



# OFFICE OF CLIMATE, LICENSING & RESOURCE USE

## CLIMATE CHANGE & ENVIRONMENTAL RESEARCH UNIT

FINAL NEW ENTRANT VERIFICATION REPORT		NE2-011-R1-F
New Entrant Register Number	Verified NESA Priority	Verified CHPSA Priority
NE2-011	9	Not applicable
<b>Date:</b>	Published for consultation 01 June 2012. Final decision 21 June 2012 (without amendments).	
<b>RE:</b>	Application for a free allocation of EU allowances from Ireland's New Entrant Set Aside 2008-12	

Application Details	
Operator name:	Nutricia Infant Nutrition Ltd.
Installation name:	Nutricia Infant Nutrition Ltd Macroom
Installation address:	Castlevew, Macroom, Co. Cork
GHG permit Register number:	IE-GHG140-04
Class of activity:	Combustion installations with a rated thermal input exceeding 20 MW (except hazardous or municipal waste installations)
NESA application received:	4 February 2011
Letters (Request for Further Information) issued:	19 April 2011; 7 October 2011 (by email); 15 March 2012
Further information received:	13 June 2011, 24 April 2012; 4 May 2012
Site Visit	6 October 2011
New Entrant proposed start date:	<b>20 February 2012</b> (new air heaters commissioned and brought on line) and <b>2 March 2012</b> (new gas boiler commissioned and brought on line). (The initial proposed start date was 1 November 2011.)

### Description of the increase in capacity:

The new entrant application is in relation to the installation of increased combustion capacity to meet the additional demand requirements of the increase in production of Infant Milk Formula product at the Macroom plant. The expansion includes the

construction of a new manufacturing area including the installation of a second dryer tower and evaporator building, additional storage area, a new raw materials intake area and the addition of one new natural gas boiler (BS3) (11.75 MW rated thermal input capacity); replacement of an existing Heavy Fuel Oil (HFO) boiler (BS1) (thermal input capacity of 13.88 MW) with a new natural gas boiler (11.75 MW) and conversion of an existing HFO boiler (BS2) to Natural Gas (resulting in a reduction in thermal input capacity from 12.98 MW to 11.75 MW) and the addition of two new gas fired air heaters, AH1 and AH2 with a rated thermal input capacity of 5.81 MW each to supply the large new powder dryer. There is an overall net increase of 20 MW thermal input capacity.

#### **Consents submitted:**

**Planning permission:** The Planning Permission most relevant to the current development was granted on appeal by An Bord Pleanála on 19<sup>th</sup> November 2007 (Cork County Council Ref. No. 06/8531; Bord Pleanála Ref. No. PL 04.223638). That permission covered among other items, the erection of a second drying tower and evaporator building and the re-erection of an existing boiler stack. The existing boilers, boiler housing and stacks are covered by historic planning permissions. The planned change from Heavy Fuel Oil to Natural Gas and the installation of a third boiler does not require planning permission.

#### **Site Inspection:**

*Date of Site Inspection:* 6 October 2011

*Application Representatives:* Mr Brendan Sills, Engineering Manager, Mr Donal Dennehy, Factory Director and Mr Matt Lynch (consultant)

*EPA Representatives:* Ms Elaine Farrell

*Basis for Priority on New Entrant Application Register:* This was a valid application for a development, which was received on the 04 February 2011 and which had obtained planning permission in 2007. In accordance with Appendix 3 Rule (c) of the National Allocation Plan it was assigned priority number 9. (See NAP Appendix 3 (1) Rule (c))<sup>i</sup>

#### *Site Tour Observations:*

The new manufacturing area construction was at an advanced state with the six floors of the drying tower in place and the large dryer in place in the centre of the tower.

The status of the combustion sources on the day of the site inspection was as follows:

**BS1** The HFO boiler was still in place on the day of site inspection. It is due to be replaced with a natural gas boiler resulting in a slight decrease in thermal input capacity.

**BS2** The boiler was in place on the day of the site inspection and was due to be converted from HFO to NG.

**BS3** The additional new Robey Loos boiler was in situ on 6 October and in the process of being connected which would add additional thermal input capacity of 11.75 MW.

**AH1**-The shell of this new gas fired air heater was in place in the drying tower but the burner had yet to be attached. From the data on the rating plate and the suppliers' technical data sheet supplied by the applicant on site, a thermal input capacity of 5.81 MW was determined.

**AH2**- The shell of this new gas fired air heater was in place in the drying tower but the burner had yet to be attached. From the data on the rating plate and the suppliers' technical data sheet supplied by the applicant on site, a thermal input capacity of 5.81 MW was determined.

