fs. The EIA should

include PCBs, as they have a similar effect to PCDD/Fs on aryl hydrocarbon receptors. Values in Table 6 of the HHRA do not include baseline values. The incremental impact of similar-type developments must be considered. The farmer infant figure is 0.242% of the TDI. If there were four such similar applications, the threshold would be reached. Cannot look at this application in isolation. Meaningless in terms of risk assessment to only look at the incremental increase from this one application. Cannot be dealt with on a first-come-first-served basis. Already about fifty times above the TDI for infants. Perhaps the EPA should be requested to post lower limits. Baseline must be included in calculating exposure limits.

9.6.27. Jack O' Sullivan – cumulative impact is an essential component of EIA.

9.6.28. Tim Hourigan – Single emission point is modelled only. There are more sources of emissions from this cement works – two plumes visible this morning. Gas is diverted for pre-heating to petroleum coke mill. How much gas is diverted to petroleum coke mill, and does it vary over time, and is it assumed that there is no chemical change in the gases when they are diverted?

9.6.29. Brian Gilmore – visible plumes this morning – lower one from the cement mill which requires water to be injected to cool the bearings.

9.6.30. Tim Hourigan – non-ICL people do not understand how the cement works operates and what the pipework does.

9.6.31. Sinead Whyte – air dispersion modelling in Chapter 8 of EIS. Emission points are set out in Table 8.5. ELVs in IE licence include emissions vented through the petroleum coke mill.

9.6.32. Cllr. John Loftus

- The Councillor has visited the cement works two years ago.
- Petroleum coke is a waste fuel from distillation of crude oil. Not much difference with types of fuel that are proposed to be incinerated.
- It is understood that filtration systems are to be put in place, and would be monitored by the EPA.
- Councillor would have concerns about use of industrial waste use.

- A temperature of 1,400 degrees Celsius must be maintained in the kiln to destroy dioxins and furans, but this will be lower at start-up and shut-down, where chemicals might not be destroyed.
- The EPA has fallen short in a number of areas in monitoring emissions.
- Concerned that industrial waste might be introduced.
- Pollutants are coming from Moneypoint and Aughinish – both airborne and waterborne.
- Unreliable information has been provided.
- Models can be developed to produce any answer required.

9.6.33. Derek O'Dwyer (on behalf of Elsie McGee, Observer) – worried about health of children and adults. Life is precious, and too many mistakes have been made, with serious consequences. There is a right to clean air.

9.6.34. Angus Mitchell – contradiction at the heart of the application, and lack of integration with world around us. Need to clarify how LCCC reached its planning decision. Elected representatives were ignored by the planning authority, notwithstanding that they supported LAP. Permission granted 48 hours before protest march through Limerick City on 11th March 2017. Limerick is a poor city. Pulmonary disease in the city is high. City should have developed more than it did. Recent history shows strategic importance of mid-west – viz Shannon Airport. More recent investment into Port of Foynes – to take the weight off overloaded ports like Rotterdam. 2030 Plan is part of a far larger regional strategy. Regional Waste Development Plan – waste is big business. Not sure how much is received for burning a tonne of waste – but has heard it is as much as €250 per tonne.

9.6.35. Brian Gilmore – wide range of commercial aspects to fuels – commercially sensitive information between supplier and cement kiln operators.

9.6.36. Jarlath Fitzsimons – this is a cement works and not a waste incinerator.

9.6.37. Angus Mitchell - €250 x 90,000 tonnes per annum is a significant amount of money. Gasification plant at Shanagolden could result in Foynes becoming a hub for the incineration of waste.

9.6.38. Stephane Duclot (for LCCC). Application was referred to SRWMO, and reports are on file.

9.6.39. Angus Mitchell presented **Document 30, 30A & 30B**. Magazine articles about Limerick City and investment/architecture. Lay out vision for Limerick to 2030.

9.6.40. Derek O'Dwyer – to ask Mr. Duclot if he is familiar with article from European Business Magazine. Quotations – Limerick intends to become fastest growing European city in terms of jobs and investment. Limerick 2030 to oversee building of 1.4 million square feet of floorspace. The Local Authority is becoming the developer – having purchased lands for development. Fastest growing English speaking city in the EU to capitalise on post-Brexit inward investment. How can incineration of waste be compatible with this strategy?

9.6.41. Stephane Duclot – the PA considers all development plans. A specific application will look at physical planning, zoning and policies and objectives.

9.6.42. Derek O'Dwyer – Denis Brosnan has been appointed Chief Executive of Limerick 2030. Limerick is competitive and affordable with a young population at the heart of a region of 400,00 people with excellent infrastructure and a pool of graduates. Brexit will not stop investment coming into Europe – looking for English-speaking locations. Did the PA consider the likely impact on inward investment of this decision to grant permission? Assumed the wider master planning of Limerick should have been considered. Is the Castlemungret development not contrary to the wider vision for the city?

9.6.43. Dermot Flanagan – LCCC had regard to policy documents and struck a balance on what was in the interests of the area.

9.6.44. Derek O'Dwyer – trying to elicit the judgement of the executive who made the decision to grant planning permission.

9.6.45. Jack O'Sullivan – questions about zoning and SELAP. There is a Vision Statement within this Plan, where section 2.2 states- "Limerick County Council will adopt a positive and sustainable approach to balanced development, thereby enhancing the lives of people who live in, work in and visit the Southern Environs, whilst protecting the natural and built environment". This would be an overarching view taken by the Council in consideration of any planning application.

9.6.46. Stephane Duclot – everything within the SELAP is taken into consideration.

9.6.47. Jack O'Sullivan – zoning matrix – lands zoned for 'Industrial' purposes. What types of development are permitted or open for consideration within that zoning? Zoning includes general, light, wholesale/warehousing. No mention of 'heavy' industry or waste to energy activity proposed by ICL.

9.6.48. Stephane Duclot – cement factory is not a waste facility.

9.6.49. Jack O' Sullivan – proposed development does not fall into any of the categories set out for industry.

9.6.50. Stephane Duclot – it is an existing industrial use.

9.6.51. Jack O'Sullivan – transforming a cement works into a use which will accept waste. This is a new type of development – otherwise ICL would not be seeking permission. Industry exists; application for substantial transformation; should be considered an industry within one of the three categories. There was an application for a turf-burning power station in Co. Offaly which wished to burn meat & bone meal and wood chip and well as peat – the Board determined that it required planning permission. Is this an existing industry, or is it a new activity – albeit on the site of the existing cement works?

9.6.52. Stephane Duclot – the PA considered this to be an alteration to an existing industry. The PA made a balanced decision based on all policies within the relevant development plans.

9.6.53. Jack O'Sullivan admitted that many development plans were full of conflicting policies. The appellant is concerned as to where the balance lies in considering policies which may be conflicting. Which are the objectives which would have tended towards the grant of planning permission? The appellant has pointed out a number of policies and objectives which would tend towards refusal. It is clear that the PA had regard to other policies on which it decided to grant permission.

9.6.54. Dermot Flanagan pointed out that the PA had made its decision. Whilst the 3rd Party appellants may not be happy with that decision, it was nonetheless the considered position of the PA.

9.6.55. Jack O'Sullivan – appellant is concerned with which particular policies and objectives the PA took into account in reaching its 'balanced' decision.

9.6.56. Stephane Duclot – decision not based on specific objective – but overall policies and objectives of the Council. The application was referred to internal departments of the Council and to external bodies, and the opinion of these bodies/sections was taken into consideration in making the decision to grant permission.

9.6.57. Jack O'Sullivan – LCCC asked AWN Consultants to advise the Council. Model could not be verified because basic information was not available. Should have placed a doubt in the mind of LCCC as to whether it was appropriate to grant permission.

9.6.58. Dermot Flanagan – seven of the eight points in the AWN Consulting report related to matters which were relevant to the EPA.

9.6.59. Derek O'Dwyer – Condition 12 states- "No unprocessed alternative fuels shall be delivered to the Cement Factory and no further processing of alternative fuels or alternative raw materials shall take place at the Cement Factory". The reason given is- "In the interest of public health". It is not clear just what 'unprocessed' means.

9.6.60. Stephane Duclot – materials would have to be processed and ready to feed into the kiln, before reaching the site.

9.6.61. Derek O'Dwyer – Table 2.1 on page 5 of response to request for additional information – LoW codes (equivalent to EWC). What analysis was done by the PA on which of these codes would be considered unprocessed alternative fuels?

9.6.62. Stephane Duclot – response was submitted to the SRWMO for consideration. The response was that they were satisfied.

9.6.63. Derek O'Dwyer – The EWC codes refer to 115 categories of waste, some of which are processed and some of which are unprocessed. There are some surprising inclusions – there has been a tendency to emphasise the incineration of tyres only. Some of it makes for shocking reading. 02 01 02 – animal-tissue waste; 19 10 03 – fluff-light fraction and dust containing hazardous substances; 02 01 08 – agrochemical waste containing hazardous substances; 08 01 11 – waste paint and varnish containing organic solvents or other hazardous substances; 08 04 09 – waste adhesives and sealants containing organic solvents or other hazardous materials; 15 01 10 – packaging containing residues of or contaminated by hazardous substances; 15 02 02 – absorbents, filter materials (including oil filters not otherwise specified), wiping cloths and protective clothing other than those mentioned in 15 02 02; 19 12 11 – other wastes (including mixtures of materials)

from mechanical treatment of waste containing hazardous substances ; 01 03 09 – red mud from alumina production other than the wastes mentioned in 01 03 10; 10 01 07 – calcium-based reaction wastes from flue-gas desulphurisation in sludge form; 10 03 05 – waste alumina; 19 01 12 – bottom ash and slag other than those mentioned in 19 01 11; 19 07 02 – landfill leachate containing hazardous substances; 19 13 01 – solid wastes from soil remediation containing hazardous substances; 19 13 03 – sludges from soil remediation containing hazardous wastes.

9.6.64. Dermot Flanagan – EIS indicates that no processing of waste will take place on the site. Alternative fuels will be delivered to a defined specification. Page 3-4 of the EIS.

9.6.65. Derek O'Dwyer – the rationale for condition 12 was in the "In the interest of public health". Can the PA explain how transport and incinerating these wastes is in the interest of public health?

9.6.66. Stephane Duclot – the application was referred to the SRWMO – which was satisfied that permission could be granted with this condition attached.

9.6.67. Derek O'Dwyer – how were 115 codes evaluated and how were the risks of each assessed? Could the SRWMO have evaluated all of the codes?

9.6.68. Stephane Duclot – PA relied on advice of SRWMO.

9.6.69. Derek O'Dwyer – decision of PA was delegated to the Waste Officer. Caveat was made to planning approval, relating to unprocessed materials. It is the hope of appellants that ABP will take a much more robust view of the hazardous substances which ICL proposes to incinerate.

9.6.70. Angus Mitchell – new playground in Mungret – on grounds of Mungret College which now belongs to LCCC. Some of land is zoned for residential use. Almost 800 houses can be built there – when there is a problem with homelessness in the country, was the right type of balanced thinking used in granting planning permission for this development? 133 acres of land adjoining Mungret College zoned for residential purposes. Emma Gillece article (Document 30). There is an issue of reputational risk to Limerick. Knock-on effect on the city for potential difficulties with air quality. Region is transcending the Brexit chaos. Doing very well at the moment. Principal sites will be developed across the city. There is a lack of joined-up thinking. Development should be community-led. Development should be

integrated and based on how it will tie in with plans to regenerate other parts of the wider city. Was decision made with any sense of the community in mind?

9.6.71. Stephane Duclot – decision was based on a wide number of considerations – existing use, zoning, objectives of Plan, submissions made – and arrived at a conclusion. 16 conditions were imposed by the PA.

9.6.72. Derek O'Dwyer – public participation – democratic element could have been more robust. Aarhus Directive requires public participation in the EIA process. This application has fallen short in this regard – particularly in relation to opinions of elected representatives.

9.6.73. Dermot Flanagan – EIA Directive does not dictate how public participation works. The fact that an Hearing is being held is self-evidently an example of public participation. Nobody is being excluded. Participation at PA stage and now again at ABP stage. There is no provision for the PA to hold an Hearing.

9.6.74. Derek O'Dwyer – recourse to ABP is an exceptional process. This consultation should have happened at PA level. Echoing sentiments of public representatives – lack of democracy, clarity, full disclosure and transparency were flagged. Have not yet got to the bottom of some the absence of transparency claims which were raised by the expert witnesses at yesterday's session.

9.6.75. Jack O'Sullivan – list of EWC's and condition 12 of the decision to grant permission. Did the PA look up and see what each of the 115 waste codes meant? Just long lists of numbers.

9.6.76. Stephane Duclot – the response was submitted to SRWMO for comment. Introduction of new fuels will require additional monitoring by the EPA. The SRWMO acknowledged the submission of the list of codes.

9.6.77. Jack O'Sullivan – are all of these materials fuels? Some may have no combustion or thermal value.

9.6.78. Stephane Duclot – reports of SRWMO are on the file.

9.6.79. Jack O' Sullivan – does the report(s) of the SRWMO identify at least some of the codes? Would it be useful to examine the report(s) of the SRWMO?

9.6.80. Inspector questioned whether report of 17th June 2016, was the one referred to.

9.6.81. Jack O'Sullivan – did anybody in the PA or the Southern Waste Region go through the list of codes to identify them?

9.6.82. Stephane Duclot – the report of the SRWMO (dated 16th December 2016) stated- "The applicant has provided details regarding these criteria and the SRWMO is satisfied that these have been provided in full…"

9.6.83. Inspector requested copy of report of 16th December 2016. (**Document 31** was submitted by LCCC).

9.6.84. Jack O'Sullivan – is still concerned that nobody may have gone through the list of codes. Condition 12 relates to delivery of unprocessed fuels. This may be a change of use of the facility at Castlemungret. Whilst LCCC did not consider it a change of use – the Board may wish to consider this. The peat-burning power station case at Clonbulloge, Co. Offaly may be of interest – burning meat & bone meal and woodchip.

9.6.85. Derek O'Dwyer – consideration of alternatives – sites, processes and other possibilities – required by the EIA Directive. Did LCCC consider alternatives?

9.6.86. Dermot Flanagan – not a function of PA to consider alternatives. PA considered whether the EIS deals adequately with consideration of alternatives. Statutory function of ABP now to consider whether alternatives were listed in the EIS.

9.6.87. Derek O'Dwyer – executive challenge to considering the application. How did LCCC reach a balanced decision? How did it arrive at condition 12, without considering what constituted unprocessed fuels? Board will hopefully give a greater level of scrutiny to the application than LCCC did. Zoning in vicinity of cement works and future zoning – proposals from Council to re-evaluate the zoning matrix of the SELAP. Is there dialogue between the executive and the elected representatives about future zoning?

9.6.88. Stephane Duclot – zoning is a reserved function. Role of the planning department is to assess the planning application in the light of the current development plan.

9.6.89. Derek O'Dwyer – concerns expressed by Cllr. James Collins – in his opinion, fellow councillors could be considering potential changes to SELAP.

9.6.90. Inspector pointed out that the Board would adjudicate on the current development plan. The Board will consider draft plans before it makes its decision.

9.6.91. James Collins – reserved function of councillors to adopt development plan and local area plan. The decision of the executive was against the recommendation of elected representatives. The development constitutes a material change of use. Councillors asked the executive if it would be possible to change the zoning during the consideration of the application. The executive advised that this would not be possible because there was an existing use on the site and this might lead to a legal challenge. If this was done on an individual site, it might lead to legal challenge in consideration of other applications. The councillors considered that it was not a continuation of the same use, but rather a change of use. Then enquired if it would be possible to tighten up the zoning matrix, and were informed that such a move may be open to legal challenge. However, it is the intention of the elected representatives to vary the zoning matrix. There is a motion before the Economic Development & Planning Strategic Policy Committee, to vary the existing city & county development plans, in order to ban incineration of waste in the whole of Limerick. This is being done to clearly show intentions of elected representatives for the good of the community. Intentions of elected representatives have been misinterpreted by the executive.

9.6.92. Inspector pointed out that the Board would be obliged to take any changes in the development plan into consideration. The Board was not, however, bound by Development Plans. But if it departed from the policies of the development plan (such as policy which banned the incineration of waste in Limerick), it would have to indicate and explain why it did so.

9.6.93. Joseph Burke – ICL has environmental liabilities risk assessment of €25 million. Does LCCC have similar in place in the event of a major catastrophe?

9.6.94. Stephane Duclot – assessed the planning application for the PA.

9.6.95. Joseph Burke – does the PA not care then about a major catastrophe? Condition 12 relates to public health. Who does the PA rely on in relation to advice on public health? Little confidence in the HSE Limerick.

9.6.96. Stephane Duclot – application was referred to SRWMO, EPA and HSE for advice.

9.6.97. Joseph Burke – what medical evidence was before the PA when it made the decision to attach condition 12? Was there any medical evidence at all? Is original order signed by the PA available for scrutiny? The speaker has concerns in relation

to the order signed on 16th January 2107, signed by Con Murray and the one signed by Stephane Duclot.

9.6.98. Dermot Flanagan – a decision was made as a matter of law, by LCCC. Not a function of the elected representatives to make a planning decision. Hearing is not about reviewing the manner in which elected representatives make a development plan.

9.6.99. Joseph Burke – detail of CFOs report. Is the full extent of this report available? Does not seem to have full extent of report.

9.6.100. Dermot Flanagan – PA is happy to provide the full contents of the report to any party. It is a matter of public record.

9.6.101. Joseph Burke – Con Murray's correspondence or diktat of 16th January 2017.

9.6.102. Dermot Flanagan – interjected that there was no question of a diktat. It is a decision of the executive.

9.6.103. Joseph Burke – no explicit definition for "proper planning" in legislation.

9.6.104. Stephane Duclot – had regard to planning acts and regulations in making decision.

9.6.105. Dermot Flanagan – material planning considerations – definition of sustainable development – material planning considerations. There are proper, relevant and material planning considerations.

9.6.106. Joseph Burke – correspondence of 16th January 2017 – Mr. Murray refers to the seal of the Council – HR-17/33 (an Order) – no seal attached to the decision of Stephane Duclot. Is the issue of a seal on official documents now no longer relevant?

9.6.107. Dermot Flanagan – seals are relevant to the ways in which local authorities conduct their business under the Local Government Acts – but not relevant to this Hearing.

9.6.108. Joseph Burke – embossed or indentations on documents – absence of a seal on this document. Amenities are mentioned – the Board needs to take into consideration the following legal cases:- Maher v ABP 1993(1) IR 439 High Court.

Kane v ABP 1998(2) ILRM 401. Great Courtland Estates PLC v. Westminster City Council 1985 – Appeals Court AC661.

9.6.109. Mr. Fitzsimons indicated that Dr. Hogan and Dr. Menzies had time constraints, and could not be available beyond today.

9.6.110. Angus Mitchell – how did the PA integrate the idea of sustainable development into this planning application? What are the critical planning issues involved in delivering sustainable development?

9.6.111. Stephane Duclot – considered all issues, such as development plans policies, guidelines and reports submitted to the Council. Clarification of information was sought from the ICL.

9.6.112. Angus Mitchell – who input ideas around sustainable development into this application? Should have a rounded idea of what sustainable development is.

9.6.113. Stephane Duclot – PA made its decision on the information before it.

9.6.114. Jack O'Sullivan – not a waste-to-energy facility according to applicant. Is ICL not using waste to produce energy?

9.6.115. Jarlath Fitzsimons – has already been addressed in terms of definition of waste treatment plant in the IED and Irish transposing legislation. These are binding on the PA and the Board.

9.6.116. Jack O' Sullivan – whilst it may not be in the legal definition, is ICL not intending to burn waste. Looking at it from a chemical/physical point of view.

9.6.117. Brian Gilmore – chemical point of view, ICL is manufacturing cement: is not a waste operation. ICL is replacing imported fossil fuels with alternative fuels, just like other cement facilities on the island.

9.6.118. Jack O' Sullivan – is waste being used to produce energy?

9.6.119. Brian Gilmore – replacing fossil fuels with waste. Process requires energy.

9.6.120. Tim Hourigan presented **Document 32, 32A, 32B, 32C & 32D**. Dr. Hogan comments on a wide range of issues relating to public health. Not an entomologist. Did not consult an entomologist. Not an expert on public health matters.

9.6.121. Martin Hogan – am a medical practitioner. Expert on public health matters and how diseases are transmitted. Knows something of the vector in relation to mosquitoes transmitting disease.

9.6.122. Tim Hourigan – he is not an entomologist either. Possibility of mosquitoes was raised with LCCC – and cited Dr. Patrick Ashe, a Dublin-based entomologist. Importing tyres can bring mosquitoes to the country. Eggs, larvae and mosquitoes can be present in tyres. Mosquitoes in Rotterdam were tested and found to be from Miami. What knowledge does Dr. Hogan have about the Irish climate and how suitable it is for breeding mosquitoes?

9.6.123. Martin Hogan – letter from HSE dated 4th August 2017 (submitted as part of Document 25A from Joseph Burke) – Point B (page 5) states that the HSE does monitor for mosquitoes around Ireland – mainly in port areas. There have been a number of native mosquitoes detected, but to date no invasive species have been found. ICL stated in a meeting with the HSE, that the supply of tyres would come from within Ireland and would not be imported from foreign sources.

9.6.124. Tim Hourigan – the HSE has a verbal assurance from ICL that tyres will not be imported. There is no condition attached to the planning permission which would require that tyres not be imported. The planning permission granted by LCCC would allow for the importation of tyres. Map in Document 32C indicates that the Shannon would be a suitable habitat. If imported tyres were excluded, then there would be no danger of spread of disease. Dengue fever is spread by mosquitoes, and it has been spreading rapidly – trade in used tyres is one of the main methods of spread of the disease. HSE did not contact an entomologist, because it had a verbal agreement from ICL that tyres would not be imported. The speaker contacted Dr. Jolyon Medlock, an entomologist for Public Health England. Has written a number of papers on spread of disease by mosquitoes – some of which have already arrived in the UK. If ICL are not proposing to import tyres, it should have no objection to attachment of a condition requiring that no tyres be imported. HSE should contact an entomologist to satisfy itself that there will be no spread of disease. Experts have opposite opinion to that of Dr. Hogan.