Documentation Examined:

(i) Substantiated Valid Business Reason:

Nutricia Infant Nutrition Limited issued a press release 7 December 2010 referring to €50 million investment. The expanded production area was expected to go in to production in March 2012. It was noted during the site inspection on 6 October 2011 that the construction of the new production buildings was at an advanced stage.

Documentation examined: Copies of Danone Board presentation on Project Reasons and Business Case and Capex Minutes.

The Capex Purchase Agreement for Gas Equipment signed and dated by Danone Supply Plant Director and the contractor. This lists the contract dates for start of 1<sup>st</sup> boiler on 30 September 2011; start up of converted existing boiler on October 31 2011 and start up of second supplied boiler on November 30 2011.

(ii) Substantiated New Entrant Start Date:

The final New Entrant start date(s) were confirmed by the applicant on 24 April 2012 as follows:

**20 February 2012** (new air heaters commissioned and brought on line) and  
**2 March 2012** (new gas boiler (BS3) commissioned and brought on line)

Basis for Substantiation: *Schedule of Start up Dates for Thermal Input Equipment for Project RHEA for Nutricia Infant Nutrition Ltd., Castlevue, Macroom, Co.Cork* dated 23 April 2012 from Lynch & Associates, Consulting Engineers & Project Management.

(iii) Basis for Projections:

Projected emissions from the natural gas boiler are based on a ramp-up of energy demand required (primarily for drying) for the expanded infant formula powder production processes. Production reports, production forecasts performance reports were examined for substantiation of energy demand for milk powder/infant formula production on the day of the site visit.

At the meetings of 24 April 2012 and 4 May 2012 the most up to date Production Plan for 2012 signed and stamped by Factory Director and the manufacturers (GEA Process Engineering) design data in relation to energy requirements of production equipment was reviewed with the updated projection. This data is held on site.

## Detailed Calculation of Projected Emissions

### ***Applicant methodology for calculation of projected emissions:***

The initial projected emissions for the site submitted on 13 June 2011 were calculated based on projected additional infant milk formula production (in tonnes) by the historical calculated thermal inputs (in MWh/tonne). This value was estimated to be less than 2.26 MWh/tonne powder based on historic Heavy Fuel Oil (HFO) usage at the plant. This projection method estimated increase of 849 tonnes CO<sub>2</sub> per month (10,188 projected CO<sub>2</sub> tonnes for twelve months production in 2012).

On 4 May 2012, the applicant submitted an amended projection methodology based on the process equipment manufacturers data for the new plant and on revised production plan for 2012. The applicants projections detailed below are based on this revised methodology.

In the calculation of the additional production of (infant milk formula) powder, the equivalent amount produced annually in the existing plant was subtracted from the total planned annual production for 2012 as the emissions arising from the existing production is considered to have already been in receipt of an allocation under Ireland's National Allocation Plan for Emissions Trading 2008-2012<sup>i</sup> (NAP2).

The calculated additional energy demand for 2012 is set out in the table below in MWh input. It was based on the sum of the required net thermal energy input per tonne of product for each step of production, adjusted for losses due to steam and boiler efficiencies. The projected additional powder production (tonnes) was then applied, giving rise to a total projected energy requirement in MWh for 2012 as shown below:

Year	2008	2009	2010	2011	2012
<b>Additional MWh (input)</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>90,942.53</b>

The annual energy demand is converted to TJ (multiply by 0.0036) and then to tonnes of CO<sub>2</sub> by multiplying by the 2011 natural gas factor of 57.022 tonnes CO<sub>2</sub>/TJ.

<b>2012 calculation</b>
90,942.53 MWh*0.0036 *57.022 t CO <sub>2</sub> /TJ
Projected total CO <sub>2</sub> emissions for 2012 are 18,668 tonnes CO <sub>2</sub>

***Applicant Projected tonnes CO<sub>2</sub>/annum:***

2008	2009	2010	2011	2012
0	0	0	0	18,668

***EPA methodology for calculation of projected emissions:***

While the back-up documentation in relation to the energy requirements of the equipment supported the applicant's calculations of energy requirement per tonne of powder, the overall MWh for the new plant was above the historic (HFO) level of 2.26 MWh/tonne. It would be expected that a new plant operating on natural gas would show a higher efficiency in terms of MWh/tonne product. In accordance with appendix 3 (1)(k) of Ireland's National Allocation Plan for Emissions Trading 2008-2012<sup>i</sup> (NAP2) allocations will be based on agreed projected emissions arising from the combustion of fossil fuels, assuming use of best available technology. In accordance with EPA procedures<sup>ii</sup>, subject to exceptions detailed in the procedure, New Entrants will receive an allocation based on either *agreed on-site projections* or the *UK Benchmark* for the sector, whichever is the lesser.