9.6.125. Martin Hogan – there are mosquitoes in Ireland and always have been. Dengue fever has been spreading. Air travel is the principal cause of spread of

disease – not the importation of tyres. Northern Europe is likely to be source of tyres. If they come from further afield – the life-cycle will have been gone through by the time they arrive. The issue raised is a red herring, the risk is minimal. Air travel is the greatest risk to spread of the diseases mentioned.

9.6.126. Tim Hourigan – some diseases can be spread to eggs and larvae, without needing human hosts. There is no expert entomologist present. LCCC has a duty of care to protect the health of the people of Limerick. There is no opinion from the HSE. Is there somebody to guide the Board on this issue? Dr. Hogan is not an expert on this issue, as he is not an entomologist. A condition needs to be imposed to restrict the use of imported tyres, or else an effective safeguard. On the island of Reunion, a mutation of the Chikungunya virus resulted in 260 deaths in 2005/2006. The shipment of thousands of tyres to Ireland will provide a viable habitat for a population of disease-bearing mosquitoes, as opposed to a few which might come on an airplane or ferry. Applicant will receive tyres from third parties – somewhere, nearby tyres will be stored for supply to ICL. Best to burn them, but the mosquitoes may spread from tyre storage. LCCC did not pass on the concerns of appellants to HSE. Experts consider that the import of tyres is one of the major sources of spread of the diseases referred to. Dr. Hogan is not qualified to make the statements he did.

9.6.127. Mary Hamill – HSE stated that they did no study on mosquitoes because ICL advised that there would be no importation of tyres.

9.6.128. Tim Hourigan – undertaking given that ICL would not import tyres or that tyres would not be imported?

9.6.129. Martin Hogan – understands that it is the intention of ICL to source tyres from Ireland, but allow for possibility of imported tyres.

9.6.130. Tim Hourigan – contractors may be importing tyres. Appellants are not happy with stance of ICL on this issue.

9.6.131. Jack O'Sullivan – is Mr. Gilmore willing to make a statement that ICL would be happy to accept a condition from the Board to state that no used tyres be sourced outside Ireland, and that ICL would not use tyres from countries which had mosquito-borne diseases?

9.6.132. Brian Gilmore – Mr. O'Sullivan made a detailed response on tyres – quoting a number of papers and sources. Page 7 quotes EPA report that 12,000+ tyres were exported for incineration abroad. ICL would seek to capture this export for incineration at Castlemungret.

9.6.133. Jack O'Sullivan – is ICL willing to accept a condition that it would not use tyres from abroad?

9.6.134. Jarlath Fitzsimons – Board may only attach necessary conditions. Sufficient tyres on island of Ireland for use at Castlemungret. There is no need to attach such a condition. Application documents makes it clear that there is sufficient feedstock in Ireland.

9.6.135. Jack O'Sullivan – there are sufficient tyres at present. In the near future, this is another question. Platin has permission to incinerate shredded tyres. Other recycling companies in Ireland are seeking used tyres. There may be more demand than supply in Ireland. A condition should be attached omitting imported tyres.

9.6.136. Brian Gilmore – crumb rubber company in Dundalk has gone into liquidation – they had been doing business with Platin. The difficulty in sourcing tyres at an appropriate price may have had an impact on the situation.

9.6.137. Jack O'Sullivan – recycling and re-use is better for tyres than burning them. Where ICL is looking for a ten-year permission, the Board should look ahead to a time when recycling and re-use is more important than thermal recovery.

9.6.138. Brian Gilmore – European Waste Hierarchy does place recycling above thermal recovery. ICL is bound by European regulations.

9.6.139. Jack O'Sullivan – material arising on site will be disposed of in accordance with the requirements of the European Waste Hierarchy. However, tyres can be recycled rather than burned. Indicated that there were no further questions for Dr.s Hogan and Menzies.

9.6.140. Derek O'Dwyer – list of EWCs in the response to request for further information. Codes were forwarded to SRWMO for report, and this allowed the executive to recommend permission.

9.6.141. Stephane Duclot – SRWMO commented and made recommendation that it was satisfied with the proposal.

9.6.142. Derek O'Dwyer – SRWMO reviewed and endorsed the waste codes. The decision to grant permission was to approve construction of structures to handle and store alternative fuels. Are the structures adequate for all 115 waste codes, in terms of storage, bunding and security?

9.6.143. Stephane Duclot – PA arrived at its conclusion based on reports submitted from prescribed bodies.

9.6.144. Derek O'Dwyer – questions initially related to condition 12 – current questioning relates to adequacy of the structures. Same response has been given over and over again – and this is disconcerting. The Aarhus Convention – citizens can expect transparency from the executive. There is a sense of disappointment at the process to date. It is hoped that it will take a better turn under the consideration of the Board.

9.6.145. The Hearing concluded at 18.10 hours.

9.7. **Day Four**

9.7.1. Jack O'Sullivan presented **Documents 33 & 33A**. Edenderry Power Ltd. submitted a reference to Offaly County Council as to whether the use of biomass and meat & bone meal as auxiliary fuels constituted development. The primary fuel at the power station would continue to be peat. The decision of Offaly County Council was referred to the Board (**RL 19.RL2032**), which decided that the substitution of fuels constituted development. An application was subsequently lodged with the Council and appealed to the Board (**PL 19.211173**) which granted permission on 11th July 2005. The development by ICL at Castlemungret should be considered a change of use. If the Board concurs, then the answer to question 15 in the planning application form, dated April 2016, is incorrect.

9.7.2. In relation to the question of incineration or co-incineration of waste, the application to the EPA for review of the licence included the following activities – 11.3 "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 description of the development in response to question 9 of the application form should have read- "cement production plant involving co-incineration of hazardous and non-hazardous

wastes" rather than "development to allow for the replacement of fossil fuels through the introduction of lower carbon alternative fuels and to allow for the use of alternative raw materials". The description provided of the development is incomplete.

9.7.3. Jarlath Fitzsimons – the Referral case which is mentioned by the appellant is an old one – from 2003. There have been changes in EU and Irish law since then. This is particularly the case with introduction of IED licensing and Irish implementing legislation, S.I. no. 148 of 2013. EU Waste Incineration Plants and Waste Co-Incineration Plants Regulations. Early definitions section of the Regulations relates to the principal activity, which at Castlemungret is production of cement. Regulation 3(4) express reference to main purpose of the plant – 1) generation of energy, 2) production of material products, 3) thermal treatment of waste. Irish Regulations make it clear that a plant shall be regarded as a waste incineration plant where its main purpose is the thermal treatment of waste. Production of material products is the relevant issue – (as no. 2 above). There has been no change to the use of the facility. No deficiency in description of development in EIS or planning application form. Letter from ICL to the PA (Document 33A) refers to Section 87(1)(a) of the EPA acts. EPA acts are used to regulate IPPC licensing regime. Waste Management Acts regulate incinerators. Both licensing regimes now come under the IED licencing regime. If Indaver in Ringaskiddy seek a licence for their proposed incinerator, it will be under the Waste Management Acts. The licence review at Castlemungret is under the EPA Acts. Not dealing with an incinerator at Castlemungret. Classes of activity – the wording is not ICLs – it comes from the appropriate schedule to the EPA Acts. The development is correctly described, and it is not an incinerator.

9.7.4. Jack O'Sullivan – despite the Clonbulloge power station decision date – it may be relevant to the consideration of the Board. An incinerator is an incinerator is an incinerator – notwithstanding that planning and EPA have two separate processes.

9.7.5. Tim Hourigan – modelling for emissions – from a single source or multiple sources? How much of the exhaust gas is diverted to the petroleum coke mill, and does it vary? Does ICL assume that there are no chemical changes along the way?

9.7.6. Sinead Whyte – the emissions at the petroleum coke mill are included in the air dispersion modelling. Included in Tables 8.4 and 8.5 of the EIS. Table 8.5 contains Proposed Emissions Sources Data. Coal Mill 6 is included, as are the other six main emission points. Table 8.5 includes modelled emission values which are in accordance with the ELVs set by the EPA by way of IE licence. Table 8.8 presents the results of the air dispersion modelling assessment. All predicted ground level concentrations are within ELVs.

9.7.7. Tim Hourigan – dioxin modelling – and which is the dioxin reading on the tables?

9.7.8. Sinead Whyte – dioxins are included towards the bottom of Table 8.5 – concentration of dioxins in model and associated emission rate based on ELV. Worst case emission from Coal Mill 6 were assumed.

9.7.9. Tim Hourigan – are these spot checks or are they based on continuous modelling?

9.7.10. Sinead Whyte – concentration is included on fourth last line of Table 8.5, and is based on ELV. Calculate the emission rate based on this maximum concentration – based on maximum volumetric flow rates. Varies because flows from Kiln 6 and Coal Mill 6 varies. Not based on monitoring data – based on worst case modelling data.

9.7.11. Tim Hourigan – well-known process of "*de novo* synthesis" – where dioxins can be reformed if exhaust gas is not rapidly cooled, particularly in the range 200-400 degrees Celsius. **Document 34** was presented to the Hearing. If hot gases are being re-routed to Coal Mill 6 to pre-heat the petroleum coke, then they will not be rapidly cooled, and so "*de novo* synthesis" could occur. There are two emission points indicated, but with tyres being fed into the kiln, there may be a third which has not been indicated. Air modelling assumes a single point of emission and assumes no chemical change. Board should consider the thoroughness of an air modelling assessment which begins with the highest allowable limit and works backwards, rather than monitoring. Modelling ignores "*de novo* synthesis". Where do tyres enter Kiln 6?

9.7.12. Brian Gilmore – "*de novo* synthesis" is a relatively complex process. **Document 35** was presented to the Hearing. It is a European Commission document which provides guidance to the cement sector – BREF Production of Cement, Lime and Magnesium Oxide 2013. Document 35 is an extract, indicating if facilities are in

place in Castlemungret. Cement kilns generally emit very low levels of PCDD/Fs. In particular, the Kiln at Castlemungret is a modern dry process, preheater kiln which has quick cooling of kiln exhaust gases to less than 200 degrees Celsius in order to minimise the possibility of PCDD/F reformation. Tyres are introduced via a double sluice system under negative pressure: both doors cannot be open at the same time. The tyres are dropped into the pre-heater tower and then fed into the kiln at the back end. In old cement kilns tyres used to be fed in through a trapdoor.

9.7.13. Tim Hourigan – would like to see a drawing of how this operates.

9.7.14. Thomas Burns – drawing 6142_LK14_009-008-11 – tyre storage and conveying drawing. Indicates location of double gate airlock valve.

9.7.15. Jack O'Sullivan – what temperature is back end of kiln and tyre chamber, and is there a pre-heater in operation?

9.7.16. Brian Gilmore – IED prohibits addition of alternative fuels during start-up or shut-down periods. Temperature is 850 degrees Celsius. Interlock system would prevent introduction of tyres until temperature is in excess of 860 degrees Celsius – and if temperature fell, tyres would be excluded. Chamber is short (2m long) and is under negative pressure – only typical car tyres to be used – one tyre at a time. Induction fan in the kiln creates negative pressure and sucks in tyre with gases around it. Induction fan is the same one which operates at present. Manufacturing process has the same large induction fan. No additional fan is being added as part of the combustion of tyres. The chamber itself is warmed by the kiln, because it is adjacent to it, but it is not significantly above ambient temperature. There is no such system currently operating in Ireland, so does not know the exact temperature of the chamber.

9.7.17. Inspector clarified that tyres would not be preheated.

9.7.18. Tim Hourigan – referring to Document 35, he would draw attention to the second and fifth bullet points at the bottom of the page, wherein it recommends avoidance of waste if it includes organic chlorinated materials, and that fuels with a high content of halogens should not be used in secondary firing. This application for substitution of fuels proposes to introduce halogens and plastics containing chlorine. There is more chlorine in alternative fuels than in fossil fuels. Increased chlorine will result in more dioxin formation.

9.7.19. Brian Gilmore – It is not true that there are higher levels of chlorine in alternative fuels. Fuels will all be tested and produced to specification. Product quality is a priority for cement manufacture. EU documents set out chlorine limits within cement, along with other ingredients. LoW codes discussion – Lagan Cement in Kinnegad has licence to incinerate 150 by EPA, and currently uses only meat & bone meal, SRF and Secondary Liquid Fuel. ICL is accepting fuels and not wastes.

9.7.20. Tim Hourigan – chlorine emissions impact on health – appellants are not concerned with cement product quality.

9.7.21. Jack O'Sullivan – only two alternatives were really considered in the EIS.

9.7.22. Jarlath Fitzsimons – what is required by Article 5(3) of 2011 of EIA Directive. Schedule 6 of 2001 Planning & Development Regulations (effectively the same). Requires the developer to outline the main alternatives studied. If developer considered no alternatives, then this could be noted. Ample information has been submitted in relation to the alternatives considered by ICL.

9.7.23. Thomas Burns – number of specifics apply. This is an existing facility. Nature of development is a switch to alternative fuels – need to be introduced at specific locations. Alternative site is not relevant and alternative fuels must be introduced at specific locations within the process. Considered three approaches – continuation of existing situation, intermediate use of alternative fuels, and finally, maximum reduction in use of fossil fuels. Applicant cannot use alternative fuels during start-up and shut-down. Ultimately the intermediate option was selected, because it provided flexibility.

9.7.24. Jack O'Sullivan – applicant has not looked at all alternatives. ICL is trying to reduce carbon footprint. There are other ways of reducing carbon dioxide apart from use of fuels derived from waste. Focus of alternatives is very narrow. Applicant is not required to look at every alternative, but to a reasonable set of alternatives.

9.7.25. Jarlath Fitzsimons – applicant has already stated its case in relation to consideration of alternatives.

9.7.26. Jack O'Sullivan – could look at Aughinish Alumina, some of whose product ICL takes, which has developed a combined heat & power plant. Have achieved tremendous savings by so doing. Applicant, under EIA, must select that alternative

which has the minimum adverse environmental impact and which has the best environmental outcome.

9.7.27. Brian Gilmore – ICL takes no by-product from Aughinish Alumina, as a matter of fact.

9.7.28. Jarlath Fitzsimons – should be confined to consideration of alternatives.

9.7.29. Jack O'Sullivan – by-product of Aughinish Alumina is red mud. This raw material is included in the LoW codes submitted by ICL. It may be that it will come from a plant in Hungary, but the ordinary reader would understand that it would come from Aughinish Alumina.

9.7.30. Jarlath Fitzsimons – Mr. O'Sullivan stated that ICL was already accepting red mud from Aughinish Alumina, which is incorrect. One of the LoW codes relates to red clay, but there are alternative sources for this material.

9.7.31. Jack O'Sullivan – if you are permitted, you will accept red mud?

9.7.32. Brian Gilmore – Lagan Cement has licence to allow for inclusion of red mud, not sure if they are accepting such. ICL needs flexibility to accept alternative fuels and raw materials.

9.7.33. Jack O'Sullivan – obvious alternative would be installation of combined heat & power plant.

9.7.34. Jarlath Fitzsimons – self-evident that combined heat & power is not included as an alternative in the EIS

9.7.35. Inspector asked applicant to comment on any consideration given to the use of natural gas.

9.7.36. Brian Gilmore – proximity of gas main to ICL facility. Purchasing department examined cost of connection to grid and use of natural gas. Natural gas is still a fossil fuel. Cost approximately three times more expensive. Not aware that it is used in production of cement anywhere in Europe.

9.7.37. Jack O'Sullivan – use of natural gas should have been considered in the EIS, and then excluded it on cost grounds. This would have resulted in a wider consideration of meaningful alternatives.

9.7.38. Tim Hourigan – EPA has written to ICL looking to install continuous monitoring at Coal Mill 6. Applicant has responded that this would be prohibitively expensive and

would put the company at a competitive disadvantage. ICL has a second cement works which could take up the slack whilst this one was upgraded to improve monitoring.

9.7.39. Nuala Geoghegan (on behalf of Cappagh Farmers Support Group) presented **Document 36**. Speaker does not want Limerick families to suffer what she has suffered because of the local alumina plant in Askeaton. It is entirely unacceptable to have dioxins and heavy metals released on Limerick families. Big companies have deep pockets, and agencies of the state do not protect or help individuals. The speaker outlined her background in farming and her engagement with Aughinish Alumina in relation to animal health on the farm, and later in relation to human health concerns – dating back to 1989. These problems were stated to relate to proximity of the alumina plant. There is approximately 40 million tonnes of red mud at Aughinish, and ICL is seeking to have red mud included in its alternative fuels/raw material feed. This red mud contains aluminium, arsenic, iron, lead, nickel, vanadium, uranium and other components. Dust from this red mud can blow off the site and contaminate surrounding lands/houses. This application should be refused in its entirety.

9.7.40. Cian Prendiville (on behalf of Tara Robinson, one of the co-appellants) invited LCCC to agree that Mungret is a key area for residential development. The LA owns 133 acres of land in the area.

9.7.41. Dermot Flanagan – acknowledged that there were lands in Mungret zoned for residential development. The word major does not appear in zoning descriptions.

9.7.42. Cian Prendiville – population growth will be concentrated in suburbs (three areas) as per the Midwest Strategic Area Plan.

9.7.43. Dermot Flanagan – core strategy of the Development Plan refers to areas for residential growth.

9.7.44. Cian Prendiville – did residents raise concerns with the PA when the application was being considered?

9.7.45. Dermot Flanagan – all submissions were referred to in planning reports – 43 issues of concern to all stakeholders (all individually named).

9.7.46. Concerns raised by public representatives also at the Hearing. If this development goes ahead, the area would see mass civil disobedience protests along the lines of Rossport Five. Would the PA be concerned that the development could undermine the attractiveness of the area for residential development?

9.7.47. Dermot Flanagan – this was discussed yesterday. Planning permission was appropriate and decision was subject to 16 conditions.

9.7.48. Cian Prendiville – inspector is urged to consider this question. Undermine the ability to meet the residential development goals of the plan. What would be the impact if there was no residential development, because developers would not develop. How could this impact?

9.7.49. Dermot Flanagan – this question is not capable of being answered.

9.7.50. Cian Prendiville – for what purposes were AWN brought in? AWN Report assured the Council that there were no environmental concerns.

9.7.51. Dermot Flanagan – not going to get involved in how the PA came to get involved with AWN. The report of AWN Consulting is on the file. It did not inform the decision of the PA in first instance. Record of the decision deals with the physical planning process.

9.7.52. Cian Prendiville – if it was not part of the process of informing the planning decision, it is not clear why AWN was brought in at all.

9.7.53. Dermot Flanagan – PA had planning application before it and also had to comment on EPA licence review application. The report of AWN dealt largely with EPA issues.

9.7.54. Cian Prendiville – did AWN Consulting have a planning role?

9.7.55. Dermot Flanagan – AWN report was satisfied with the approach taken by applicant and it informed the decision of the PA.

9.7.56. Cian Prendiville – wishing to elicit if the opinion of LCCC has changed since AWN Consulting have been working for ICL and where it has submitted incorrect information to ABP in the past.

9.7.57. Jarlath Fitzsimons – ICL is an applicant not a decision-maker.

9.7.58. Cian Prendiville – is AWN Consulting now employed by ICL?

9.7.59. Jarlath Fitzsimons – ICL has used and will continue to use a number of consultants. It has used the services of AWN Consulting.

9.7.60. Dermot Flanagan – this is not the forum for proffering of opinions on the use of AWN Consulting.

9.7.61. Jarlath Fitzsimons – ICL has used the services of AWN Consulting before the application was lodged. This is wholly irrelevant to the consideration of the Board.

9.7.62. Cian Prendiville – Repak €58 premium per tonne of recycled tyres. Will this be paid to ICL? Or will it be paid to the tyre collectors?

9.7.63. Brian Gilmore – Repak ELT runs the Producer Responsibility Scheme for used tyres and will pay the premium to the companies involved. ICL has no contract with any suppliers.

9.7.64. Cian Prendiville – dust monitors were indicated as being out of action on the IE licence review. Dust monitoring was not undertaken on damaged or contaminated gauges. How could this happen?

9.7.65. Jarlath Fitzsimons – councillor is referring to the EPA licence application.

9.7.66. Brian Gilmore – dust deposition gauges are jars on a stick and are left in the open to collect dust along the site boundary. They are gathered every quarter. They can be contaminated by leaves or other organic material. Since this issue has arisen, there is a means of removing organic matter and still get a measurement – this has to be done with agreement of the EPA. Quarterly sampling system – results in the future will be complete.

9.7.67. Cian Prendiville – only checked once a quarter. If this happens once, it seems that a closer eye should be kept on the gauges – particularly where one was out of commission for a whole year. NO_x limits – currently operating at 800mg/Nm^3 where the EPA is seeking to have a 500mg/Nm^3 ELV.

9.7.68. Seamus Breen – ICL currently operates NO_x at 500mg/Nm^3. Timeline has been submitted to the EPA to achieve this limit. EPA Licence P0029-03 currently stipulates an ELV of 800mg/Nm^3, but has initiated a BAT review of the licence, and it is expected that the NO_x ELV will be set at between 450-500mg/Nm^3. The EPA has been requested to allow a derogation from this ELV for a period of time to allow this new ELV to be achieved.

9.7.69. Jarlath Fitzsimons – the EPA is currently reviewing all IE licences for all cement works in the country to bring them into conformity with the new BAT for the industry. A proposed determination of the revised licence has been issued by the EPA, with a NO_x ELV of 450mg/Nm^3, and this has been questioned by ICL. That process is not yet completed. When the review process is complete, ICL will be obliged to comply with the new limit.

9.7.70. Inspector intervened to question if the NO_x limit of 450mg/Nm^3 had been referenced in the licence review, and this was confirmed by ICL.

9.7.71. Cian Prendiville – did the EPA ask for dust gauges to be moved out from underneath trees?

9.7.72. Brian Gilmore – EPA agrees the locations, and did not request that they be moved.

9.7.73. Claire Keating (on behalf of Slí na Manach Residents Association), asked whether ICL was benefiting under the EU carbon trading scheme?

9.7.74. Brian Gilmore – ICL currently operates within the EU Trading Emissions Scheme, and has a Greenhouse Gas permit – administered by the EPA. Answer to question is yes.

9.7.75. Claire Keating – asked was ICL receiving payment from the sale of surplus carbon credits under the 'cap-and-trade' scheme of the EU Emissions Trading System, and presented **Document 37** to the Hearing. Could the cement works use natural gas? From 2008-2014, ICL received €95 million in payments for selling carbon credits. Surely some of this money could be offset against the cost of using natural gas?

9.7.76. Brian Gilmore – area of confusion around the operation of the European Emissions Trading Scheme. Industries are licenced. There is a ceiling on carbon emissions – allocated by a national agency to each operation – ESB, cement industry, car producers etc. This figure is coming down over time to persuade industries to be less carbon dependent. Facilities who operate below the limit can trade the allocation freely – throughout Europe. This does not relate to the Irish national target – made up of transport, agriculture, domestic heating sectors etc. Two distinct carbon reduction targets apply – one is national and the other is applied to individual installations. Cement industry is investing in technologies to reduce carbon emissions.

9.7.77. Jarlath Fitzsimons – the Board must ensure that European law is implemented. The EU policy to combat climate change is stated in the EU Emissions Trading System Directive 2003/87/EC – implemented in Ireland, by S. I. 490 of 2012.

9.7.78. Jack O'Sullivan – the Emissions Trading System had been quite successful from an industry standpoint. But it has been severely criticised by those outside the industry, who see themselves as subsidising certain industries for doing what they should be doing in any event.

9.7.79. Kevin Feeney – what happens when a building is demolished? Is mercury locked into cement? Is a substance like asbestos being created which will lead to problems in the future? How safe would be speaker be in his home?

9.7.80. Brian Gilmore – cement will be the same product both before and after the implementation of changes to substitute alternative fuels.

9.7.81. Kevin Feeney – additional volatile metals are going to be put into cement. The product will not be the same. Have any studies been done at cement works which are using alternative fuels?

9.7.82. Brian Gilmore – ICL would not entertain any change in the quality of its product. The same answer applies.

9.7.83. Kevin Feeney – no documentation has been provided that the same situation would obtain both before and after the substitution of alternative fuels. What is the calorific value of some of the alternative fuels to be incinerated? – such as red mud, animal tissue. What is the minimum calorific value needed for something to be classified as an alternative fuel?

9.7.84. Brian Gilmore – the application has categories of alternative fuels and raw materials. Red mud would be an alternative raw material – mineral inputs would be the crucial determinant in this case. In the case of animal tissue – LoW code 02 01 02 (meat & bone meal) it is a fuel which is used in cement works throughout Europe, and is permitted for use at the Lagan cement works in Kinnegad.

9.7.85. Kevin Feeney – observation of Nuala Geoghegan referred to the possibility of red mud and bauxite being brought onto the site. How will these materials be stored?

9.7.86. Seamus Breen – bauxite is used on site. Purchased under ISO 9001 quality management system.

9.7.87. Kevin Feeney – how is it stored?

9.7.88. Seamus Breen – product is stored in a closed shed.

9.7.89. Kevin Feeney – aerial photographs used in the EIS for air dispersion modelling did not include some of the housing estates in the area. EIS compiled in 2014, even though the speaker has lived here since 2007. The OSI updates its maps regularly. ICL should have included recently-completed housing estates. This leads to a concern that the reports may be a copy of earlier reports – drawn up prior to completion of housing estates.

9.7.90. Thomas Burns – EIS was completed in 2015/2016. Figures referred to are for illustrative purposes only. They were not used for assessment purposes in any part of the EIS.

9.7.91. Mary Hamill – in Platin it is intended to burn shredded tyres. Why is Castlemungret proposing to burn whole tyres?

9.7.92. Brian Gilmore – in Platin there is licence to burn shredded tyres, but this has not been implemented. Only SRF is used there. An application is before the Board to burn whole tyres at Platin. In relation to the difference between whole and shredded tyres, the kiln at Castlemungret is better suited to incineration of whole tyres. The supply industry to some extent determines the availability of whole or shredded tyres. There is a large amount of energy needed to shred tyres. Whole tyres would be the preferred option from the suppliers' standpoint.

9.7.93. Mary Hamill – would it be safer to burn the shredded tyres, because metals would be taken out?

9.7.94. Brian Gilmore – would be no difference between shredded or whole tyres at Castlemungret in relation to safety.

9.7.95. Mary Hamill – BAT derogation. ICL is over the limit currently. From March 2013, ICL was given four years to get to lower NO_x ELV. This would result in a date of March 2107. ICL is not where it should be now in relation to NO_x. Why is a new system being looked at, when the current system is not where it should be?

9.7.96. Jarlath Fitzsimons – the Directive has to be implemented in Ireland, and then the administrative implementation put in place. EPA is reviewing all cement factories to ensure that IE licences comply with BAT ELVs. ICL is going through this process at

present. Until the process is completed, the ELVs set out in the existing licence are the relevant ones. The EPA has issued a proposed determination on the licence review. Whatever ELV is stated in the licence will be the one which ICL will have to comply with in relation to NO_x at Castlemungret. There is no question of exceedance at present.

9.7.97. Mary Hamill – when will be review process be completed?

9.7.98. Jarlath Fitzsimons – reasonable question – ICL has no answer to this. The EPA will make the ultimate decision.

9.7.99. Mary Hamill – ICL is looking for time to identify, design, procure, install and commission new systems to comply with the lower NO_x limit – already has had four years to do this.

9.7.100. Jarlath Fitzsimons – licence was last reviewed in 2013. This review process is in the control of the EPA.

9.7.101. Mary Hamill – Code of Conduct of ICL states that the company complies with the letter and spirit of all applicable laws, regulations and policies.

9.7.102. Tim Hourigan – it would be safer to use shredded rather than whole tyres. In relation to spread of disease from insects, shredded tyres would be preferable. So it is not true to say that shredded and whole tyres are the same in relation to incineration in the cement works. It would not be possible to use insecticide on the tyres as it would impact on European sites – and species within them, such as the Marsh fritillary. ICL cannot prove that there will be no impact on habitats.

9.7.103. Jarlath Fitzsimons – this issue was addressed by Dr. Hogan.

9.7.104. Jack O'Sullivan presented **Document 38** by way of closing submission. The purpose of an Hearing is to clarify issues and to remove uncertainties. There remain a large number of uncertainties and gaps in relation to information submitted. Having regard to the Edenderry Power Ltd. case at Clonbulloge (19. RL2032), it is considered that the development involves a change of use which would result in material contravention of the SELAP. Cement manufacture is heavy industry. The submission of how the PA arrived at its decision is unsatisfactory, and does not indicate how the PA considered "enhancing the lives of people who live" in the area. The PA has not indicated how it considered policies to promote tourism, high-tech

clean industry and protection of the environment. The PA did not consider, in detail, the LoW codes. ICL could not provide the Hearing with the values of basic parameters used in modelling of emissions to the atmosphere. The model did not consider PCBs, many of which are considered to be more toxic than PCDD/Fs due their tendency to bio-accumulate. Data submitted only considered the additional amounts of contaminants which would be emitted, and did not take into account cumulative effects of emissions and background levels combined. Any combustion which would lead to an increase in POPs in the atmosphere, would be in breach of Article 5 of the Stockholm Convention. Article 11 requires health monitoring of any population which may be exposed to elevated levels of atmospheric contaminants. There should be public consultation and access to such data – as also required by the Arhus Convention. By incinerating materials, the development would contravene the circular economy concept of the European Waste Hierarchy. The use of the word "sustainability" by ICL is no more than "green-washing" the company's image. Local people have expressed concerns in relation to fire risk, dust emissions, dioxins, impact on children/schools, failures of the HSE and PA to care for people, and impact on creation of sustainable jobs. Elected representatives are clearly not in favour of this development. There has been inadequate public consultation in the entire process, which has a legal foundation in the Arhus Convention. The Board is urged to refuse permission for this development.

9.7.105. Tim Hourigan – it had been a long road, one which had brought the community together to oppose this application. There is fear and anger in the community. There have been previous and ongoing failures by ICL in the operation of this cement works, which should disqualify ICL from making this application. The failings of the air dispersion modelling have been pointed out by Dr. Connett and Dr. Reid. No evidence has been submitted by an entomologist to dispel the fears that disease might be imported through used tyres. The issue of "*de novo* synthesis" in relation to dioxin creation has not been properly addressed by the applicant. ICL does not know how to deal with the community. There could be damage to habitats and species from this development, which issue has not been properly addressed, as required by the Habitats Directive. The Inspector should recommend refusal to the Board.

9.7.106. Tim Hourigan (on behalf of Educate Together Limerick East, Parents Association) – concerns of parents and staff should inform the decision of the Board.

9.7.107. Dermot Flanagan – this application falls to be considered under the older EIA Directive – 16th May 2017 being the relevant date. Article 3(2) is of relevance. Elected representatives make development plans, but the executive makes decisions in relation to planning applications. The PA made its decision, but that decision has now been set aside, and the Board is now looking at the case *de novo*. The PA does not have the facility of holding an Hearing as the Board does. There is also the relationship between the EPA and planning control to consider. The EPA regulates emissions from licenced facilities. Additional information can be put forward at an Hearing. The Inspector has to attach weight to the information presented. The PA identified 45 planning considerations. It considered 12 reports from departments of the Council or prescribed bodies. The PA summarised all objections submitted to it. It examined screening documents for Appropriate Assessment. It looked at the IE process before the EPA. The PA requested 19 items for additional information, and examined all responses from the developer. This resulted in specific conditions being attached. Based on the information before it, the PA made a decision and attached conditions. Additional expert evidence has now been submitted to the Hearing. Condition 1 of the permission imposes obligations on the applicant to carry out development in accordance with information submitted. Page 3-4 of the EIS deals with types of waste. The response to the further information request (items 2, 5 & 6) indicates that waste has to meet certain specifications before it is accepted at the cement works. A considerable amount of technical information has been submitted to the Hearing which was not before the PA for consideration. The function of the Board is to consider the adequacy of the EIS: the case of Kenny v ABP is of relevance.

9.7.108. Inspector apologised for having overlooked the closing submission of Mr. Feeney, which ought to have been included before the closing submission of the PA.

9.7.109. Kevin Feeney – notwithstanding clarifications provided by ICL, concerns have not been answered at the Hearing, and the Board is urged to reject the application. A waste incinerator is not part of the SELAP, as envisioned by the elected representatives. Development is contrary to proper planning, and impacts on the rights of residents to enjoy a safe and assessable environment. ICL is already in

non-compliance with night-time noise, and the new cooling tower will only add to this. There has been a want of candour by ICL and a lack of due diligence by its experts, especially with regard to dioxin modelling. The Board is urged to refuse permission, in order to protect health, tourism, environment and agriculture. Elected representatives are in support of this appeal.

9.7.110. Jarlath Fitzsimons – this is not a new development, unlike Indaver in Ringaskiddy. ICL has been on this site for 79 years. This application is for a substitution of alternative fuels. There is no change of use proposed; less still a material change of use. The development has not been incorrectly described. This cement kiln is not a waste incinerator or waste incineration plant. The Board must have regard to whether the EIS is adequate. The development has been adequately described, and its relevant likely, potential impacts on the environment set out. It does not deal with hypothetical or theoretical scenarios. There is sufficient information before the Board to enable it to carry out EIA. Some of the submissions are seeking a 'Council of Perfection'. This is not the test which must be applied. The Board can invoke section 131 of the Act, and seek additional information if it considers this to be necessary, and it would be possible to circulate this to the parties to the appeal. An AA Screening Report was submitted with the application. There will be no adverse impacts on the integrity of any European sites. The PA considered that there would be no impacts on European sites. The Board must now look at potential impacts in the light of the information provided in written and oral form. The Board can, if it deems it necessary, required the applicant to provide an NIS – under section 177T(5) of the Act; and any response could be circulated to the parties. With regard to the 1st Party appeal, there has been some clumsiness in the wording of conditions 8 & 9. ICL has no difficulty with a sixteen-condition permission if this is what the Board requires. The existing development rights of ICL for delivery of fuel to this site have to be safeguarded. Overly onerous conditions have been placed on peak hour deliveries. These issues need to be addressed by the Board. ICL would have no difficulty with the Board amending the wording of the two conditions to provide for deliveries of alternative fuels outside the Monday-Friday peak hours of 08.00-09.30 and 17.00-18.30. No objection to requirement for a delivery management plan to be submitted on an annual basis. There has been extensive debate between experts in relation to failure to properly model for

PCDD/Fs. The EPA provides reports on air quality in the 'State of the Environment' in 2008 and 2015. Even when one measures PCBs, the 2015 Report, in addition to PCDDF/s, that rate of deposition is very far below the applicable European standard – Figure 11.2 on page 36 of 2015 Report. Kinnegad cement works value is indicated at B18 on page 68 – the value being 0.34pg/g of milk fat for PCBs and dioxins, where relevant level is 5.5pg/g milk fat. The Board is asked to consider whether this development constitutes proper planning and sustainable development. Alternative fuels use will result in the reduction of CO_2 emissions of up to 40,000 tonnes per annum. ICL is using alternative fuels in substitution of fossil fuels. At Platin, ICL has permission and waste licence review for 120,000 tonnes per annum of alternative fuels. In the event that the Board grants the application, there is the capacity to use this over time as the situation develops. Natural gas is a fossil fuel, and its use would not be such a sustainable development as that proposed. Castlemungret is the only cement works in the country which does not have permission to burn alternative fuels. Whilst the Board is not bound by the previous 2008 permission to burn alternative fuels, it should be considered. The Inspector is urged to recommend to the Board that the proposed development is in fact proper planning and sustainable development.

9.7.111. The Inspector thanked all those attending, and the Hearing closed at 15.23 hours.

10.0 General Assessment

10.1. General Comment & Classification of Alternative Fuels/Raw Materials

10.1.1. The cement works operates on a twenty-four-hour basis, seven days a week, for approximately eleven months of the year (330 days). Most of the raw materials for cement production comes from the ICL adjoining limestone quarry and other nearby shale quarries. The cement works is stated to have been at this location since 1938, and has a potential maximum output of 1.3 million tonnes of cement per annum. There is just one rotary cement kiln (no. 6) on the site. The five older, wet-process kilns were decommissioned in 1983, when the new kiln was installed. At maximum output, the cement works would require an annual input of 131,000 tonnes of petroleum coke. It is proposed to introduce 90,000 tonnes of alternative fuels/raw

materials, which would reduce the annual requirement of petroleum coke to 75,000 tonnes. At maximum cement output, 90,000 tonnes of alternative fuels/raw materials would represent 50% fossil fuels equivalent. The exact breakdown of the ratio of fuels to raw materials, within the 90,000 tonnes, has not been indicated. The fuels proposed have a lower calorific value than the petroleum coke currently used. These materials will be used in appropriate proportion, to achieve the required calorific output, and usage will depend on availability and the market for the particular alternative fuels/raw materials. Alternative fuels will not be used during start-up or shut-down of the kiln – as required by condition of the IE licence. All fuels/raw materials are fed into the kiln, and there is no residue/bottom ash. Fly ash is re-incorporated into the kiln and the cement product. The EIS notes that coal has been used in the past, and could be used again in the future. There will be no increase in output from this cement works, arising from the proposed substitution of alternative fuels/raw materials. The EIS notes that for the past forty years, cement works in Europe have been substituting alternative fuels for fossil fuels, with some cement works in Germany now operating on 100% replacement of fossil fuels. Petroleum coke is imported through the Port of Foynes, Co. Limerick. The ICL cement works at Platin currently burns alternative fuels in Kiln 3 – with 50% replacement by alternative fuels achieved in 2014 – having commenced in 2011. Up to 120,000 tonnes of Solid Recovered Fuel (SRF) is used there per annum. Three of the four cement works in Ireland have permission to use, or else do use, alternative fuels – Castlemungret being the only one which does not have permission. Use of alternative fuels/raw materials was previously permitted at Castlemungret in 2009, although for a narrower range of alternatives: the permission was never taken up.

10.1.2. Alternative raw materials include, *inter alia*, water treatment plant alum sludge, soils and stones which contain necessary mineral content – replacing an element of existing raw materials used in cement manufacturing. A storage building for raw materials will be constructed at the western end of the cement works. New fuels delivered will be in suitable covered vehicles/tankers, and delivered to sealed storage facilities to be constructed on the site, and will be ready-to-use – requiring no further on-site processing. Condition 12 of the Notification of decision to grant planning permission deals with this issue. It is likely that whole tyres will be the first alternative fuel introduced at the cement works. The introduction of alternative

fuels/raw materials will be licensed by the EPA, and testing and appropriate measures will have to be put in place to deal with each type.

10.1.3. The alternative fuels can be divided into five broad categories-

- Whole tyres.
- Fine solids (chipped timber, shredded plastic).
- Free-flowing solids (sewage sludge, SRF pellets, bio-solids).
- Pumpable fuels (secondary liquid fuels, waste oils, solvents, distillation residues, paint sludges).
- Coarse solids (shredded wood, rubber, dry filter cakes from water treatment plants).

The alternative raw materials comprise a sixth category – for the purposes of waste categorisation. Within these six categories, some waste may be categorised as 'hazardous' – such as solvents, waste oils, soil contaminated by hydrocarbons, cloths/filters/sawdust containing solvent or paint residues, and some packaging. Materials may contain toxic or corrosive components.

10.1.4. The additional information submission of 2nd November 2016, included a list drawn from the European Waste Catalogue (EWC) [which has since been re-named the List of Wastes (LoW) code]. At the Hearing it was argued that the types of waste had nowhere been specified, and that the Planning Authority was not fully aware of the types of waste which it had permitted to be incinerated in Kiln 6. The planning authority argued that the waste codes submitted were acceptable to the SRWMO, which was advising the planning authority – submitted by way of report of 16th December 2016. This report was submitted as Document 31 to the Hearing (at the request of the Inspector) as it did not appear to be on the Board's file. As it happened, only the first page of this report was submitted to the Hearing, and a full copy (two pages) was subsequently requested of the planning authority, and submitted to the Board. This report of the SRWMO refers to the list of over one hundred LoW codes indicated by the applicant. ICL pointed out at the Hearing that Lagan Cement Ltd. had permission to incinerate a similar range of LoW codes in its cement works outside Kinnegad. In the interest of clarity, and for the information of the Board, the list of 112 codes [not 115 as stated in submissions to the Board]

supplied in the additional information submission (taken from the EPA document "Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-hazardous" – and indicated as being valid from 1st June 2015) is set out below. Those codes with an asterisk (*) are indicated as being hazardous. I note that not all of the asterisked codes submitted by ICL to LCCC correspond to the asterisked codes in the EPA document – even though the LoW codes are indicated as being taken from that EPA document. The list which I set out below contains the asterisked codes (taken from the EPA document). Some waste codes can be either hazardous or non-hazardous, depending on concentration or chemical composition. As can be seen from the list, many of the same types of waste are listed under separate LoW headings and codes – wood, plastic, paper, packaging, washing liquids, mother liquors, solvents, etc. Where the acronym 'MFSU' is used in waste codes, it stands for 'Manufacture, Formulation, Supply and Use'.