Given that the projections calculated applying the UK Benchmark are less than the applicants on-site projections the EPA applies the UK Phase II New Entrants Benchmark for Combustion<sup>iii</sup> to calculate projected emissions in relation to the additional thermal input capacity.

A	=	C <sub>i</sub>	x	LFp	x	H	x	EF	÷	η
Allocation		Capacity (rated output)		Load Factor		Hours per year		Emissions Factor		Efficiency Factor
tCO <sub>2</sub>	=	MWth		%		Hours		tCO <sub>2</sub> / MWh input		%
Where										
C <sub>Installation</sub>	Installation capacity determined as the rated thermal output of the boiler/heater in MWth									
LF <sub>Process</sub>	Calculated as 58% based on process heating									
H	8760 hours per year (adjusted based on start date of combustion sources)									
EF	0.2053 tCO <sub>2</sub> /MWh fuel consumed (based on 3.6 x 10 <sup>-3</sup> x 57.022 (2011 natural gas emission factor for Ireland))									
η	0.92 efficiency factor									

EPA projected emissions are calculated using the following additional thermal input capacity:

Combustion Sources	Additional Thermal Input Capacity (MWth)	Rated Thermal Output (MWth)	Start Date
AH1 and AH2 (air heaters)	11.64	9.45	20/2/2012
BS3 boiler	8.39	8	2/3/2012

### 2012 calculation based on Benchmark for Other Combustion

For Air Heaters AH1 and AH2 =

9.45 (MWth) x 0.58 x 7,584 (hours) (i.e. 316 days operational in 2012) x 0.2053 (tCO<sub>2</sub>/MWth) ÷ 0.92 =

9,275.97 t CO<sub>2</sub>

For Additional Boiler Capacity (BS3) =

8 (MWth) x 0.58 x 7,320 (hours) (i.e. 305 days operational in 2012) x 0.2053 (tCO<sub>2</sub>/MWth) ÷ 0.92 =

7,579.32 t CO<sub>2</sub>

Total EPA projected CO<sub>2</sub> emissions = 9,275.97 + 7,579.32 = 16,855 tonnes

### EPA Projected tonnes CO<sub>2</sub>/annum:

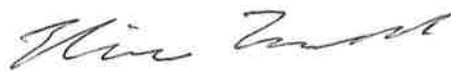
2008	2009	2010	2011	2012
0	0	0	0	16,855

## Recommendation

The new entrant set aside application is found to have the necessary consents in place and to have a substantiated start date as detailed above. The approach, as recommended in the NAP, and detailed in the EPA guidance for assessors on the validation of projections in set-aside applications for the trading period 2008-12 (ETUPP6/01 22 April 2009)<sup>ii</sup> has been deemed appropriate by the EPA for the calculation of emissions in relation to the additional thermal input capacity. A valid business reason is available. It is recommended that the new entrant set aside allocation be taken from NESA and be based on the following Relevant Emission (tonnes CO<sub>2</sub>/annum):

2008	2009	2010	2011	2012
0	0	0	0	16,855

Signed:

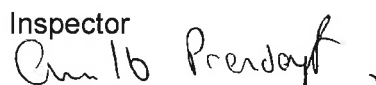


Date: 01 June 2012

**Elaine Farrell**

Inspector

Approved:



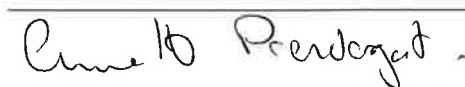
Date: 01 June 2012

**Annette Prendergast**

Acting/Senior Manager

**Note for Final Report:** No objections were received to the above report as published on the EPA website for public consultation from 01 June 2012 to 18 June 2012. The report is now considered Final.

Approved as  
Final:



Date: 21 June 2012

**Annette Prendergast**

Acting/Senior Manager

<sup>i</sup> Ireland's National Allocation Plan for Emissions Trading 2008-2012. Final Allocation Decision 4 March 2008.

[http://www.epa.ie/downloads/pubs/air/etu/NAP2%20Final%20Allocation%20Decision\\_040320082.pdf](http://www.epa.ie/downloads/pubs/air/etu/NAP2%20Final%20Allocation%20Decision_040320082.pdf)

<sup>ii</sup> [http://www.epa.ie/downloads/forms/etu/setaside/Guidance\\_on\\_NES\\_projections.pdf](http://www.epa.ie/downloads/forms/etu/setaside/Guidance_on_NES_projections.pdf)

<sup>iii</sup> Appendix D1: New Entrant Benchmark Spreadsheet of EU Emissions Trading Scheme Approved Phase II NAP 2008-2012, DEFRA