10.1.5. List of the 112 referenced LoW codes-

01 01	**Wastes from mineral excavation**
01 01 01	wastes from mineral metalliferous excavation
01 01 02	wastes from mineral non-metalliferous excavation
01 03	**Wastes from physical and chemical processing of metalliferous minerals**
01 03 06	tailings other than those mentioned in 01 03 04 and 01 03 05
01 03 08	dusty and powdery wastes
01 03 09	red mud from alumina production other than the wastes mentioned in 01 03 10
01 05	**Drilling muds and other drilling wastes**
01 05 05*	oil-containing drilling muds and wastes
01 05 06*	drilling muds and other drilling wastes containing hazardous substances
02 01	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 02	animal-tissue waste

02 01 03	plant-tissue waste
02 01 04	waste plastic (except packaging)
02 01 06	animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site
02 01 07	wastes from forestry
02 01 08*	agrochemical waste containing hazardous substances
02 01 09	agrochemical waste other than those mentioned in 02 01 08
02 02	**Wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 03	materials unsuitable for consumption or processing
02 03	**Wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 07	**Wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 02	waste from spirits distillation
02 07 04	materials unsuitable for consumption or processing
03 01	**Wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 01 04*	sawdust, shavings, cuttings, wood, particle board and veneer containing hazardous substances
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other those mentioned in 03 01 04

03 03	**Wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 09	lime mud waste
05 01	**Wastes from petroleum refining**
05 01 07*	acid tars
05 06	**Wastes from the pyrolytic treatment of coal**
05 06 01*	acid tars
06 02	**Wastes from the MFSU of bases**
06 02 03*	ammonium hydroxide
07 01	**Wastes from the MFSU of basic organic chemicals**
07 01 01*	aqueous washing liquids and mother liquors
07 01 03*	organic halogenated solvents, washing liquids and mother liquors
17 01 04*	other organic solvents, washing liquids and mother liquors
07 02	**Wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 01*	aqueous washing liquids and mother liquors
07 02 03*	organic halogenated solvents, washing liquids and mother liquors
07 02 04*	other organic solvents, washing liquids and mother liquors
07 02 13	waste plastic
07 03	**Waste from the MFSU of organic dyes and pigments (except 06 11)**
07 03 01*	aqueous washing liquids and mother liquors
07 03 03*	organic halogenated solvents, washing liquids and mother liquors
07 03 04*	other organic solvents, washing liquids and mother liquors

07 04	**Wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides**
07 04 01*	aqueous washing liquids and mother liquors
07 04 03*	organic halogenated solvents, washing liquids and mother liquors
07 04 04*	other organic solvents, washing liquids and mother liquors
07 05	**Wastes from the MFSU of pharmaceuticals**
07 05 01*	aqueous washing liquids and mother liquors
07 05 03*	organic halogenated solvents, washing liquids and mother liquors
07 05 04*	other organic solvents, washing liquids and mother liquors
07 06	**Wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
07 06 01*	aqueous washing liquids and mother liquors
07 06 03*	organic halogenated solvents, washing liquids and mother liquors
07 06 04*	other organic solvents, washing liquids and mother liquors
07 06 99	wastes not otherwise specified
07 07	**Wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 01*	aqueous washing liquids and mother liquors
07 07 03*	organic halogenated solvents, washing liquids and mother liquors
07 07 04*	other organic solvents, washing liquids and mother liquors
08 01	**Wastes from MFSU and removal of paint and varnish**
08 01 11*	waste paint and varnish containing organic solvents or other hazardous substances
08 01 12	waste paint and varnish other than those mentioned in 08 01 11
08 04	**Wastes from MFSU of adhesives and sealants (including waterproofing products)**

08 04 09*	waste adhesives and sealants containing organic solvents or other hazardous materials
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09
10 01	**Wastes from power stations and other combustion plants (except 19)**
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 17	fly ash from co-incineration other than those mentioned in 10 01 16
10 03	**Wastes from aluminium thermal metallurgy**
10 03 05	waste alumina
12 01	**Wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 05	plastic shavings and turnings
13 07	**Wastes of liquid fuels**
13 07 01*	fuel oil and diesel
13 07 03*	other fuels (including mixtures)
15 01	**Packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 10*	packaging containing residues of or contaminated by hazardous substances
15 02	**Absorbents, filter materials, wiping cloths and protective clothing**

15 02 02*	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16 01	**End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 03	end-of-life tyres
16 11	**Waste linings and refractories**
16 11 01*	carbon-based linings and refractories from metallurgical processes containing hazardous substances
16 11 02	carbon-based linings and refractories from metallurgical processes other than those mentioned in 16 11 01
17 02	**Wood, glass and plastic**
17 02 01	wood
17 02 03	plastic
17 05	**Soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 03*	soil and stones containing hazardous substances
17 05 05*	dredging spoil containing hazardous substances
17 08	**Gypsum-based construction material**
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
19 01	**Waste from incineration or pyrolysis of waste**
19 01 12	bottom ash and slag other than those mentioned in 19 01 11
19 01 17*	pyrolysis wastes containing hazardous substances
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17

19 02	**Wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 07*	oil and concentrates from separation
19 02 10	combustible wastes other than those mentioned in 10 02 08 and 19 02 09
19 03	**Stabilised/solidified wastes**
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 07	**Landfill leachate**
19 07 02*	landfill leachate containing hazardous substances
19 07 03	landfill leachate other than those mentioned in 19 07 02
19 08	**Wastes from waste treatment plants not otherwise specified**
19 08 05	sludges from treatment of urban waste water
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in 19 08 13
19 09	**Wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 02	sludges from water clarification
19 10	**Wastes from shredding of metal-containing wastes**
19 10 03*	fluff-light fraction and dust containing hazardous substances
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03
19 11	**Wastes from oil regeneration**
19 11 02*	acid tars
19 12	**Wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard

19 12 04	plastic and rubber
19 12 06*	wood containing hazardous substances
19 12 07	wood other than mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing hazardous substances
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11.
19 13	**Wastes from soil and groundwater remediation**
19 13 01*	solid wastes from soil remediation containing hazardous substances
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 03*	sludges from soil remediation containing hazardous wastes
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20 01	**Separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 13*	solvents
20 01 25	edible oil and fat
20 01 26*	oil and fat other than those mentioned in 20 01 25
20 01 37*	wood containing hazardous substances
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics

10.1.6. It must be taken that, as ICL has included these 112 LoW codes, there is a likelihood of their being incinerated in Kiln 6 at some stage in the future – depending on licensing from the EPA and availability on the market. There is no breakdown given of the amount of each or any waste type to be used – other than a total of up to 90,000 tonnes per annum. It would seem reasonable to conclude that the proposed

storage and handling structures outlined in drawings submitted could facilitate the incineration of any of the 112 codes. I note that of the 112 codes listed, some 49 are indicated as being hazardous. However, such a number is meaningless without information on just how hazardous a waste substance may be, and the fraction which any such LoW code would form of the 90,000 tonnes per annum upper limit. It could be that only 20,000 tonnes of alternative fuels/raw materials per annum might be incinerated, but that it might all be hazardous material or not, in any number of possible combinations. The 1st Party response to the 3rd Party grounds of appeal clearly stated- "The percentage of hazardous alternative fuels/raw materials is likely to be small". Just how small this might be, is not indicated.

10.1.7. I would be concerned that the business of ICL is the production of cement, and not the storage, handling and incineration of hazardous waste. The incineration of hazardous waste, if it is to be permitted, would be better suited to a facility which was specifically designed, operated and monitored for the purpose, and not one which performs the function, as an activity subsidiary to the production of cement. There does not appear to be any facility for testing loads of waste, or for quarantining loads of unacceptable waste, which would be the norm at landfill and major waste treatment facilities handling hazardous wastes. The 3rd Party appellants contend that allowing incineration of hazardous agrochemical waste and halogenated organic solvents is the equivalent of moving the cement works in the direction of a toxic waste co-incineration facility, and I would be inclined to agree with this contention. It has not been demonstrated just what essential ingredients are contained within many of the LoW codes, which make them peculiarly appropriate for feeding into cement kilns: this is particularly the case with wastes which do not appear to have any calorific value whatever, such as fly ash, dredging spoil, bottom ash & slag, and landfill leachate. For these reasons, I would argue that any grant of planning permission from the Board should omit LoW codes which are asterisked as 'hazardous', from incineration in Kiln 6. This should not have any significant impact on the viability of the proposed development – given that the percentage of hazardous material to be incinerated is likely to be small – as indicated by ICL. The omission of hazardous waste from the LoW codes to be incinerated within this cement works would give some level of comfort to those opposed to the development, who have argued strenuously that the applicant may not be fit to

manage and control the co-incineration of waste, based on a history and alleged history of dust deposition from the cement works on surrounding neighbourhoods, in the recent past.

10.1.8. The phasing of introduction of alternative fuels is stated to be short-term (0-4) years; medium-term (3-7 years); and long-term (6-10 years). In the short-term it is proposed to introduce tyres, pumpable fluids and fine solids. Tyres are indicated as the likely first alternative fuel to be introduced. In the medium-term it is proposed to introduce alternative raw materials and free-flowing solids. In the long-term, development will include a by-pass filter and cooling tower to improve gas flows and material return to the process, fine solid feed to the back end of Kiln 6, and introduction of coarse solids. I have elsewhere in this report argued that a five-year permission would be more appropriate, something which would, clearly, have an impact on the indicative phasing proposals of ICL.

10.1.9. The introduction of alternative fuels/raw materials will, it is argued by ICL, improve competitiveness, secure fuel supplies, reduce reliance on fossil fuels (most of which are imported) with attendant uncertainties in relation to external markets, currency fluctuations and instability in certain parts of the world. The cement kiln has been fired by coal in the past, and it would be possible to return to coal-firing in the future. Appellants argue that the rising price of petroleum coke is the reason for the desire to substitute alternative fuels. Alternative fuels/raw materials are stated to be available within the country, and some are currently exported. The market for waste is an international one, so it would be possible to import waste for incineration in Kiln 6. The movement of waste is an EU-wide consideration. The 3rd Party appellants argue that ICL will be paid for incinerating waste – just as waste collection companies have to pay to dispose of waste at incinerators or landfill elsewhere in the country. I would not consider this payment of gate fees to be a relevant planning consideration: ICL is a company which seeks to make a profit from its activities.

10.2. **Development Description**

10.2.1. It is the contention of 3rd Party appellants that the development has not been correctly described in public notices and the application documentation submitted to LCCC – to the extent that the development is a change of use, rather than an application to substitute alternative fuels/raw materials.

10.2.2. Reference was made to a referral case to the Board (**RL 19.RL2032**), wherein it was decided that the introduction of biomass and meat & bone meal to an existing peat-fired electricity generation station at Clonbulloge, Co. Offaly, would comprise a change of use. An application was subsequently lodged with Offaly County Council to materially change the use of a peat-fired electricity station to a power station and waste recovery facility – to allow for the incineration of 140,000 tonnes of biomass and 60,000 tonnes of meat & bone meal per annum. The decision of the Council was appealed to the Board (**PL 19.211173**). Permission was subsequently granted by the Board. Whilst the decision of the Board is not of any significance for this planning appeal, the description of the development may be. I would note that the two facilities (peat-fired electricity generating station and cement works) are not exactly analogous. The former is creating electricity, whilst the latter is producing cement. The former produces bottom ash which must be disposed of, whilst the latter incorporates all incinerated material into the cement product. For these reasons, I would not see that the application at Clonbulloge has applicability to the appeal currently before the Board.

10.2.3. I do not see that the description of the development by ICL can be seen to be in any way misleading. Development means the carrying out of any works – something clearly indicated in the current proposal. Change of use is also considered to be development: and so for the purposes of section 3 of the Act, I would consider that permission has been sought for development, whether that be for the construction of plant or for a change of use. The development is adequately described, and the volume of objections received by LCCC, and the level of appeals submitted to the Board, is indicative of the wide awareness of this application in the surrounding community. The arguments of the 3rd Party appellants may be more particularly relevant under the consideration of the zoning provisions of the SELAP, which is dealt with under separate heading of this Report.

10.2.4. I note that the ICL SID planning application to the Board, to expand the range of alternative fuels/raw materials and increase the annual tonnage incinerated at the Platin cement works (**PA0050**), does not make any reference to change of use.

10.3. **Screening for Strategic Infrastructure Development**

10.3.1. Strategic Infrastructure Development (SID) applications are made directly to the Board. The Seventh Schedule of the Planning and Development Act 2000 (as amended), sets down the types of development for consideration, and sets out the appropriate thresholds. There is reference to neither cement works nor cement production in the Schedule. Paragraph 3 refers to 'Environmental Infrastructure', which includes installations for the disposal, treatment or recovery of waste, and states as follows-

> 3. – Development comprising or for the purposes of any of the following:
>
> - A waste disposal installation for-
>
> (a) the incineration, or
>
> (b) the chemical treatment (within the meaning of Annex IIA to Council Directive 75/442/EEC[1] under heading D9), or
>
> (c) the landfill,
>
> of hazardous waste to which Council Directive 91/689/EEC[2] applies (other than for an industrial waste disposal installation integrated into a larger industrial facility).
>
> - A waste disposal installation for-
>
> (a) the incineration, or
>
> (b) the chemical treatment (within the meaning of Annex IIA to Council Directive 75/442/EEC under heading D9)
>
> of non-hazardous waste with a capacity for an annual intake greater than 100,000 tonnes.
>
> - An installation for the disposal, treatment or recovery of waste with a capacity for an annual intake greater than 100,000 tonnes.

10.3.2. ICL argues that the cement works is just that (a cement works), not a waste disposal installation, and that the first and second categories do not, therefore, apply. However, it could be argued that, with the introduction of alternative fuels which are categorised as waste, the cement kiln would become (in part, at least) a waste disposal installation – admittedly one which produced no bottom ash and which

incorporated all incinerated matter into the cement product (including fly ash). There is no threshold amount for hazardous waste incineration, whereas for non-hazardous waste incineration, there is a threshold of 100,000 tonnes per annum. If hazardous waste were to be excluded from any permission issued by the Board, by way of condition, the application could be deemed to come under the second category of incineration of non-hazardous waste. However, the threshold of 100,000 tonnes per annum would not be breached. I note that the first two categories refer to "waste disposal installations" whereas the third category refers to "an installation". In the case of the third category, ICL argues that the requirements do not apply, as the development is not for the disposal, treatment or recovery of waste. It could be argued that the proposed development is for the disposal and/or recovery of waste (energy recovery, or the use of alternative raw materials as inputs into the manufacture of cement). As the proposed intake is 90,000 tonnes per annum, less than the threshold of 100,000 tonnes, this third category would not seem to apply.

10.3.3. Therefore, it is necessary to determine if the incineration of any hazardous waste whatever, would bring the proposed development within the SID classes. The inclusion of "incineration" under the heading "waste disposal installation" would appear to indicate that incineration can be disposal rather than recovery. This would seem to be the case with some of the LoW codes included by ICL which appear to have little or no calorific value. However, ICL argues that "co-processing" within the cement kiln ensures that there is no residual waste or ash, and that incineration, in this instance, must be considered to be recovery (both thermal and inorganic raw material value – such as calcium carbonate, alumina or silica) rather than disposal. The Human Health Risk Assessment submitted refers to the concept of "co-incineration" within cement kilns, whilst the 1st Party response to the 3rd Party appeals, refers at Point 12, to "co-combustion". On balance, I would consider that the proposed development does not come within the SID classes, and the exclusion of incineration of hazardous waste by way of condition attached to any grant of planning permission, would categorically remove any contention that the development might constitute SID.

10.3.4. The exclusion of hazardous waste from incineration could not be looked upon as a means of controlling emissions from this cement works (which falls to be licensed by the EPA); rather as a means to facilitating the incineration of waste under the normal

planning appeals system, through ensuring that it does not come within the SID classification thresholds.

10.4. **Buildings and Structures**

The proposed new buildings and structures will be located amongst and beside the existing cement works. The new plant will be lower than that which exists at present – the existing flue stack and pre-heater tower for Kiln 6 extending to 87.5m, where the tallest element of the proposed development (cooling tower) extends to 56m. Buildings will be constructed of cast concrete, metal frames and profiled metal cladding (Goosewing grey). Conveyor belts are stated to be similar to those already on site. Storage tanks and silos will be similar to those already on the site. The metal-clad parking bays to be demolished are of no significance. It is the contention of 3rd Party appellants that the structures are remarkably similar to those indicated in application ref. 16/153, for introduction of 210,000 tonnes per annum of alternative fuels/raw materials at this cement works (which application was subsequently withdrawn). Whilst this cannot be confirmed, any permission granted would be for 90,000 tonnes per annum, and any proposal to increase this amount would require a separate planning application to LCCC or SID application to the Board. I would be satisfied that the proposed new structures/plant will not have any significant impact on the visual amenities of the area, and would be appropriate (subject to licensing requirements of the EPA), for the purposes indicated in the application.

10.5. **Planning Permission Period**

A ten-year planning permission has been sought by ICL. Condition no. 3 of the Notification of decision to grant planning permission refers to a ten-year period. ICL argues that, as the alternative fuels/raw materials will have to be introduced on a phased basis, arising from the different elements in the feed lines and the technologies required, and in consideration of the necessary consultation with the EPA, a ten-year permission will be required. I note that the previous permission to substitute alternative fuels at this cement works was a five-year permission (since lapsed) – albeit for a considerably lesser number of alternative type fuels/raw materials, but for a similar annual tonnage. The 3rd Party appellants argue that the proposed development is a subversion of the Waste Hierarchy pyramid – where

recycling should be considered more favourably than thermal recovery. I would contend that ten years is too great a period, particularly when changes in technology and waste management must be factored into consideration. The Southern Region Waste Management Plan remains in effect until 2021. A five-year permission would be more appropriate, to take account of any changes which might be made in EU, National or Regional waste policy, in relation to- management of waste, incineration of materials within cement kilns, and/or uses for recycled materials. It would be open to ICL to seek an extension of any five-year planning permission if substantial works had been carried out, and at that stage, the PA could have regard to existing Development Plan, Regional Waste Plan, EU, National or Regional policies in deciding whether or not to grant any such application to extend the permission.

10.6. **Industrial Emissions Directive Licensing**

10.6.1. This cement works was licensed by the Environmental Protection Agency (EPA) – under IPPC licence no. P0029-03 – issued on 6th February 2013. This IPPC licence was changed to an Industrial Emissions (IE) licence in December 2013, to take account of the requirements of the Industrial Emissions Directive – transposed into Irish law by the EU (Industrial Emissions) Regulations 2013 – S.I. 137 & 138 of 2013. These Regulations principally amend the Environmental Protection Agency Act 1992 (as amended) and the Waste Management Act 1996 (as amended). Licence P0029-03 is currently under review by the EPA (Licence application no. P0029-05). A Proposed Determination was issued by the EPA on 3rd July 2017. ICL has submitted an objection to the Proposed Determination on a number of points. There is no decision to date on this Proposed Determination.

10.6.2. The application was referred to the EPA by LCCC. The EPA responded that a licence review application was received on 9th May 2016, accompanied by an EIS. This review would appear to be that numbered P0029-06. It further indicates that it is not possible to issue a Proposed Determination on a licence application which addresses the development [now the subject of this current appeal], until a planning decision had been made. In other words, any application to vary the IE licence in force at the time (to take account of the proposed substitution of alternative fuels/raw materials) could only be made after planning permission had been granted.

10.6.3. The Board referred the appeal to the EPA for comment. The response of the EPA was similar to the response made to LCCC.

10.6.4. I have elsewhere in this Report commented on emissions such as wastewater, flue gasses, dust and noise. LCCC did not attach any conditions relating to emissions – as legislated for by section 34(2)(c) of the Planning and Development Act 2000 (as amended) which states- "Subject to section 99F of the Environmental Protection Agency Act 1992, and section 54 (as amended by section 257 of this Act) of the Waste Management Act, 1996, where an application under this section relates to a development which comprises or is for the purpose of an activity for which an integrated pollution control licence or a waste licence is required, a planning authority shall take into consideration that the control of emissions arising from the activity is a function of the Environmental Protection Agency". As emissions will be covered by IE licensing, it would not be appropriate to attach any conditions relating to emissions to any grant of planning permission which might issue from the Board.

10.7. **Fire Safety & Emergencies**

10.7.1. Fire safety is regulated under a separate code. The application was referred to the Chief Fire Officer of LCCC for comment. Fire Safety Certificates are required for the proposed buildings/structures. A series of firewater retention tanks are proposed beside various elements of the proposed development – particularly the tyre storage area. Tyres will be stored in open bunkers – up to 3m in height. Additional information, submitted on 2nd November 2016, provided for a new fire wall within the tyre storage area – to effectively divide it in two. The storage area has a capacity for up to 9,000m^3 of tyres – supply for 12-14 days. An Emergency Procedures Plan was included by way of additional information submission of 2nd November 2016, to deal with fires, explosions, major industrial accident and environmental emergencies. The 3rd Party appellants argue that fire, particularly at the tyre storage area, would have serious implications for the health of those residing in the area. Tyres will be stored in the open – and subjected to Irish weather. There is no reason why tyres stored in the proposed location should be any more likely to catch fire than tyres stored elsewhere in the country. The design of the tyre-handling facility will be subject to the requirements of the Chief Fire Officer of LCCC, under a separate code to the planning code. Subject to appropriate management of the tyre storage area, I

would be satisfied, that the proposed development, of itself, would not result in any increased likelihood of fire hazard – particularly as the design of storage and handling facilities will be subject to the requirements of the Chief Fire Officer.

10.7.2. The 1st Party response to the grounds of appeal indicates that the cement works is not an establishment for the purposes of the EC Control of Major Accident Hazards Directive – 2012/18/EU of the European Parliament and of the Council of 4th July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC (the Seveso II Directive). This is because the threshold quantities of dangerous substances are not exceeded. The maximum quantities of materials are stated to be approximately half the threshold quantity for classification of an establishment as a "lower tier" site, and approximately 5% of the threshold quantity for classification of an establishment as a "top tier" site.

10.8. **Construction Hours**

Condition 14 of the Notification of decision to grant planning permission relates to hours of construction. ICL has outlined that the construction phase will be spread out over an approximately ten-year period. In the context of a cement works of this size, which is operating on a 24-hour basis, where the construction is to take place within and amongst existing plant and buildings, where the separation distance from the nearest noise-sensitive receptors is significant, and where noise emissions are already licenced by the EPA, I would consider such a condition to be superfluous, and it should be omitted from any grant of planning permission from the Board.

10.9. **Development Plan**

10.9.1. The relevant document is the SELAP. It is the contention of the 3rd Party appellants that LCCC did not give sufficient weight to all aspects of the Plan when it decided to grant planning permission. The PA stated that it took a balanced approach when deciding to grant permission, and that it had regard to all relevant sections of the SELAP. Section 2.2 states- "Limerick County Council will adopt a positive and sustainable approach to balanced development, thereby enhancing the lives of people who live in, work in and visit the Southern Environs, whilst protecting the

natural and built environment". Policy ED1 states- "It is the policy of the Council to encourage and facilitate optimal levels of sustainable economic development promoting the growth of employment opportunities within a high quality physical environment". Section 4.2 states- "Other major industrial activity in the Southern Environs includes the Cement Factory which is typically representative of heavy industry and has been in operation in Castlemungret since 1938. The factory is long established in the area, and it is important to continue to ensure and monitor the balance between the activities on the site and the impact on the surrounding environment". Section 4.3.4.2 states- "'Industry' Zoned Land: This zoning accommodates existing and proposed heavy industrial use north and south of the Dock Road. The purpose of this land use zoning is to facilitate opportunities for industrial uses, activity and processes which may give rise to land use conflict if located within other zonings". It was contended by objectors that the heavy industry was not specifically referred to in the zoning, but sections 4.2 and 4.3 clearly do refer to "heavy" industry. The further contention that an industry like this is no longer appropriate in the context of a city expanding westwards, is not a consideration for individual planning applications, but rather, a more strategic question for forward planning and development plans.

10.9.2. Objective ED 1 states that extensions to existing industrial development will be considered, where it can be clearly demonstrated that the proposal: *inter alia*, would have no significant detrimental effect on the surrounding areas or on the amenity of adjacent and nearby occupiers. Objective ZD 6 states- "It is the objective of the Council through appropriate zoning to facilitate the development and expansion of existing and new industrial uses within the Southern Environs". Section 9.2.3.7 states- "Industrial land use designation is intended to facilitate general industry/transport/logistics type uses, thereby facilitating important employment opportunities within the area". No claim has been made that the proposed development will result in increased employment at the cement works. Neither has any indication been given that employment will be lost if the development proceeds.

10.9.3. It is clear from the above, that the existence of the cement works is acknowledged, and that expansion of existing industrial facilities is to be favourably looked upon, subject to appropriate safeguards for the amenities of adjoining residents. No evidence has been submitted to uphold the claim that the proposed development

would deter developers from developing adjoining lands. There is similarly no evidence that the proposed development will impact on construction of a hospital on the Dock Road (commenced but not completed). The cement works predates a considerable amount of the development in this area. There are lands zoned for residential and industrial use in the area. Elected representatives have adopted a Plan which contains residentially zoned lands considerably closer to the cement works than the Ard Aulin and Slí na Manach residential estates to the east and southeast. The N69 separates the cement works from the expanding neighbourhoods of Raheen. At the Hearing it was suggested that Councillors might be considering variations to the SELAP which would prohibit the incineration of waste. At present, the Zoning Matrix at Appendix 1 of the Plan makes no reference to waste incineration or co-incineration in cement kilns. This Inspector is not aware that any such proposals have been put forward or adopted by the elected representatives of LCCC. I would be satisfied that permission could be granted for this development, subject to attaching appropriate conditions in relation to exclusion of hazardous waste from the LoW codes which might be incinerated in Kiln 6.

10.9.4. It is contended by objectors that the proposed development involves a change of use which would result in the creation of a waste incinerator – which is not provided for in the SELAP. The main purpose of the activity at Castlemungret is the production of cement, not the production of energy or the thermal treatment of waste. The facility is licensed under the Environmental Protection Agency Acts and not the Waste Management Acts – the latter covering waste incinerators. I do not see that the substitution of alternative fuels/raw materials for petroleum coke would result in a change of use. The principal activity at the cement works is the production of cement. The introduction of alternative fuels/raw materials (all of which are considered to be waste products) will not alter this situation.

10.9.5. The Limerick 2030 Plan is an overarching strategy for the revitalisation of metropolitan Limerick; and set up by LCCC. No evidence has been submitted to support the claim that the proposed development would undermine the aims of this strategy, or that the development would deter foreign direct investment to Limerick. There are a number of cement kilns and incinerators burning waste in the country.

10.9.6. The portion of Bunlicky/Clayfield Pond on the western side of the N18 (the site side) is indicated on Plan maps as semi-natural open space. The proposed development will not result in any alterations at the pond.

10.9.7. Having regard to the nature of the development proposed, I would be satisfied that the proposal is in accordance with the current Development Plan for the area. The elements of the proposed development will not be significantly different or taller than existing cement works structures. Emissions will be controlled by way of IE licence.

10.10. **Compliance with Southern Region Waste Management Plan**

10.10.1. The Plan is one of three which covers the entire country. Energy recovery is one of the least-favoured options, but is, nonetheless, above disposal in the waste hierarchy. The Seventh Environmental Action Programme states that by 2020, European Union and Member States are to ensure that, *inter alia*, energy recovery is to be limited to non-recyclable materials. On page 34 of the Plan, it is stated- "The local authorities of the region support self-sufficiency and the development of indigenous infrastructure for the thermal recovery of residual municipal wastes in response to legislative and policy requirements. The preference is to support the development of competitive, environmentally and energy efficient thermal recovery facilities in Ireland, including the replacement of fossil fuels by co-combustion in industrial furnaces or cement kilns, and ultimately to minimise the exporting of residual municipal waste resources over the plan period". The strategic approach over the plan will be to deliver balanced and sustainable infrastructure for the treatment of wastes in line with the strategic vision and waste hierarchy, where in the past the extent of available treatment capacity within the country has been unknown. The principles of self-sufficiency and proximity underpin the Plan. For residual, non-hazardous waste the aim of government policy is to develop indigenous recovery infrastructure to replace landfill, and for the State to become self-sufficient, where possible. Section 5.3.3 of the Plan contains an objective that- "The region will encourage the transition from a waste management economy to a green circular economy to enhance employment and increase the value recovery and recirculation of resources. The proposed development is in accordance with the above policies – particularly where specific reference is made to "co-combustion" in cement kilns.

10.10.2. Section 11.5 of the Plan deals with waste tyres – indicating that they are not classified as hazardous waste. The Central Statistics Office indicated that in 2012, approximately 3 million tyres were imported into the country. The National Waste Report 2012, indicated that 24,165 tonnes of waste tyres were managed in the State in 2012. Approximately 40% of the waste tyres in Ireland were exported in 2012 – with the majority used as fuel. The main treatment activity in the State in 2012 was crumbing of waste tyres for conversion into saleable products (41%). Dublin City Council is designated as the national competent authority for the export, import and transit of waste shipments under the Waste Management (Shipment of Waste) Regulations 2007. This office will deal with any imported waste and the necessary health arrangements which may attach to any shipments. The Economic & Social Research Institute states that "projecting the destination of waste streams (e.g. landfill, recycle etc.) is considerably more difficult that projecting waste generation and subject to greater uncertainty…" For example, the scale of the export of DRF/RDF material from Ireland to waste-to-energy recovery facilities in Europe was unforeseen when making projections about the possible destinations for waste streams, and highlights the difficulty in predicting where waste will flow in a small, accessible, globalised economy like Ireland. This is of relevance in the current appeal in that waste is a tradeable commodity, and will flow towards or away from certain areas based on commercial considerations. This is partly the reason for the uncertainty as to the source, availability and time of introduction of a particular alternative fuel into the cement-making process.

10.10.3. The Southern Region does not contain any active thermal recovery activities for the treatment of municipal-type wastes. Cement kilns accept Solid Recovered Fuel (SRF) and Refuse-Derived Fuel (RDF)-type wastes that are generated from municipal and construction sources, as well as other wastes such as meat & bone meal, chipped tyres and high calorific fuels. Approximately 140,000 tonnes of SRF was used in 2013, and it is estimated that this will rise to 150,000 tonnes in 2015. It is anticipated that this could rise even further with additional capacity under construction. The Plan states that development of future thermal recovery facilities will be viewed as national facilities, addressing the needs of the State, and will not be defined by regional markets alone. A co-ordinated and consultative approach is required for such authorisation between the regions and national authorities - i.e. the

EPA and An Bord Pleanála. A national thermal recovery capacity need of 300,000 tonnes is proposed (refer to policy E15a) over and above the active and pending capacity (within which Poolbeg incinerator is included). The authorisation of these activities is the remit of the EPA. These facilities typically operate on a national market basis, accepting waste from all parts of Ireland. Table 16-8 of the Plan indicates active and pending capacity for thermal recovery – with two active cement kilns accepting 140,000 tonnes (but with capacity for 215,000 tonnes per annum) and one further kiln permitted to accept 127,875 tonnes of waste per annum.

10.10.4. Policy E15a of the Plan states- "The waste plan supports the development of up to 300,000 tonnes of additional thermal recovery capacity for the treatment of non-hazardous wastes nationally to ensure that there is adequate active and competitive treatment in the market and the State's self sufficiency requirements for the recovery of municipal wastes are met. This capacity is a national treatment need and is not specific to the region. The extent of capacity determined reflects the predicted needs of the residual waste market to 2030 at the time of preparing the waste plan. Authorisations above this threshold will only be granted if the applicant justifies and verifies the need for the capacity, and the authorities are satisfied it complies with national and regional waste policies and does not pose a risk to future recycling targets. All proposed sites for thermal recovery must comply with the environmental protection criteria set out in the plan". This figure of 300,000 tonnes would not appear to include the possibility of importing wastes for thermal recovery. Indaver Ireland has applied to the Board (**04.PA0045**) for permission to construct an incinerator at Ringaskiddy, Co. Cork, to accept up to 200,000 tonnes of municipal waste per annum. There is no decision to date on this application. I note that there are currently pre-planning consultations taking place between Quinn Cement Ltd. and the Board for their cement works at Scotchtown, Co. Cavan (**PC0241**) to increase usage of alternative fuels/raw materials from 127,875 tonnes to 300,000 tonnes per annum. I further note that a Strategic Infrastructure Development application has been made to the Board by ICL for its cement works at Platin, Co. Meath (**PA0050**), to increase usage of alternative fuels/raw materials from 120,000 tonnes to 600,000 tonnes per annum. The reference to 300,000 tonnes of "additional" thermal recovery capacity, and not to "permitted" capacity, refers to municipal waste. The applicant contends that not all of the alternative fuels/raw

materials to be used can be classified as municipal waste – such as tyres, solvents, sludge pellets. The applicant proposes using up to 30,000 tonnes of Solid Recovered Fuel (SRF) sourced from municipal waste – considerably below the identified national requirement for 300,000 tonnes per annum. However, the Waste Plan is not clear as to whether the 300,000 tonnes of additional capacity refers to thermal recovery for the treatment of non-hazardous wastes or to thermal recovery from municipal waste streams. The report of the SRWMO of 16th December 2016, requested that a condition restricting the annual intake of SRF to 30,000 tonnes be attached to any grant of permission, and this was duly done (condition 5). ICL indicated that there was no objection to this cap. As can be seen from the previous grant of planning permission for use of 80,000 tonnes per annum of alternative fuels/raw materials at Castlemungret (which permission has now lapsed) – the granting of planning permission does not always result in the creation of capacity – for a variety of economic or other considerations. For this reason, the figure of 300,000 tonnes must be treated with some caution. Notwithstanding this, I would consider it appropriate to attach a similarly-worded condition, to no. 5 of the Notification of decision to grant of planning permission. I have elsewhere in this report argued that a five-year permission would be more appropriate than a ten-year one – and the issue of caps on use of SRF is one reason to favour a five-year permission period.

10.10.5. It is the contention of 3rd Party appellants that the future sustainability of incinerators is in question, and that a number have already been shut down as uneconomical in Europe. This is outside the scope of this planning assessment, and is a matter for EU/National consideration in the future, and the financial planning of ICL in the present.

10.10.6. The claim by ICL that the incineration of certain types of waste provides an effective and energy-efficient alternative to landfill and or export must be balanced by the counter-claim that some of the alternative fuels which ICL intends to burn in Kiln 6 could be recycled or reused – something which is considered more desirable, being further up the waste hierarchy than thermal recovery.

10.11. **Financial Contribution**

Condition 2 of the Notification of decision to grant planning permission required payment of a development contribution of €392.040. There was no 1st Party appeal against the condition. A similarly-worded condition should be attached to any grant of planning permission issuing from the Board.

10.12. **Site Notice**

It was contended that site notices were erected at inconvenient locations for stopping on the N69. The planning authority was satisfied that the site notices complied with the Regulations. Judging by the level of objections received by the planning authority, there was a very high degree of awareness of this application within the surrounding area.

10.13. **Aviation Safety**

The existing cement works is fitted with aviation warning lights and is particularly visible at night-time. None of the new elements proposed will be any higher than the existing pre-heating tower and emissions stack. No new air emission points are proposed. The proposed development will not have any adverse impact on the safe navigation of aircraft.

10.14. **Carbon Dioxide (CO_2) Reduction**

ICL is permitted by the EPA to emit CO_2 under Greenhouse Gas Emissions Permit. The cement industry is a significant source of CO_2 emissions in Ireland – estimated at 3% of the national total. At the Hearing, it was argued that ICL was a major beneficiary of carbon trading, through the reduction in cement throughput caused by the economic downturn since 2008. It was further argued that CO_2 reductions now proposed would further benefit ICL in carbon trading terms. This is not, specifically, a planning consideration, but rather a matter for EU and National government consideration. The application claims that CO_2 emissions will be reduced by up to 40,000 tonnes per annum if permission is granted to substitute alternative fuels for petroleum coke. The substitution of alternative fuels is claimed to be a false solution, as ICL will be paid for reductions in carbon emissions. The cement industry is a

significant contributor to climate change through emissions of greenhouse gases. Burning alternative fuels is not carbon-neutral, as a significant amount of carbon has already been consumed in the extraction, transport and processing of the materials to be incinerated. The 3rd Party appellants suggest that reversion to coal burning in Kiln 6 could result in the same amount of CO_2 savings – petroleum coke having a much larger carbon footprint than coal – 10-30% more. It was also contended by 3rd Party appellants that Kiln 6 would have to rotate longer in order to consume alternative fuels, thereby resulting in a larger requirement for electricity – supplied from the generation plant at Tarbert – and thereby transferring the CO_2 footprint elsewhere. This contention was not pursued at the Hearing, and no evidence was produced on any side to substantiate or refute the claim. AWN Consulting, on behalf of LCCC, indicated in a report of 19th December 2016, that the CO_2 savings indicated were conservative and that it was likely that actual greenhouse gas savings would be greater than reported. I would not consider the claimed reduction in CO_2 emissions to be a persuasive argument in the assessment of the merits of the proposed development. There is no guarantee that 90,000 tonnes per annum of alternative fuels would be burned, even if permission for such were granted.

10.15. **Public Consultation**

The 3rd Party appellants argue that there has been insufficient engagement with the public prior to lodging this planning application. A public meeting was held and some 500 brochures delivered to houses in the area – immediately prior to lodging the application. It is contended that this amount of brochures was insufficient, given the number of houses in the vicinity of the cement works. The Planning Acts do not set down any protocols for prior public consultation in relation to planning applications. The response to public notices indicated a high level of awareness of the application in the community. The number of objections submitted to the Board similarly indicated a high level of engagement with the planning process.

10.16. **1st Party Appeal**

10.16.1. ICL has appealed conditions 8 & 9 of the Notification of decision to grant planning permission. These conditions relate to deliveries of alternative fuels/raw materials, and require agreement with the PA in relation to times (which exclude

peak hours). ICL is concerned that the conditions place restrictions on the delivery of all fuels to the cement works, where at present there is no restriction on the deliveries of petroleum coke. The conditions overlap to some extent, and some time was spent at the Hearing suggesting rewording. The PA suggested a revised wording for the two conditions (Document 8), which was slightly more generous in relation to peak hour restrictions. ICL suggests that the original conditions would only result in a reduction of traffic flows at the Dock Road Western Roundabout of 0.3% during the morning peak hours, and 0.4% during the afternoon peak hours, included in Condition 8. This level of reduction is extremely small, but the effect on operations at the cement works would be unduly onerous. I would be inclined to agree with the contention of ICL. At present there is no restriction placed on the delivery times of petroleum coke. Notwithstanding that alternative fuels delivery would require an increase of 25% in HGV movements (being less dense than petroleum coke), the deliveries would be spread over the 330 working days of the year, where at present petroleum coke is delivered in batches of 30,000-40,000 tonnes over periods of 8-10 weeks. The 2016 consumption figure for petroleum coke was indicated at 88,000 tonnes. Even at maximum cement output, the delivery of 131,000 tonnes per annum of petroleum coke would not result in continuous traffic over the year. ICL suggests a reworded condition to replace Conditions 8 & 9 – "Prior to commencement of development the applicant shall submit an Outline Delivery Management Plan setting out the predicted range and quantities of alternative fuels to be consumed in the plant. Thereafter, the applicant shall submit an annual Delivery Management Plan for the alternative fuels to be consumed in the plant in the forthcoming year, that will capture the increasing tonnage and delivery times, for agreement in writing with Limerick City and County Council". ICL went on to indicate at the Hearing that it would be willing to accept a condition in relation to peak hour deliveries of alternative fuels with less restrictive peak hour times of 08.00-09.30 and 17.00-18.30 Monday-Friday. I would be inclined to consider any condition relating to restrictions on traffic unduly onerous in the context of a large cement works and quarry, where production rates can and do vary, depending on demand for product. The cement works is currently operating below capacity of 1.3 million tonnes per annum, but this could increase. The access arrangements are direct to the National Road network. The cement works has been in operation at this

location for a considerable length of time. I recommend that no condition restricting delivery of alternative fuels/raw materials to this cement works is necessary.

10.17. **Other Issues**

10.17.1. Gas Pipe Explosion

There is no substance to the claim that additional construction traffic could hinder emergency vehicles in the event of an explosion at the recently installed gas main on the N69. The application was referred by LCCC to Gas Networks Ireland, which body indicated no objection to the proposal.

10.17.2. Odour

No evidence was submitted to substantiate the claim that noxious odours could arise from the introduction of solvents and sludges for incineration. Alternative fuels are incinerated at the ICL plant in Platin. The company has direct experience dealing with odour-related issues. Pre-treatment of waste prior to arriving at site, the absence of any processing of alternative fuels on site, just-in-time deliveries and limited storage time, should mitigate against any potential odour nuisance. A condition should be attached to any grant of planning permission to issue from the Board, requiring deliveries to be made in appropriately covered/sealed trucks/tankers.

10.17.3. Road Traffic Accident involving HGVs carrying Hazardous Substances

There is no substance to the claim that vehicles delivering hazardous wastes to the cement works could be involved in road traffic accidents, thereby putting the health of local residents at risk. All delivery vehicles will be travelling on the National Road network, with a small amount possibly using the Regional Road network in the vicinity of the cement works. Whilst such dangers are a possibility, they would not be considered a likelihood. I have elsewhere in this Report recommended that 'hazardous' materials be excluded from the grant of permission.

10.17.4. Deox Acid Use

The use by ICL of Deox acid, if this is in fact the case, to clean cars which have been affected by dust deposition, is not a relevant consideration to the appeal currently

before the Board. I note that the safety sheet for this acid was included by way of ICL submission to the Board of 2nd May 2017.

10.17.5. Accuracy of Drawings

The omission of a label from Figure 3.1 of the EIS was rectified in the 1st Party response to the grounds of appeal (received by the Board on 2nd May 2017). I would be satisfied that there was no intention to mislead the public in this instance.

10.17.6. Consultants Hired by LCCC

It has been contended by 3rd Party appellants, that a firm of consultants hired by LCCC to advise in relation to the planning application and the EPA licence review, may not have been entirely independent. The consultants advised in relation to potential benefits in substitution of alternative fuels, validity of the air dispersion modelling, emissions, and health impact. LCCC stated that the advice sought principally related to EPA licence review matters. At the Hearing, ICL stated that it had used the services of the same company in the past and subsequent to the lodging of the application, and would continue to do so in the future. This is not a relevant planning consideration.

10.17.7. 'Sealing' of LCCC Documents

Issues raised at the Hearing in relation to the 'sealing' of Planning Authority documents, are not relevant planning considerations. The Notification of decision to grant planning permission, which issued from LCCC, is taken to be the planning decision of the Council, which is the subject of this current appeal.

10.17.8. Impact on Tourism & Leisure

Whilst it has been claimed by objectors that the proposed development will impact negatively on tourism and leisure facilities in Limerick city and the wider county – no evidence was presented at the Hearing to support this claim.

10.17.9. Impact on Agriculture

Whilst it is claimed by objectors that the proposed development will have an adverse impact on the clean image of the area for the beef and dairy industries, no evidence was submitted to substantiate this claim. I note that ICL operates a large dairy farm to the northwest of the quarry and cement works.

10.17.10. Sustainability

It has been contended that the incineration of waste is not a sustainable use for such materials. This issue is addressed elsewhere within this Report. The Brundtland Commission definition states- "Development which meets the needs of the present without compromising the ability of future generations to meet their own needs". I would be satisfied that the proposed development does not fly in the face of the definition of sustainability – particularly where cement kilns in Europe and elsewhere in Ireland are already burning alternative fuels/raw materials, and where such use is controlled by permissions, licensing and EU/National policy.

10.17.11. 'Neighbourhood Forum'

Reference by ICL at the Hearing to proposals to form a 'Neighbourhood Forum' to improve community relations, whilst it may be desirable, is not strictly an issue relating to this planning appeal.

10.17.12. Environmental Liabilities Risk Assessment Insurance

The question raised at the Hearing as to whether ICL had an environmental liabilities risk assessment insurance policy, in the event of a major accident occurring in Castlemungret, is not a relevant planning consideration.

10.17.13. Processing of Alternative Fuels/Raw Materials

Condition 12 of the Notification of decision to grant planning permission – relating to further processing of alternative fuels/raw materials at the cement works – is a reasonable one, and a similarly-worded condition should be attached to any grant of planning permission to issue from the Board. ICL has clearly indicated that loads of alternative fuels/raw materials will be delivered to the cement works in a ready-to-use state, which will require no further processing.

11.0 Environmental Impact Assessment

11.1. General Comment

11.1.1. The Environmental Impact Statement (EIS) submitted is in grouped format – dealing with the following headings – Human beings; Flora & fauna; Soils, geology & hydrogeology; Water & hydrology; Air quality & climate; Noise & vibration;

Landscape & visual; Cultural heritage; Material assets (Traffic & Transportation); Waste; and finally, the Interaction of the foregoing. The document is accompanied by a Non-Technical Summary.

11.2. Alternatives Considered

11.2.1. ICL operates a sister cement works at Platin, Co. Meath. Applications to burn alternative fuels in the kiln at Platin have been submitted to Meath County Council, and permission granted. Considerable investment has been made in Kiln 6 at Castlemungret – the only kiln within the cement works. In this instance, alternative sites are not a consideration, and options are constrained by the necessity to introduce alternative fuels at particular locations within Kiln 6 apparatus. Alternative processes or fuels have been considered. The kiln is currently fired using petroleum coke. Coal has been used in the past, and could be used again in the future. New fuels/raw materials are proposed to be introduced – the quantity and mix depending on availability, price and requirement to control temperature/chemistry within the kiln. Alternatives considered included 50% and 100% replacement of petroleum coke – the latter option likely involving 210,000 tonnes of alternative fuels. I note that at the Hearing it was indicated that alternative fuels could not be used in initial firing and shut-down of the kiln. There is little difference between the options outlined in terms of impact on the environment – noise, air quality, vibration, water etc. The replacement of 100% of petroleum coke would result in a more significant reduction in CO_2 emissions. The 100% replacement of fossil fuels would be a longer term goal – likely to extend beyond the 10-year permission sought. Should certain types of fuel become scarce or unavailable, the operator needs to be able to substitute alternatives. The use of fuel types will be monitored by the EPA – involving review of the IE licence. Up to 40% fossil fuel replacement is viewed as being an achievable target over the ten-year lifetime of the permission.

11.2.2. At the Hearing it was argued that the alternatives looked at were restricted, and did not comply with the requirements of the EIA Directive. In particular, it was contended that natural gas should have been considered as an alternative fuel – particularly as the natural gas network had recently been extended to Castlemungret. ICL argued that the price of natural gas rendered its use uneconomic in the cement kiln – of the order of two to three times more expensive

than existing fuel use. The 3rd Party appellants argued that this should have been indicated in alternatives considered, and then discounted on cost grounds. It was further argued that the alternative of replacing the kiln with one of a more modern design, or the installation of a combined heat & power plant should have been considered. Whatever the arguments put forward, the applicant is not required to look at all alternatives. Whilst I would accept that the alternatives examined were restricted, I would be satisfied that this resulted from the constraints imposed by the site and the existing plant.

11.3. **Human Beings**

11.3.1. Chapter 4 of the EIS deals with this issue. ICL currently employs c.200 people: at the Hearing it was indicated that 80 people are employed at Castlemungret. There is no indication given of any increase or reduction in employment levels arising from the proposed development. The closest residential settlement is Mungret village – c.650m to the southwest of the cement works. Outside of the village, only three residential properties lie within 500m of the site – H1-H3. H1 is located on the opposite side of the N69, some 250m from the site, and is currently unoccupied. Not all aerial photographs included in the EIS indicated the most recent housing in the area at Ard Aulin and Slí na Manach to the east and southeast. Recently completed schools have not been indicated either. However, the locations of these developments were clearly pointed up during consideration of the application by LCCC and by this Inspector. There is no evidence submitted to support the claim that the development will deter investors and housebuilders or that it will result in parents being reluctant to send children to schools in the area. Emissions for this site are controlled by IE licence, which apply to construction and operational activities.

11.3.2. Impacts on human beings are addressed in chapters relating to noise and air quality. A Human Health Risk Assessment of Polychlorinated dibenzodioxins and Polychlorinated dibenzofurans was submitted by way of additional information on 2nd November 2016 – and is addressed in the Air Quality & Climate section of this environmental impact assessment.

11.3.3. ICL indicates that whole tyres are likely to be the first alternative fuel introduced into the kiln. Permission exists to incinerate shredded tyres at the Platin cement works.

Document 26, presented to the Hearing, is a comprehensive and informative analysis of the used tyre market in Ireland. The nub of the argument is that there are better uses for used tyres than incinerating them in a cement kiln. ICL will be competing in the market with companies which recycle whole tyres, and which may result in a reduction in availability of tyres for re-cycling. It is contended that the application is premature, pending the full exploration of alternative uses and technologies for treating used tyres. This is a matter for EU/National policy, and is outside the scope of a planning application such as this one. The SRWMP does not contain any policies in relation to the desirability or otherwise of incinerating used tyres in cement kilns.

11.3.4. The 3rd Party appellants stated that the introduction of whole tyres would result in the possible spread of malaria and dengue fever (amongst other diseases), where whole tyres could be imported from tropical climates. The services of an entomologist were not available to LCCC or at the Hearing. ICL should be willing to accept a condition requiring that no imported used tyres be incinerated in Kiln 6. ICL pointed out that a letter from the HSE, dated 4th August 2017, (submitted as part of Document 25A to the Hearing), indicated at Point B (page 5) that the HSE does monitor for mosquitoes around Ireland – mainly in port areas. There had been a number of native mosquitoes detected, but to date, no invasive species have been found. Shredding of the used tyres would remove the danger. However, ICL argued that this would result in additional expense – particularly where all constituent elements of a used tyre could be incorporated into the cement product. ICL pointed out that air travel was the principal cause of the spread of infectious diseases from tropical climates. There is ample standing water already in the country, and water lodging in imported used tyres would not be a necessary requirement for breeding mosquitoes. ICL was not prepared to give any undertaking that whole tyres would not be imported to feed into Kiln 6. The permission granted made no reference to importation of used tyres. ICL indicated that tyres would be supplied by contractors on a continual basis, with storage capacity for 12-14 days (depending on throughput in the kiln). If tyres were imported by supplying contractors, they would likely come from northern European ports. I note that Dublin City Council is the responsible body in relation to importation of waste to Ireland – the National Transfrontier Shipment Office. The issue of transmittable diseases is not a relevant planning consideration, particularly

where ICL would not be directly importing used tyres, but obtaining them from contract suppliers.

11.3.5. The 3rd Party appellants state that there is insufficient background information on the health of the population in the vicinity to allow a decision to be made on this application, which might further exacerbate health problems – including respiratory and pulmonary difficulties. Such is the remit of the HSE, and it would not be reasonable to expect the applicant to produce such data, or to defer consideration of any planning application in the absence of such data.

11.4. **Flora & Fauna**

11.4.1. Chapter 5 of the EIS deals with these related issues. I have elsewhere in this Report addressed potential impact on European sites, and it is not proposed to repeat it here. For preparation of the EIS, a field visit was undertaken on 15th January 2016. Habitats were identified and mapped. Bunlicky/Clayfield Pond to the north of the site discharges to the Shannon River via weir and sluice gates. The seals on the sluice gates are not working efficiently, resulting in the water within the pond being slightly brackish. All discharges to the Pond are diverted through settlement tanks and hydrocarbon interceptors – via SW1 and SW2.

11.4.2. The entire of Bunlicky/Clayfield Pond forms part of the Inner Shannon Estuary South Shore proposed Natural Heritage Area (pNHA) – site code 000435. In addition, lands between the cement works and the pond are included in the pNHA. No part of the site is within the pNHA. The Fergus Estuary and Inner Shannon North Shore pNHA is hydraulically linked to the site via the pond and the Shannon River.

11.4.3. Due to the industrial nature of the site, there are no areas of natural or semi-natural habitat present. Habitats on site include – Active quarries and mines; Buildings and artificial surfaces; Hard-standing; Spoil and recolonising bare ground; Scrub, Amenity grassland; Hedgerow/tree line; and Drainage ditch. No rare plants or species were encountered during survey work.

11.4.4. Possible impacts arise from accidental spillages of sediment-laden water, concrete or hydrocarbons during the construction phase. All construction works will be carried out within the catchment of the site drainage system. Rainwater will be discharged to the existing site drainage system. New tanks containing potentially polluting

materials will be bunded. Storage areas for alternative fuels/raw materials will be bunded. No mitigation measures are proposed for habitats and species. Mitigation measures in relation to water and air quality are addressed elsewhere in this assessment. A Construction Environmental Management Plan will be produced prior to commencement of construction. No operational phase mitigation measures are proposed – over and above what will be required to comply with the conditions of the IE licence in relation to dust, noise etc. Discharges via SW1 and SW2 to Bunlicky/Clayfield Pond will continue to be monitored as part of the IE licence requirements.

11.4.5. There will be no risk of the spread of invasive species, because there will be no processing of alternative fuels/raw materials on the site. I have elsewhere in this Report addressed the issue of mosquitoes and whole tyre storage. Alternative fuels/raw materials will be stored within enclosed buildings/silos/tanks – with the exception of tyres, which will be on a concrete apron area enclosed by a retaining wall. Routine precautionary measures in relation to cleanliness of construction vehicles and equipment should ensure that invasive species are not introduced to the site during the construction phase.

11.5. **Soils, Geology & Hydrogeology**

11.5.1. Chapter 6 of the EIS addresses these associated issues. The site is generally flat. The associated limestone quarry is operational. The northwestern portion of the site comprises exposed Visean limestone rock, whilst the remainder comprises largely made ground. The bedrock aquifer is classified as Locally Important – Generally Moderately Productive (Lm). The vulnerability varies from 'exposed rock' to 'extreme' to 'high'. The quarry sump is 26m below OD, which has altered the groundwater flow in the area. The water is pumped from the sump on the quarry floor to Bunlicky/Clayfield Pond from whence it enters the Shannon – the natural destination in the absence of the quarry void. There are six abstraction wells within the cement works. There are no Geological Heritage Areas within the footprint of the site, although the associated quarry may be recommended for inclusion as a Geological Heritage Area.

11.5.2. Groundwater monitoring is undertaken twice a year, as required by condition of the current IE licence – P0029-03. On average, 6,200m^3 of water per day is pumped to

keep the quarry dry. Bunlicky/Clayfield Pond and the Shannon River act as groundwater recharge bodies which prevent the lowering of the water table to the north and east of the quarry. There are three groundwater monitoring wells GW1, GW2 & GW3, on the shores of Bunlicky/Clayfield Pond. Nine soil samples were taken from four locations on 16th December 2015 – TP102A & B, TP103A & B, TP105A, B & C, and TP106A & B. Generic qualitative risk assessment was undertaken by comparing the soil chemical test results against the Generic Assessment Criteria (GAC) for commercial sites. The results are presented at Table 6.7 of the EIS. There were no exceedances of GAC limit values. Contamination in the soil was registered, but not at such levels which would cause risk to human health – assuming a commercial land use. However, if significantly contaminated soil/sub-soil is encountered within the made ground on site, sampling and assessment will determine how construction can proceed, with contaminated soil removed off-site for disposal at an appropriately licenced facility. Bunds will be provided for all tanks and areas used for storage of alternative fuels/raw materials. During construction, potentially polluting materials will be stored within appropriate containment and secure areas. Any spillages will be immediately contained, and contaminated soil removed from the site. Good construction practices will ensure that possibility of contamination of ground water is minimised. The proposed development will not involve any significant alterations to the situation which currently pertains in relation to soils, bedrock or hydrogeology on this site.

11.6. **Water & Hydrology**

11.6.1. Chapter 7 of the EIS deals with these associated issues. Bunlicky/Clayfield Pond is in the ownership of ICL, and forms part of the floodplain of the Shannon River. The pond is an artificial structure – constructed when alluvial clay was dredged and used as the secondary ingredient in the wet process manufacture of cement. This extraction ceased in 1981. Reclamation of the pond is ongoing through deposition of inert material under licence from the EPA. The pond has an overall area of approximately 50ha. and a volumetric capacity of approximately 2.5 million m^3. Inflow is an average of 14,000m^3 per day, from a variety of sources – approximately 50% of which is ICL-based. The surface of the pond is approximately 0.0m OD. It is situated on alluvial clay – and essentially separated from the underlying bedrock

aquifer. The pond is stated to drain an area of approximately 6.0km^2. Residence time for inflows to the pond is almost 178 days. There are three sources of water discharging to the pond from the cement works- dewatering of the quarry void, surface water from the cement works, and process water from the cement works. There are other sources of surface water draining to the pond which are not in the control of ICL. Adjustable flaps at the outfall to the Shannon (SW3) are not entirely efficient, and saline water flows into the pond at high tide. The Hearing was informed that the weir at SW3 was adjustable. This facility could serve to contain an accidental release of pollutants within the pond – thereby preventing it reaching the Shannon River. SW3 discharge is monitored every six months as required by IE licence condition.

11.6.2. All water from the cement works and quarry discharges through two outfall points – SW1 & SW2. SW2 is the discharge from the quarry sump. All discharge water passes through a settling tank and hydrocarbon interceptor prior to discharge. Outfalls are monitored for various parameters on a variety of daily, weekly, monthly and quarterly bases, and include temperature, pH, BOD, mineral oil, suspended solids, toxicity, conductivity and average daily flow. Foul waste from sanitary facilities and utilities wastewater from laboratories is discharged to the public foul sewer. In addition, four septic tanks are in operation on the site – emptied by a bowser into a holding tank and then pumped to the public foul sewer.

11.6.3. Construction activity will be carried out within the catchment area of the site drainage system, which is fitted with siltation tanks and hydrocarbon interceptors. Minor additional rainwater run-off will be created from roofed areas of buildings and concrete aprons. The total additional hardstand area is estimated at 1.5ha. All new liquid alternative fuels and alternative raw materials will be stored within bunded areas.

11.6.4. Three new firewater retention tanks are proposed – connected to the surface water drainage network by a system of control valves. Potentially contaminated water can be tested and treated before discharge to the surface water system or removal from the site.

11.6.5. A Construction Environmental Management Plan will be prepared prior to commencement of construction. Mitigation measures will include- proposals for

containment and treatment of any accidental spillages of contaminated liquids (silt, hydrocarbons, concrete); staff training; list of responsibilities of individuals; and notification procedures. There will be no significant alterations in relation to the operational phase of the development, where discharges are already monitored and controlled by IE licence.

11.6.6. There are no recorded flood events at the cement works site. The site is protected from tidal flooding by embankments constructed along the Shannon estuary. New buildings and facilities will be located within the existing cement works. OPW CFRAM maps indicate a 200-year extreme coastal flooding event affecting lands immediately to the northeast of the proposed site. I note the SELAP shows potential flooding at this site. However, this Plan predates the more recent CFRAM maps. ICL has indicated that in the unlikely event of a flood, alternative fuels are stored in tanks or within bunded areas. Flooding would not be likely to occur at this site. The proposed development in itself will not have any impact on flooding in the area.

11.7. **Air Quality & Climate**

11.7.1. It could be argued that, as emissions to air will be controlled by way of IE licence, the impact on air quality of the proposed development falls outside the consideration of the Board. However, I would be of the opinion that environmental impact assessment requires the Board to consider the impact of the proposed development on the environment: and whilst it is not open to the Board to require mitigation measures in relation to emissions to air, it is open to the Board to refuse planning permission, if it is considered that the proposed development would have an unacceptable impact on the environment.

11.7.2. A considerable amount of the Hearing was taken up with the issue of air quality. Much of it related to failures and alleged failures by ICL to control dust emissions in the past. This assessment is not an adjudication on the performance of ICL in controlling dust emissions to date. What is before the Board for consideration is the impact of the proposed development (substitution of alternative fuels/raw materials) on air quality – regard obviously being had to the potential cumulative impact when considered alongside existing emissions to air from the cement works. Control of emissions to air is the remit of the EPA – ELVs being set down in the IE licence (ref. P0029-03) for the cement works. This IE licence is currently under review, and I

note that new substances are to be monitored in the Proposed Determination (ref. P0029-05) – such as carbon monoxide; hydrogen chloride; hydrogen fluoride; dioxins & furans; mercury and its compounds; the sum of cadmium & thallium and their compounds; and the sum of antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel & vanadium. The proposed ELV for dust remains the same at 240mg/m^2/day, on a 30-day composite sample, measured quarterly. Continuous monitoring for fine particulates is required – as was the case with the original IE licence.

11.7.3. Chapter 8 of the EIS deals with the associated issues of air quality and climate. I would not consider that the proposed development will have any significant impact on climate. AWN Consulting was retained by LCCC, to assess the impact of the development on air quality and climate, both in relation to the planning application and the IE licence review being undertaken by the EPA. The licence would have to be reviewed by the EPA to take account of the introduction of alternative fuels/raw materials – and such an application for review has been made to the EPA (ref. P0029-06).

11.7.4. Particulate emissions are abated using bag filters on Kiln 6; Cement Mills 5, 6 & 7; and Separators on Cement Mills 6 & 7. An hybrid filter is used on Coal Mill 6 – comprising an electrostatic dust precipitator followed by a bag filter – as required by IE licence condition. NO_x emissions from Kiln 6 are abated using continuous selective non-catalytic reduction (SNCR) – as required by IE licence condition. This involves injecting aqueous ammonia into the kiln exhaust gas to chemically reduce NO_x to N_2. The system includes off-loading and storage facilities for aqueous ammonia solution. Bag filters are generally installed on minor emissions points such as silos, crushers and hoppers. The proposed development will not result in any alterations to the above arrangements.

11.7.5. Stack air emissions monitoring, completed in 2014, showed that ICL was in compliance with the IE licence ELVs (ref. P0029-03). Air Quality Standards are defined for the protection of human health and ecosystems. The Air Quality Standards Regulations 2011, transposes EU Directive 2008/50/EC into Irish law. ELVs and alert thresholds are established for various pollutants – including NO_2, NO_x, PM_{10}, $PM_{2.5}$ and SO_2. The Arsenic, Cadmium, Nickel and Polycyclic Aromatic Hydrocarbons in Ambient Air Regulations 2009, provide limit values for cadmium,

arsenic, lead and nickel. Table 8.1 of the EIS sets out the limit values for pollutants from both of the above sets of Regulations. These are separate to and apart from the ELVs set down in the IE licence, and are national standards which must be adhered to. No air quality standards exist for hydrogen chloride, hydrogen fluoride, thallium, mercury, antimony & other heavy metals, dioxins, and furans. However, from March 2017, the EPA will be reviewing IE licences to allow for inclusion of ELVs for hydrogen chloride, hydrogen fluoride, heavy metals and dioxins & furans, under the incorporation of Best Available Techniques (BAT) Reference Document for the Production of Cement, Lime and Magnesium Oxide, 2013 – and these are reflected in the Proposed Determination of licence ref. P0029-05. There are relevant guidance levels for protection of human health, issued by the UK Environment Agency and the World Health Organisation – and these are outlined in Table 8.2 of the EIS.

11.7.6. Air emissions are modelled using the Breeze AERMOD computer package. Air dispersion modelling assessment is based on maximum flow rates, maximum permitted emission concentrations, continuous operation and least favourable weather conditions. Model predictions are, therefore, worst-case scenarios. The model predicts maximum ground level concentrations over one-hour, eight-hour, and twenty-four-hour periods. Modelled areas around the cement works include a 2km square grid and a 10km square grid. Meteorological data from Shannon Airport is used in the model. ELVs are contained within the current IE licence (ref. P0029-03) and the BAT Reference Document on Production of Cement, Lime and Magnesium Oxide, 2013. Kiln combustion gases are used within Coal Mill 6 to pre-dry the fuel. This area is also considered for air dispersion modelling, alongside stack emissions. Also considered are the cement mills and separators. Existing and proposed emission points and ELVs are indicated in Tables 8.4 & 8.5 respectively, of the EIS.

11.7.7. For the purposes of assessing air quality in the existing environment – Limerick City is considered to be within Zone C (cities and large towns outside of Dublin & Cork). The EPA has measurements for levels of NO_2, NO_x, SO_2, PM_{10}, $PM_{2.5}$, benzene, mercury, lead, arsenic, cadmium, and nickel for the years 2012-2014 – some results being interpolated from Cork (Zone B) and rural areas (Zone D). Table 8.6 of the EIS presents the EPA monitoring results for the above list of pollutants (measured in micrograms and nanograms as relevant). Table 8.7 of the EIS presents measured

background concentrations of a number of pollutants recorded by ICL on site in 2008 (including dioxins). There are no EU air quality standards for ultra-fine particles $PM_{0.1}$. Ultrafine dust particles already exist in ambient air. ICL is satisfied that fabric filters have been proven to be efficient at removing all dusts. Testing for heavy metals from stack emissions and the coal (now petroleum coke) mill will be required by way of IE licence from March 2017 onwards, and the Proposed Determination of IE licence ref. P0029-05 does contain ELVs for mercury, cadmium, thallium, arsenic, lead, chromium, cobalt, copper, manganese, nickel and vanadium – where the current IE licence (ref. P0029-03) does not. These ELVs will be instituted, whether or not alternative fuels/raw materials are combusted in Kiln 6. There is no requirement to carry out ambient (background) monitoring for heavy metals. Baseline monitoring is stated not to be an effective method to obtain information on the impact of an existing industrial installation, particularly where emissions are mainly from stacks. Notwithstanding this, ICL carried out additional ambient monitoring on background heavy metals during January 2017, at two locations over a two-week period (0.8km east of the flue stack and 2.0km northwest of the flue stack), and submitted by way of clarification of additional information to LCCC on 13th February 2017. All ambient heavy metals tested for, including mercury, comply with the relevant Air Quality Standards (AQS). Where no AQS is provided, the results comply with guidance set down by the UK Environment Agency.

11.7.8. There is concern expressed by 3rd Party appellants that the EPA is not properly monitoring emissions from the cement works, and reference is made to an EPA-sponsored measurement of NO_x on 28th June 2016, of 940mg/Nm^3; which exceeded the IE licence ELV of 800mg/Nm^3. ICL's own monitor for the period showed 794.7mg/Nm^3, and the EPA did not pursue the alleged infringement. The 3rd Party appellants are of the opinion that the EPA is unwilling to challenge ICL in relation to emissions, and that there will be no guarantee that new ELVs in relation to alternative fuels/raw materials will be properly enforced. This is not strictly a planning consideration – the regulation by the EPA of IE licences being beyond the remit of the Board. The BAT Conclusions on the Production of Cement, Lime and Magnesium Oxide 2013, requires a lower ELV in relation to NO_x of 450-500mg/Nm^3. I note that the EPA Proposed Determination on licence ref. P0029-05, contains an ELV for NO_x of 450mg/Nm^3. ICL has submitted an objection to the Proposed

Determination, and no Review licence has issued to date. Notwithstanding the above, the substitution of alternative fuels/raw materials is not likely to lead to any significant increase in NO_x emissions from the cement works. ICL will be required to operate within the ELVs set down in any licence Review. Whether ICL will be technically able to operate within the ELVs is not a matter for the Board, but rather for the applicant and the EPA.

11.7.9. Table 8.7 of the EIS indicates a two-month average background concentration for mercury of <0.00059mg/m^3 in 2008, as measured by ICL. The IE licence limit for mercury at the ICL cement works at Platin is stated to be 0.5mg/m^3, and it is expected that a similar ELV would be applied to any licence at Castlemungret. I note that the Proposed Determination of IE licence ref. P0029-05 does in fact include an ELV for mercury of 0.05mg/m^3 (considerably lower than the stated ELV for Platin). This latter figure reflects the BAT Conclusions Document concentration. Table 8.8 of the EIS gives a predicted ground level concentration of 0.00098mg/m^3 for mercury, <1% of the ELV. Some time was given over at the Hearing as to whether the half hour test (quarterly) for mercury emissions from a stack was adequate to protect human health. Human exposure to mercury comes mostly through consumption of fish. It was argued that ICL could avoid using alternative fuels which might contain elevated levels of mercury, if it was known in advance that quarterly testing for mercury was to occur. Activated charcoal is a recognised method of removing mercury, but ICL has no proposals to utilise this mitigation. The 3rd Party appellants argued that continuous monitoring was required for mercury, in order to protect human health. Recycling of fly ash (containing mercury) into cement product, defeats the purpose of air pollution control for key toxic metals, like mercury. In other European countries fly ash is packed and stored in salt mines. Incorporation into cement product, which will ultimately decay, will result in release of mercury into the environment. It was pointed out to the Hearing that natural rock contains mercury; and coal and petroleum coke are high sources of mercury. It is possible that the substitution of alternative fuels could result in a reduction in mercury emissions – depending on the quantity of mercury in the substituted fuel. The BAT Conclusions Document stipulates an ELV for mercury and its compounds of 0.05mg/m^3. This has been included in the Proposed Determination of licence ref. P0029-05. This is the recommended EU standard, which ICL will have to comply

with, notwithstanding that objectors may consider such standard to be inadequate for the protection of public health.

11.7.10. Dust deposition monitoring is currently required on a quarterly basis, by way of ELVs attached to IE licence ref. P0029-03, of 240mg/m^2/day (30-day composite sample). Two accidental dust emissions were reported at the cement works in October 2006 and July 2015. Both were reported to the EPA, investigated and closed out. The proposed development will not increase the likelihood of such accidents. At the Hearing it was pointed out that a number of dust monitors on site boundaries were damaged or contaminated – such that the results from them could not be used. It was contended that ICL was not properly maintaining the monitors. ICL argued that dust gauges were contaminated with leaves/organic matter and/or bird droppings. I note that the report of AWN Consulting refers to vandalism of one gauge. The 3rd Party appellants contend that a history of blowouts and filter bag failures at the cement works (the most recent concerning alleged depositions of dust in April 2017), has removed the confidence of local residents in the ability of ICL to properly manage this cement works, and there is concern that further dust depositions in the future may contain toxic materials, arising from the substitution of alternative fuels/raw materials – many of which are designated as 'hazardous'. The proposed development is unrelated to previous accidental dust emissions, and no aspect of the proposed development will increase the likelihood of such incidents or cause such incidents to reoccur. ICL states that there have been no recent incidents of filter bag failures, and that such are regularly tested and maintained. This offered little by way of comfort to objectors, who claim to be regularly subjected to dust deposition on cars and gardens – the origin of which is claimed to be ICL at Castlemungret.

11.7.11. Dust is likely to arise during the construction phase. Dust particles from construction are not considered harmful to human health. The construction phase may be spread over a ten-year period as different elements of the fuel substitution plan are scheduled for different phases – although I have elsewhere in this Report recommended a five-year permission. In terms of the operations currently carried out at the cement works and the adjoining quarry, construction impacts on air quality and climate will not be significant. Mitigation measures such as spraying of haul routes and earthworks/stockpiles during dry periods will be instituted. Transportation

Infrastructure Ireland operates assessment criteria for the impact of dust from major construction activities on sensitive receptors and on vegetation. There are no sensitive receptors within 25m of the construction site. Additional traffic volumes generated both at construction and operational phases will not be significant in terms of impact on air quality and climate. No road will see an increase of greater than 5% in volume of traffic arising from this development. At maximum import level – the additional volume of fuel required will be 34,000 tonnes spread over the year.

11.7.12. For the operational phase of the development, at full substitution of alternative fuels/raw materials (90,000 tonnes per annum), concentration values for all pollutants are expected to decrease (outlined at Table 8.8 of the EIS), arising from substitution of some raw materials and the energy saved (dust reduction) in blasting and crushing Castlemungret limestone. The reduction is also expected to arise from more stringent ELVs to be imposed within the proposed revision to IE licence ref. P0029-03.

11.7.13. The ICL additional information submission of 2nd November 2016, contained a report on the "Human Health Risk Assessment of Polychlorinated dibenzodioxins and Polychlorinated dibenzofurans" (PCDD/Fs). An ELV is specified for PCDD/Fs in the Industrial Emissions Directive (IED), due to the co-incineration of waste in cement works. The IED does not require inclusion of the mass concentrations of dioxin-like Polychlorinated Biphenyls (PCBs) – of which there are some 209 congeners – when assessing compliance with the ELV for PCDD/Fs. For this reason, the additional information response to LCCC did not contain such information in relation to PCBs. Dioxin-like PCBs are ubiquitous in the environment. The BAT Reference Document 2013, does not specify an ELV for PCBs. It was argued at some length at the Hearing, that PCBs should have been included in the HHRA, as they are highly toxic and exist at higher concentrations (although lower toxicity) in milk fat in Ireland. ICL argues that the TEF for most of the dioxin-like PCBs are extremely low compared to PCDD/F congeners (17 of the most toxic are included). It is argued that just because a substance is not regulated by the IED, is no reason to assume it will not be emitted from the cement works. PCBs can be created in the combustion process. The EPA milk fat-monitoring results from 2012, indicated that PCBs contributed 43% of dioxin-like toxicity, in TEQ terms, in milk fat. Seabird deaths have been caused by bio-accumulation of PCBs. Dioxin-like PCBs

are considered to be less toxic than PCDD/Fs, with a TEF of 0.1 at highest, and many more being much lower – where the most toxic of the dioxins is 2,3,7,8-TCDD, with a TEF of 1.0. However, it is argued that concentrations of PCBs are much higher than PCDD/Fs. The clarification of additional information submission from ICL of 13th February 2017, contained a justification for not including PCBs in the PCDD/F analysis. The IED does not require inclusion of the mass concentrations of dioxin-like PCBs when assessing compliance with the ELV for PCDD/Fs. The HSE noted in its response to LCCC, that it maintained that PCBs should have been included in any analysis. I would be satisfied that the IED is the appropriate regulatory instrument in relation to emissions from cement plants, and that there is no requirement to measure or monitor PCBs which may be emitted from the cement works.

11.7.14. PCDD/Fs, together with PCBs, are among the principal substances classified as Persistent Organic Pollutants (POPs) under the Stockholm Convention. The EPA measures the quantity PCDD/Fs and PCBs in cow's milk at a number of sites in Ireland – including in the vicinity of Platin, Carranstown in Co. Meath (site B17), where ICL is currently incinerating alternative fuels/raw materials in its cement kiln, and where municipal waste is incinerated by Indaver at Carranstown. The EPA has also recently commenced monitoring for PCDD/Fs in the vicinity of the Lagan Cement Plant at Kinnegad (site B18). B sites are potential impact stations in areas of perceived potential risk, whilst A sites are background stations covering larger areas of sample counties. The results of this monitoring are set down within the EPA publications "Air Quality in Ireland" – extracts from the 2015 publication being presented at the Hearing (Document 24). Measured levels are well below EU limit values for both PCDD/Fs and PCDD/Fs + PCBs, and are similar to, or lower than, those from previous surveys and from other EU countries. PCB data is stated to be very low compared with EU limits.

11.7.15. The principal source of PCDD/Fs in the atmosphere is residential combustion (30%) and open backyard burning of waste (15%) – based on a 2006 study in the context of the Stockholm Convention. The 2015 EPA Report on "Air Quality in Ireland", indicates that industrial emissions of PCDD/Fs across Europe has decreased by approximately 80% over the past two decades. The Report goes on to state that the most recent European Pollutant Release and Transfer Register from

Ireland in 2013 – indicates dioxin emissions from 369 industrial facilities are essentially zero. Review of the IE licence for Castlemungret will require compliance with the European limit of 0.1/ng/Nm^3 for PCDD/Fs.

11.7.16. A Human Health Risk Assessment (HHRA) was carried out by ICL – using the US-EPA Human Health Risk Assessment Protocol for Hazardous Waste Combustion Facilities (HHRAP), and submitted to LCCC on 2nd November 2016. The criterion specified by LCCC was the TDI recommended by the UK COT for dioxins, furans and dioxin-like PCBs, of 2pg/kg bodyweight/day. Elsewhere in this Report, it has been argued as to why PCBs were excluded from the HHRA. The ELV for PCDD/Fs used was that specified in the IED of 0.1ng/Nm^3 – and it was assumed that emissions occurred at the ELV, rather than actual levels which were assumed to be much lower. Only 17 of the 210 PCDD/F congeners are considered to be potentially toxic. A weighting factor is applied to all seventeen, with the most toxic congener 2.3.7.8-TCDD having a TEF of 1.0. The TEFs are set out at Table 7 of Document 29, presented at the Hearing. The model justifies a split for the 17 congeners, based on measurements from large facilities in the US in 2000, and in the UK (Document 29). The data is based on the incineration of MSW, rather than the alternative fuels which are proposed to be combusted in Kiln 6. More than 90% of human exposure to PCDD/Fs is via food, and for this reason, inhalation was excluded as a significant pathway (there being no internationally recognised air quality standards for PCDD/Fs). PCDD/Fs can accumulate in the food chain. The HHRAP is based on a hypothetical worst case exposure pathway, with the assumption that the most sensitive receptor is consuming vegetables and livestock grown and reared at the point of maximum ground level exposure – in this instance, on the N69 just inside the site boundary.

11.7.17. The AERMOD (version 7.7) dispersion model used meteorological data from Shannon Airport for the years 2011-2015, and took account of particle deposition under dry and wet conditions. A ten kilometre square deposition area was used – centred on the cement works. Ambient air was sampled for PCDD/Fs at two locations (beside the security hut at the site entrance to the cement works some 0.8km to the east of Kiln 6, and at a farm in the ownership of ICL some 2km to the northwest of Kiln 6). This sampling was carried out over a 72-hour period in July 2016. The concentration measured at Site 1 was <0.00008859ng/m^3, and at Site 2

was <0.00002997ng/m^3. The World Health Organisation guidance states that concentrations of 0.0003ng/m^3 or higher are indications of local emissions sources that need to be identified and controlled. Soil samples were taken for five areas within the cement works in August 2016 (exact locations not indicated), with an average concentration of 0.7116ng/kg of soil – where the level of concern would be concentrations of 10.0ng/kg of soil. Comparison with levels in urban and rural soils in the UK, indicate that the Limerick soil concentrations are very low. It was argued at the Hearing that these UK levels are from 2001/2002, and more up-to-date figures might present a different picture – without specifying whether the picture might be better or worse. The worst case receptor is likely to be a person residing on the N69 to the south of the cement works, and eating home-grown vegetables/fruit. The impact on all other receptors is considered to be less. Table 5 indicates ingestion exposure by receptor type from consumption of specified foods, breastmilk and soil, without giving any quantities, and simply indicating whether a food type would or would not be consumed by the receptor type. Table 6 gives a summary of types of individuals (Resident Adult, Resident Child, Resident Infant, Farmer Adult, Farmer Child and Farmer Infant) and likely exposure related to bodyweight. The likely intakes, and the fraction this comprises of the TDI, are all well below the WHO/UK guidance of 2pg/kg bodyweight/day for the protection of human health. The highest level was for the Farmer Infant, at approximately one quarter of the TDI.

11.7.18. A considerable amount of time at the Hearing was given over to arguing the dangers involved in burning waste in cement kilns – particularly in relation to emissions, and disputing the reliability of the HRRA, in the absence of any details on how the estimated likely exposure to PCDD/Fs was calculated for the receptor types. No information of model inputs was available to objectors, to allow for the model to be verified. It became clear at the Hearing that the information presented at Table 6 of the HHRA, represented the additional PCDD/F loading from the cement works (burning alternative fuels), and did not include existing background levels. This was stated to be contrary to the requirements of the EIA Directive, which required baseline conditions to be considered also. The model incorporated soil and air sampling for PCDD/Fs in the vicinity of the cement works, and assumed operation each day of the year – which is not the case (Kiln 6 is operational for approximately 330 days per annum). ICL was not asked to predict any concentration of PCDD/Fs

in any particular element of the food chain. Based on what is measured at the ICL plant at Platin, the worst case presented at Castlemungret is a very conservative approach – up to thirty times higher.

11.7.19. The 3rd Party appellants point out that the HHRA omitted fish from dietary intake, even though fish is the largest single contributor to dioxin-like toxicity in the average Irish diet (approximately 39%). Just because the local population might not eat significant amounts of locally-caught fish, does not mean that they will not eat shop-bought fish. Food not produced at the point of exposure was also excluded from the model, notwithstanding that Irish food is contaminated with PCDD/Fs – particularly fish and dairy products. No clear information was given on the diet of theoretical receptors, notwithstanding that such information is available on a national basis from studies carried out by universities and by the EPA. Table 5 of the HHRA did not quantify food intakes for each receptor type – just boldly stating yes or no for intake. At the Hearing, Tables 6.1 & 6.2 of Document 29, did shed some light on the consumption rates used in the model for different types of food and appropriate receptor types, whilst pointing out that food not produced at the exposure location was assumed not to be contaminated. The 3rd Parties indicated at the Hearing that an evidence-based link between soil concentration (given for five soil samples in Table 3 of the HHRA) and total intake of dioxin-like toxicity (Document 28B) was possible, based on work carried out for the Ringaskiddy incinerator planning application objection. That case only considered the Farmer and not the Resident. The 3rd Parties estimated intake for both Farmer Child and Farmer Adult (based on the five soil samples) ranging from 5.02-13.07pg/kg bodyweight/day TEQ for Farmer Child and ranged from 2.00-5.21pg/kg bodyweight/day TEQ for Farmer Adult. It was noted that PCDD/F soil concentrations at Castlemungret appeared to be a good deal higher than those at Ringaskiddy. All but one of the ten results exceed the TDI of 2pg/kg bodyweight/day TEQ. This would suggest that it would be inappropriate to grant permission at all – as TDI would already be exceeded for some receptor types in advance of any proposal to substitute alternative fuels/raw materials. This is not a reasonable starting point – particularly as the information is extrapolated from Ringaskiddy calculations. It was also argued that Farmer Infant and Resident Infant were already subjected to levels of PCDD/Fs from their mothers which was in excess of the COT recommended TDI of 2pg/kg bodyweight per day, and that any increase,

however small, from the ICL cement works would only serve to worsen an already unacceptably high level of exposure. ICL argued that background levels of PCDD/Fs in soil and air were already low. It was pointed out at the Hearing that COT was an advisory body and not a regulatory body in the UK. The report of AWN Consulting, dated 19th December 2016, stated in relation to the air dispersion modelling assessment at p.3- "…that in general it is appropriate and can be considered a valid estimate of predicted conditions for both the existing and proposed scenario at the worst-case ground level receptors. No input files were available for a complete assessment of the model. However, reviewing the information provided in the EIS, the input data meet the current and proposed licenced conditions". Whilst this statement was made in the context of the EPA licence review, it could also be applied to the potential impact in terms of the proposed development.

11.7.20. At the Hearing, it was contended that the modelling for PCDD/Fs did not take account of upset conditions, all emission points, emissions during start-up or shut-down, and the new arrangements for feeding tyres into Kiln 6. It was also argued that the 6-8 hours' test (quarterly) for PCDD/Fs, as required by the BAT Document on Production of Cement, Lime and Magnesium Oxide 2013, was inadequate to protect human health. It was explained that whole tyres would be fed into the back end of Kiln 6 under negative pressure, and that there would be no emissions from this part of Kiln 6. It was noted that tests were halted in the event of upset conditions, and that ICL would be notified in advance of testing for PCDD/Fs. It was contended that PCDD/F emissions could be considerably higher than at normal operating temperatures, and that a 2-4 weeks' test, as opposed to a 6-8 hours' test, could measure PCDD/F emissions 30-50 times higher. I note that the Proposed Determination of licence ref. P0029-05 does include an ELV for PCDD/Fs based on the 6-8 hours' test (quarterly). ICL contends that this is the EU-recognised standard, notwithstanding that 3rd Parties may consider it inadequate. I would agree with this contention, and notwithstanding whether permission is granted or not for this proposed development, ICL will be required to comply with a new ELV for PCDD/Fs. Obviously a review of the IE licence would be required if permission were granted to substitute alternative fuels/raw materials – and such review has already been instituted by ICL – ref. P0029-06.

11.7.21. At the Hearing it was argued by 3rd Party appellants that the issue of '*de novo* synthesis', whereby PCDD/Fs which were destroyed by high temperatures within Kiln 6, could reform within the cooling exhaust gases, at temperatures of 200-400 degrees Celsius, and that this was not addressed by ICL in the application. The BAT Document on Production of Cement, Lime and Magnesium Oxide (2013) at p.154 – advocated "quick cooling of kiln exhaust gases to lower than 200 degrees Celsius in long wet and long dry kilns without preheating. In modern and preheater and precalciner kilns, this feature is already inherent". ICL pointed out at the Hearing that this feature is already inherent in the dry process Kiln 6, with a modern preheater.

11.7.22. There will be no odour emissions arising from substitution of alternative fuels/raw materials. Liquids will be stored within closed tanks, with other materials stored in silos and enclosed buildings. No untreated mixed wastes will be delivered to the cement works. There will be no processing of alternative fuels/raw materials within the cement works site. Any deliveries not in compliance with required specifications will be returned to the supplier. There will be no long-term storage of alternative fuels, and this is reflected in the size of the storage areas proposed. The only exception to this is tyres, where 12-14 days' storage is provided. All alternative fuels/raw materials, apart from tyres, will be delivered in sealed containers/tankers. No odour issues have arisen at the ICL cement works at Platin, where SRF has been used since 2011. However, it must be noted that the proposed list of alternative fuels/raw materials at Castlemungret goes a long way beyond SRF.

11.7.23. Cumulative impacts for other significant emitters to air, is not considered to be a relevant consideration, arising from the separation distance from Aughinish Alumina (20km), Moneypoint (45km), and Tarbert (45km).

11.7.24. Limerick City is stated to be currently without an EPA air quality monitoring station, and so there is no way of checking the veracity of any of the results presented by ICL. This absence of an air quality monitoring station is not a matter for ICL.

11.7.25. The 3rd Parties claim that the proposed development would result in the release of POPs into the atmosphere, which would be contrary to Article 5 of the Stockholm Convention 2001 – by which Ireland, as part of the EU, is bound. Article 5 refers to continuing minimisation and, where feasible, ultimate elimination. It

further states- “Promote the application of available, feasible and practical measures that can expeditiously achieve a realistic and meaningful level of release reduction or source elimination”. Cement kilns firing hazardous waste are identified as having potential for comparatively high formation and release of PCDD/Fs and PCBs. I have elsewhere in this Report recommended that hazardous wastes be omitted from the list of alternative fuels/raw materials to be substituted at Kiln 6. I also note that the BAT Document on Production of Cement, Lime and Magnesium Oxide is an EU publication, which seeks to reduce and control the emissions of certain pollutants within the cement industry – amongst which are PCDD/Fs, but not PCBs.

11.7.26. Having regard to the information presented, I would be satisfied that the proposed development would not result in any significant decrease in air quality in the area, particularly having regard to the requirement for ICL to comply with IE licence ELVs for a number of pollutants at present; the scope of which is soon to be increased by way of review of IE licence P0029-03; and the necessity of reviewing the IE licence subsequent to any grant of permission to substitute alternative fuels/raw materials (which process has been commenced by ICL under lE licence review P0029-06). ICL has been operating at this site since 1938, with low levels of PCDD/Fs recorded within soil samples. The results of air quality monitoring set down in the EPAs document, “Air Quality in Ireland 2015”, indicate that PCDD/F and PCB concentrations in milk fat in the vicinity of two existing cement plants, which are currently burning alternative fuels (albeit a much more restricted range than proposed at Castlemungret), at Platin (B17) and Kinnegad (B18), are not significantly different to measurements from other background sites (25 in total) or sites of potential impact (18 in total) within Ireland.

11.8. **Noise & Vibration**

11.8.1. Chapter 9 of the EIS deals with these associated issues. Baseline noise monitoring was undertaken at five locations (NM1-NM5) on or around the cement works/quarry boundary on 7th May 2015 – a weekday. Noise is one of the emissions addressed in the IE licence for the facility – with limits set at $55dBL_{Aeq\ (30\ minutes)}$ for day-time and $45dBL_{Aeq\ (30\ minutes)}$ for night-time. Day-time is defined as 08.00 to 22.00 hours. It is noted that Kiln 6 currently operates on a 24-hour basis, for approximately 330 days per annum. Apart from the quarry and cement works, the major source of noise in

the area is traffic on the N69 and to a lesser extent the N18 – which latter road is partly in cut as it enters a tunnel section beneath the Shannon River. Day-time measurement results are presented at Table 9.5 of the EIS – all of which were below the relevant day-time threshold. Fans at the cement works are the principal source of noise. Night-time measurement results are presented at Table 9.6 – all of which were below the relevant night-time threshold. Traffic noise, and fans in the cement works are the principal sources of night-time noise. Following a request for additional information, further noise monitoring was carried out on the weekend of 3rd July 2016. A night-time Sunday background level of 36dBL_{A90} was measured at NM2 – the nearest noise-sensitive receptor. Furthermore, L_{Aeq} levels were assessed for both day-time and night-time at NM2, and indicated no significant impact due to introduction of alternative fuels/raw materials on the noise environment – being only 1dB above background levels for night-time.

11.8.2. Vibration air overpressure ELVs within the IE licence for the site relate to blasting at the quarry. The proposed development will not result in any activity which would significantly contribute to vibration – either during construction or operational phases.

11.8.3. The construction phase will be spread over the ten-year lifetime of the permission – although I have elsewhere in this Report argued in favour of a five-year permission. Additional traffic volumes will not be significant, and will certainly not approach the 25% increase regarded as resulting in +1dB change set out in the Design Manual for Roads and Bridges – Volume 11, even for a five-year permission. Mitigation measures will include the appropriate choice and maintenance of construction plant and operation within the limits of the current IE licence. In terms of background noise from the existing cement works, the construction noise will not be significant. The IE licence for the cement works specifies that there shall be no clearly audible tonal component or impulsive component in the noise emissions from the activity – when measured at a noise-sensitive location.

11.8.4. The kiln by-pass cooling tower is considered to be the major potential source of noise within the proposed development. This is scheduled for the final phase of the development. A sound power level of 101dB is assumed. At a separation distance of 500m from the nearest noise-sensitive location (NM2), a sound pressure level of 39dB is predicted. Adding this to the existing night-time base level would result in a cumulative value of 42dB, whilst adding it to the existing night-time weekend level

would result in a cumulative value of 41dB. This would comply with the current IE licence ELV of 45dB at night-time. New conveyors will be similar to ones which exist within the cement works at present. Handling facilities for the alternative fuels/raw materials will not result in any significant new sources of noise. No processing of alternative fuels/raw materials will be carried out on site. Storage will be within tanks, silos and new buildings. The EIS states that it is likely that a new evening noise limit (19.00-23.00 hours) of 50dB$L_{ar\ T}$ will be introduced into any revised IE licence. I note that the Proposed Determination of licence ref. P0025-05 does indeed have this evening time noise ELV. It is stated that the predicted noise levels from the proposed development will be below this threshold. No mitigation measures, over and above those already in place to ensure that the cement works operates within the IE licence ELVs, are proposed. There are no other significant development works proposed either within the cement works or immediately adjoining it which would result in cumulative impacts in relation to noise.

11.8.5. The 3rd Party appellants argue that a significant number of noise complaints have been made to ICL in relation to night-time noise from the cement works. Noise complaints have not been properly recorded or acted upon by ICL, as indicated by evidence submitted to the Hearing. It is contended that EIS noise measurements for just one day, with one additional Sunday measurement, are not an accurate representation of noise from the cement works. Using hand held noise meters, night-time noise levels above the licensed limits have been recorded at Ard Aulin estate. Noise measurements carried out by ICL (following complaints from residents) indicated night-time noise levels very close to the ELV of the IE licence for houses in Ard Aulin – some 1.1km from the cement kiln. Night-time noise measurements at Slí na Manach (carried out on behalf of the EPA, following complaints from residents) indicated levels just below the ELV of the IE licence. It is argued that houses closer to the Kiln 6 must necessarily be subject to noise levels which are higher. Whilst this may appear logical, nonetheless no evidence to back up this claim (in the form of actual noise measurements carried out by or on behalf of the EPA, using appropriately calibrated instruments) is submitted. The night-time noise measurements carried out by the EPA – the body tasked with monitoring such emissions) from the cement works have been found to be within ELVs specified in the IE licence.

11.8.6. Noise is an emission which is controlled and monitored by the EPA. ICL contends that there will be no significant change in noise levels arising from the proposed development – even with the proposed new cooling tower. Alternative fuels/raw materials storage/handling will not result in any additional noise sources over and above noise from handling petroleum coke. ICL will be required to operate within the ELVs set down in the current IE licence for the cement works, and any reviews of the said licence. ICL asserts that it keeps a record of all complaints lodged and reports them in the Annual Environmental Report to the EPA. This planning application/appeal is not concerned with existing operational standards at the cement works (and complaints in relation to noise under current operation), but rather whether the proposed development would be likely to result in any significant impact on the noise regime of the area. Any permission to issue from the Board will not include a condition in relation to noise emissions – this being a function of the IE licencing regime. I would be satisfied that the proposed development, of itself, will not have any significant impact in relation to noise.

11.9. **Landscape & Visual Assessment**

11.9.1. Chapter 10 of the EIS deals with these associated issues. A series of eight A3 colour photomontages accompanies the EIS (Appendix 10.1). There are no listed or protected views within or immediately adjoining the ICL site. The site is located within the Shannon Integrated Coastal Management Zone landscape character area. The site is zoned for industrial use. The proposed buildings and plant will be constructed within the existing cement works, and will be considerably lower than the existing highest element – the flue stack and pre-heater plant for Kiln 6 – the highest element of which is some 87.5m above existing ground level. The proposed cooling tower and by-pass filter element is 56m in height. The cement works is screened by belts of mature planting – particularly along the N69 and on the west side of the quarry void, which largely blocks views from adjoining roads. It is only in longer views that the bulk of the cement works is visible on the horizon. The proposed development will not have any significant impact on the appearance of the cement works in longer views. There are no other large-scale development proposals at or in the vicinity of this site which could result in cumulative impacts of significance.

11.10. **Cultural Heritage**

11.10.1. Chapter 11 and Appendix 11 of the EIS deal with cultural heritage aspects of the environment. A site visit was undertaken on 7th January 2015. The development is located within the existing cement works, and soil has already been stripped from a considerable portion of it. Indications from trial holes is that there is some made ground within the site. There remain some grassed/hedgerow areas, and it would be appropriate to ensure archaeological monitoring of soil-stripping of these areas. There was one National Monument within the curtilage of the cement works at Castlemungret – which was quarried out – LI 013-001 (Castlemungret enclosure). There are no Protected Structures within or immediately abutting the proposed development site: neither are there any structures included within the National Inventory of Architectural Heritage. The application was referred to the Executive Archaeologist for LCCC, who had no objection to the proposal. The development will not have any impact on the cultural heritage of the area.

11.11. **Roads & Traffic**

11.11.1. Chapter 12 of the EIS deals with these associated issues. The proposed development will utilise the existing entrance arrangements at the cement works. Access is from a recently-constructed roundabout on the N69/N18/R510 grade-separated interchange – referred to as the Dock Road Western Roundabout. The 60kph speed restriction applies in this area. Public lighting is in place. A number of older entrance points to the cement works and quarry, from the N69, have been closed-up.

11.11.2. Traffic counts were undertaken on the two roundabouts on either side of the grade-separated interchange on the N18 National Primary Route, on Tuesday 24th March 2015. A further count was undertaken over a 24-hour period on the N18 to the north of the interchange. Moring peak is 08.00-09.00 hours and evening peak is 16.45-17.45 hours. Results are presented at Table 12.1 of the EIS. Peak traffic on the N69 is heading into the city for the morning and out of the city for the evening. Traffic flows on the two roundabouts at the interchange are 10% lower at the evening peak when compared with the morning peak.

11.11.3. The site is located within the study corridor for a new Limerick City to Foynes road. The application was referred to Transport Infrastructure Ireland, which organisation had no objection to the proposal. The Mid-West National Road Design Office of LCCC had no objection to the development.

11.11.4. In 2015, the cement works was operating below maximum output – burning some 70,000 tonnes of petroleum coke. At maximum output, it is estimated that some 131,000 tonnes of petroleum coke would be burnt in Kiln 6. The fuel is imported through the Port of Foynes, and delivered by HGV to the site. Deliveries of 30,000-40,000 tonnes are made in batches, over periods of 8-10 weeks. The storage area at the cement works can accommodate 40,000 tonnes. Daily delivery is of the order of 46 HGVs over the delivery period, with peak hour deliveries being of the order of 10 HGVs. The maximum alternative fuels/raw materials would be of the order of 90,000 tonnes per annum, which would still result in a requirement for 75,000 tonnes of petroleum coke at maximum output of 1.3 million tonnes of cement per annum. Alternative fuels would average at 23 tonnes per HGV, whilst petroleum coke can be delivered in laden HGVs of 30 tonnes. Petroleum coke is delivered over approximately 20 weeks of the year, whilst alternative fuels would be delivered throughout the year. It is assumed that there are 330 working days in any year (obviously including some Sundays) – this figure being selected because Kiln 6 is operational for approximately 330 days a year, and needs to be fed with fuel. Predicted traffic movements were based on full production levels at the existing cement works, together with construction traffic movements and any subsequent alternative fuels/raw materials HGV movements. It was assumed that 20% of daily traffic movements would coincide with the morning peak and 20% with the evening peak, for the sake of robustness. This is clearly a worst-case scenario.

11.11.5. Table 12.4 of the EIS estimates an additional 40 LGV/HGVs per working day (20 vehicles). Maximum peak traffic generated would be 14 LGV/HGVs. The increase in AADT on the N69 would be 0.4%, and on the N18 would be 0.2%. At peak times the increase would be 1.3% and 0.6% respectively. This level of traffic generation will not have any significant impact on traffic conditions in the area. The access to the cement works is onto a major traffic interchange, with considerable spare capacity.

11.11.6. I have elsewhere in this Report addressed the issue of peak time deliveries of alternative fuels/raw materials. At present all deliveries of petroleum coke are from the Port of Foynes – along the N69. Alternative fuels will likely come from all directions – utilising the N18, N69 and perhaps the R510. This will serve to spread the traffic more evenly, particularly where petroleum coke is delivered in batches over 8-10 week periods at present. The delivery of alternative fuels in appropriately covered trucks/tankers will not have any impact in terms of traffic safety.

11.12. **Waste Management**

11.12.1. Chapter 13 and Appendix 13 of the EIS deals with this issue. Construction and Demolition (C&D) waste in Ireland has decreased consistently since its peak at 18 million tonnes in 2007. Most of this waste is recovered for reuse, recycling and backfilling. Some waste within the country is exported – some of it used in thermal recovery. The SRWMP 2015-2021, has LCCC as the lead authority. Naturally occurring ash components of alternative fuels/raw materials would be recycled into cement with no residue. Process dusts are already returned to the kiln system to be recycled into cement. Table 13.2 of the EIS outlines existing waste generated within the cement works/quarry – and how it is treated (either recovery or disposal). Wastes generated during the construction phase will be similarly treated. Limited demolition is proposed to facilitate the proposed development. Excavation for foundations and services will result in some overburden which will be used in landscaping or reused for construction elements. There will be no waste from the alternative fuels/raw materials, as all will be combusted/incorporated into the cement clinker process. Any rejected consignments of alternative fuels/raw materials will be returned to the supplier. Use of residual and hazardous waste as fuel in cement kilns is preferable to landfill or export for use as fuel. Movement of waste up the hierarchy, and prevention of export is at the heart of waste management policy.

11.12.2. Mitigation measures during the construction phase will include the preparation of a Construction Waste Management Plan – a sample of which is provided by way of Appendix 13.3 of the EIS. Soil and subsoil excavated will all be re-used on the site. Waste will be segregated and disposed of at appropriately-licensed facilities. The burning of alternative fuels is regarded as a positive impact during the operational phase.

11.13. **Interactions of the Foregoing**

11.13.1. Chapter 14 deals with this aspect of the EIS. The principal potential environmental interactions are identified as between-

- Human Beings and Noise & Vibration.
- Human Beings and Landscape & Visual.
- Human Beings and Air Quality.
- Flora & Fauna and Hydrology.
- Flora & Fauna and Air Quality.

11.13.2. There will be no change in operational noise, which is controlled by the conditions of the IE licence. There will be no significant impact on the visual amenities of the area. Air Quality Standards, which are included as part of the IE licence conditions, will ensure no additional impact on human beings. Water pollution during the construction phase, which could impact on water-dependent habitats and species, particularly within Bunlicky/Clayfield Pond, but also beyond in the Shannon River, will be controlled by way of IE licence and existing systems in place for control of sediment and hydrocarbons in any waters discharged from the cement works/quarry. Both hydrology and hydrogeology are connected and pollution events affecting one could clearly affect the other. Again, the use of concrete aprons and bunds and appropriate storage tanks/hoppers/buildings will reduce the possibility of contamination of either surface or ground waters. The development footprint is within the existing drainage infrastructure of the site, which contains settlement ponds/tanks and hydrocarbon interceptors on all outfalls to Bunlicky/Clayfield Pond. During the construction phase, appropriate measures will be put in place to deal with accidental spillages of contaminants. Predicted deposition rates of dust and NO_x will be such that there will be no significant impact on vegetation.

12.0 **Appropriate Assessment**

12.1. The application was accompanied by a Stage 1 Screening for Appropriate Assessment. European sites within a 15km radius of the cement works were

identified. The closest are the Lower River Shannon SAC and the River Shannon and River Fergus Estuaries SPA. Other sites such as the Askeaton Fen Complex SAC, Tory Hill SAC, Curraghchase Woods SAC, Glenomra Wood SAC and Ratty River Cave SAC are located between 11-14km from the cement works and are not connected to it via any pathway, and where air dispersion from any cooling tower will be such as to ensure that no concentration of accidental emissions would be such as to have a significant impact on these Europeans sites. These sites can, therefore, be excluded from consideration. The proposed development will be located within a wider cement works and quarry complex. The raw materials store will be located within the existing quarry – with the remainder of the development located within the cement works processing area. The proposed development footprint does not contain any habitat of ecological value. Surface water and process water discharge under IE licence to Bunlicky/Clayfield Pond, part of which forms part of the River Shannon and River Fergus Estuaries SPA (that part on the east side of the N18). The discharges from the site are to the portion of the pond on the west side of the N18 – which road is entering a tunnel section beneath the Shannon River at this point. The pond is an artificial structure – constructed when alluvial clay was dredged and used as the secondary ingredient in the wet process manufacture of cement. This extraction ceased in 1981. Reclamation of the pond is ongoing through deposition of inert material under IE licence. The pond has an overall area of approximately 50ha. and a volumetric capacity of approximately 2.5 million m^3. Inflow is an average of 14,000m^3 per day from a variety of sources – approximately 50% of which is ICL. The surface of the pond is approximately 0.0m OD. It is situated on alluvial clay – and essentially separated from the underlying bedrock aquifer. The pond is stated to drain an area of approximately 6.0km^2. Residence time for inflows to the pond is almost 178 days.

12.2. The Conservation Interests of the River Shannon and River Fergus SPA (Site code 004007), located some 600m to the north of the site, are as follows-

- Cormorant (Phalacrocorax carbo)
- Whooper swan (*Cygnus cygnus*)
- Light-bellied Brent Goose *(Branta bernicla hrota*)
- Shelduck (*Tadorna tadorna*)

- Wigeon (*Anas penelope*)
- Teal (*Anas crecca*)
- Pintail (*Anas acuta*)
- Shoveler (*Anas clypeata*)
- Scaup (*Aythya marila*)
- Ringed plover (*Charadrius hiaticula*)
- Golden plover (*Pluvialis apricaria*)
- Grey plover (*Pluvialis squatarola*)
- Lapwing (*Vanellus vanellus*)
- Knot (*Calidris canutus*)
- Dunlin (*Calidris alpina*)
- Black-tailed godwit (*Limosa limosa*)
- Bar-tailed godwit (*Limosa lapponica*)
- Curlew (*Numenius arquata*)
- Redshank (*Tringa totanus*)
- Greenshank (*Tringa nebularia*)
- Black-headed gull (*Chroicocephalus ridibundus*)
- Wetland and Waterbirds.

12.3. The conservation interests of the Lower River Shannon SAC (Site code 002165), located some 600m to the north of the site, are as follows-

Sandbanks which are slightly covered by sea water all the time

- Estuaries
- Mudflats and sandflats not covered by seawater at low tide
- Coastal lagoons
- Large shallow inlets and bays
- Reefs

- Perennial vegetation of stony banks
- Vegetated sea cliffs of the Atlantic and Baltic coasts
- Salicornia and other annuals colonising mud and sand
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)
- Mediterranean salt meadows (*Juncetalia maritimi*)
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation
- Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)
- Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)*
- *Margaritifera* (Freshwater Pearl Mussel)
- *Petromyzon marinus* (Sea Lamprey)
- *Lampetra planeri* (Brook Lamprey)
- *Lampetra fluviatilis* (River Lamprey)
- *Salmo salar* (Salmon)
- *Tursiops truncatus* (Common Bottlenose Dolphin)
- *Lutra* (Otter).

12.4. The published Conservation Objectives for the SPA (17th September 2012) indicate that long-term population trends for all species are stable or increasing. The eastern portion of the Bunlicky/Clayfield Pond forms part of the SPA. The proposed development will not result in any reduction in the wetland area of the SPA. The published Conservation Objectives for the SAC (7th August 2012), indicate proposals for all species and habitats listed. I note that the Bunlicky/Clayfield Pond, to which licensed discharges from the cement works are made, does not form part of the SAC. A medium level threat to the SAC is indicated to come from air pollution and air-borne pollutants, without being more specific. There is no indication given of threats to the SAC from surface-water pollution.

12.5. The Heritage Officer for LCCC had concerns in relation to potential impacts on European sites, and additional information was sought from ICL. In the submission of 2nd November 2016, ICL referred to the licensing of the facility by the EPA, and monitoring of the two surface water outfalls SW1 and SW2 to Bunlicky/Clayfield Pond. Approximately 50% of the water discharged to Bunlicky/Clayfield Pond comes from the cement factory – the remainder coming from roadside drains on the N18, land drains at the Limerick City waste water treatment plant and drainage ditches. The IE licence addresses discharges direct to water and also to air. NO_x deposition levels at Bunlicky/Clayfield Pond are estimated to be of the order of 13.54mg/m^3 – resulting in 1.4kg Nitrogen/hectare/year – well within the United Nations Economic Commission for Europe 2003, Critical Loads for Nitrogen for Permanent Oligotrophic Waters/Softwater Lakes of 5-10kg (N) per hectare per year. At Bunlicky/Clayfield Pond, the maximum Ground Level Concentration (GLC) of NO_x is predicted to be 45.1% of the Air Quality Standard for the annual mean for the protection of vegetation (proposed deposition and background level). The worst case value is predicted for the southern shore of the pond - i.e. closest to the cement works. The application was screened for Appropriate Assessment by LCCC.

12.6. Construction activities can pose a threat to European sites, particularly in the case of accidental release of sediments or hydrocarbons to watercourses. All surface water from the cement works passes through silt traps and hydrocarbon interceptors prior to discharge, under licence, to Bunlicky/Clayfield Pond. Mitigation measures for the construction phase will be fully outlined in a Construction Environmental Management Plan to deal with accidental spillages, responsibilities, and methods for control, treatment and disposal of potentially contaminated surface water. Dust control measures will be observed; to include spraying of stockpiles and haul roads during dry periods. Alternative fuels for the kiln which come in liquid form will be stored in bunded areas, and bunds will be provided for alternative fuels stored in the open. Standard operational phase mitigation measures, which are already observed at this cement works, will be observed for the proposed development. There are no other large-scale projects proposed in the vicinity which could contribute to in-combination impacts on European sites.

12.7. The 3rd Party appellants are concerned that the development will have negative impacts on European sites, arising from, amongst other things, necessity to spray

stored tyres with insecticides, accidental fire, contaminated deposition, water contamination during flooding events, and bio-accumulation of PCDD/Fs in the fat of birds. I would note that the failure of the Shannon embankments (put forward as a possibility by 3rd Party appellants) would be a major disaster for European sites in the vicinity – quite apart from what contributory component the cement works would comprise in any such event. The bio-accumulation of PCDD/Fs in muds in Cork Harbour is not a relevant consideration in relation to Bunlicky/Clayfield Pond, which is not tidal, and therefore, is not used by feeding wader species. Reference is made to the need to carry out a risk assessment for fish-eating birds (protected under the SPA) at Bunlicky/Clayfield Pond and the Shannon/Fergus Rivers in relation to bio-accumulation of PCDD/Fs. Such a requirement would be far beyond what is necessary or required to protect the conservation interests of the European site, and more particularly species which use it for part of the year only or which may migrate around the SPA and surrounding land and sea. Air dispersion modelling indicated that there would be no significant impact on the pond, and consequently on wintering and breeding water-bird species which use it.

12.8. It is reasonable to conclude, that on the basis of the information on file, which I consider adequate in order to issue a screening determination, that the proposed development, individually or in combination with other plans or projects would not be likely to have a significant effect on European site no.s 004007 and 002165, or any other European site, in view of the Sites' Conservation Objectives, and a Stage 2 Appropriate Assessment is not, therefore, required.

13.0 **Recommendation**

13.1. I recommend that Permission be granted for the Reasons and Considerations set out below, and subject to the attached Conditions.

14.0 **Reasons and Considerations**

Having regard to-

a) the written submissions on the file,

b) the information presented at the Oral Hearing,

c) the relevant Development Plan for the area,

d) the Southern Region Waste Management Plan,

e) the requirement to acquire from the Environmental Protection Agency, a review of the Industrial Emissions licence for the Castlemungret cement works,

f) the planning history of the site,

g) the permitting and licensing of other cement plants within the country to incinerate alternative fuels in kilns,

it is considered that, subject to compliance with the Conditions set out below, the proposed development would not seriously injure the amenities of the area or of residential and other property in the vicinity, would not be prejudicial to public health, would be acceptable in terms of traffic safety and convenience and would be in accordance with the proper planning and sustainable development of the area.

15.0 **Conditions**

1. The proposed development shall be carried out in accordance with plans and particulars lodged with the application, as amended by the further plans and particulars submitted on the 2nd day of November 2016 and the 13th day of February 2017, and the submissions made at the Oral Hearing, except as may otherwise be required in order to comply with the following conditions. Where such conditions require points of detail to be agreed with the planning authority, these matters shall be the subject of written agreement and shall be implemented in accordance with the agreed particulars.

   Reason: In the interest of clarity.

2. This permission is for a period of five years from the date of grant of planning permission.

   Reason: To allow the planning authority, or the Board as appropriate, to consider any future changes in EU/National policy in relation to waste.

3. No alternative fuels/raw materials indicated as being 'Hazardous' in the Environmental Protection Agency publication "Waste Classification – List of Waste & Determining if Waste is Hazardous or Non-hazardous" (valid from 1 June 2015), shall be combusted in Kiln 6. Permission is hereby granted for co-combustion of only those List of Waste codes, outlined in the additional information submission to Limerick City & County Council on the 2nd day of November 2016, which are determined to be non-hazardous, by reference to the above-mentioned EPA publication.

   Reason: In the interest of public health and to facilitate the primary purpose of this facility; which is the production of cement, and not the co-combustion of waste (particularly the combustion of hazardous waste), which may require special care in relation to delivery, handling, storage and use.

4. No unprocessed alternative fuels/raw materials shall be delivered to the cement works, and no further processing of alternative fuels/raw materials shall take place at the cement works.

   Reason: In the interest of clarity and public health.

5. The total of Solid Recovered Fuel (sourced from Municipal Solid Waste) to be combusted at the cement works shall not exceed 30,000 tonnes per annum.

   Reason: In order to comply with the policies of the Southern Region Waste Management Plan 2015-2021, which policies are considered to be reasonable.

6. All mitigation measures outlined in the Environmental Impact Statement, and as amended by additional information submissions to Limerick City and County Council and/or at the Oral Hearing, shall be implemented in full.

Reason: In the interest of proper planning and sustainable development.

7. No substitution of alternative fuels/raw materials shall be carried out unless and until the necessary review of the Industrial Emissions licence for the cement works has been completed.

   Reason: In the interest of orderly development.

8. All alternative fuels/raw materials delivered to the cement works shall be delivered in sealed containers/covered vehicles, as appropriate.

   Reason: In the interest of public health and the amenities of the area.

9. Construction and demolition waste shall be managed in accordance with a construction waste and demolition management plan, which shall be submitted to, and agreed in writing with, the planning authority prior to commencement of development. This plan shall be prepared in accordance with the "Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects", published by the Department of the Environment, Heritage and Local Government in July 2006.

   Reason: In the interests of sustainable waste management.

10. The developer shall pay to the planning authority a financial contribution in respect of public infrastructure and facilities benefiting development in the area of the planning authority that is provided or intended to be provided by or on behalf of the authority in accordance with the terms of the Development Contribution Scheme made under section 48 of the Planning and Development Act 2000. The contribution shall be paid prior to the commencement of development or in such phased payments as the planning authority may facilitate and shall be subject to any applicable indexation provisions of the Scheme at the time of payment. Details of the

application of the terms of the Scheme shall be agreed between the planning authority and the developer or, in default of such agreement, the matter shall be referred to the Board to determine the proper application of the terms of the Scheme.

Reason: It is a requirement of the Planning and Development Act 2000 that a condition requiring a contribution in accordance with the Development Contribution Scheme made under section 48 of the Act be applied to the permission.

Michael Dillon,
Planning Inspector.

31st October 2017.