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|  <p>Environmental Protection Agency<br/>An Ghníomhaireacht um Chaomhnú Comhshaoil</p> | <p><b>OFFICE OF ENVIRONMENTAL<br/>SUSTAINABILITY</b></p>  |
| <b>ENVIRONMENTAL LICENSING PROGRAMME</b>   |   |
| <b>TO:</b>   | Eimear Cotter, Director   |
| <b>FROM:</b>   | Marian Doyle, Inspector, Environmental Licensing Programme  |
| <b>DATE:</b>   | 30 January 2019   |
| <b>RE:</b>   | Technical Amendment to Industrial Emissions Licence Register<br>Number: P0395-03, held by Wyeth Nutritionals Ireland Limited,<br>Coolrahee, Askeaton, Co. Limerick. |

The Agency received a request from Wyeth Nutritionals Ireland Limited, Licence Reg. No. P0395-03 on 02/05/2017 to technically amend its licence. The request is related to a proposed Research & Development pilot plant, which includes a new main emission point to air. This memo recommends that the requested change may be accommodated by a Technical Amendment, in accordance with Section 96(1)(c) of EPA Acts 1992, as amended.

## 1. Background

This installation carries out the manufacture of infant nutritional products including powder and liquid formula. The first licence (Reg. No. 395) was granted by the Agency to AHP Manufacturing B.V. T/A Wyeth Nutritionals Ireland on 27/10/2000. The installation is licenced under the following classes of activity of the First Schedule to the EPA Acts 1992, as amended:

Class 7.2.1 (*The treatment and processing of milk, the quantity of milk received being greater than 200 tonnes per day (average value on a yearly basis)*) and

Class 2.1 (*combustion of fuels in installations with a total rated thermal input of 50MW or more*).

A revised licence P0395-02 was granted to AHP Manufacturing B.V. T/A Wyeth Nutritionals Ireland on 23/01/2004. The licence was transferred to Pfizer Ireland Pharmaceuticals on 25/01/2011. The licence was subsequently transferred to Pfizer Nutritionals Ireland Limited on 24/10/2011. On 11/10/2012 a revised licence P0395-03 was granted which gave effect to the Environmental Objectives (Surface Waters) Regulations 2009 and the Environmental Objectives (Groundwater) Regulations 2010. This licence was amended on 16/12/2013 to give effect to the requirements of the Industrial Emissions Directive (2010/75/EU). It was amended on 10 January 2017 (Technical Amendment A) to accommodate a change to the installation boundary. On 03 September 2014 the licensee informed the Agency that the legal name of Pfizer Nutritionals Ireland Limited had changed to Wyeth Nutritionals Ireland Limited.

## 2. Technical Amendment request

The request (Reference No: CR02887) is entitled '*RTF Building Extension for R&D Pilot Plant and Offices*'. Further information was received on 17/01/2018, 01/11/2018 and 30/11/2018. The requested change is to accommodate a new main emission point to air for particulates (A2-8) from a proposed Infant Formula pilot plant.

The pilot plant building will consist of the following:

- **Wet processing area:** This area is for recombination and blending of ingredients. It will have a vacuum mixer, storage tanks and pumps, a plate heat exchanger, homogenizer and cooler. The cooled product enters an evaporator prior to spray drying.
- **Dry processing area:** This area is for spray drying of product and bag filling. Fine powders from drying pass through a cyclone where the majority are re-injected into the dryer agglomeration zone. Air emissions pass through a baghouse filter before being emitted to air via A2-8. A limit of 15 mg/m<sup>3</sup> is requested for Total Particulates.

The processes will be similar to existing processes on-site. The licensee has stated that two emission points to air (A2-2 (dryer) and A2-5 (agglomerator)) are no longer required and that these can be removed from their existing licence.

Planning permission (Ref: 16/249) was granted by Limerick County and City Council for the R&D building on 10/05/2016. An Environmental Impact Statement was not required, which was confirmed in correspondence from the Planning Authority dated 11/01/2017.

### 3. Consultation with the Office of Environmental Enforcement (OEE)

The OEE confirmed that the request could not be accommodated under the existing licence. The licensee received five non-compliances in 2018 relating to breach of air emission limits and storm water trigger values. The OEE has confirmed that no legal proceedings are in train.

### 4. Assessment of Amendment Request

The plant is located in a rural area outside of Askeaton, Co. Limerick. The installation operates 24 hours/day. Licence Reg. P0395-03 specifies six main emission points to air which are licenced to emit Total Particulates. These are associated with dryers (A2-1, A2-2, A2-3, A2-4 & A2-6) and an agglomerator (A2-5). The licence does not specify volumetric flow limits for these emission points. In the amendment request the licensee has provided maximum volumetric flows (see Table 1).

**Table 1: Emissions to air (existing and requested)**

| Ref                    | Status of emission point | Max flow (Nm <sup>3</sup> /hr) | Licence limits- Total Particulates mg/m <sup>3</sup> | Mass emissions <sup>Note 1</sup> |        | Recorded operation (days/week) |
|------------------------|--------------------------|--------------------------------|--|----------------------------------|--------|--------------------------------|
|                        |                          |                                |  | g/sec                            | kg/hr  |                                |
| A2-1                   | Existing                 | 46,992                         | 50   | 0.65                             | 2.34   | 1.63                           |
| A2-2 <sup>Note 2</sup> | No longer required       | 38,132                         | 50   | 0.53                             | (1.91) | 3                              |
| A2-3                   | Existing                 | 83,267                         | 50   | 1.16                             | 4.18   | 2.95                           |
| A2-4                   | Existing                 | 104,084                        | 50   | 1.45                             | 5.22   | 4.59                           |
| A2-5 <sup>Note 2</sup> | No longer required       | 29,267                         | 50   | 0.41                             | (1.48) | 3                              |
| A2-6                   | Existing                 | 104,084                        | 50   | 1.44                             | 5.18   | 3.74                           |
| A2-8                   | New                      | 6,600                          | 15 (requested)                                       | 0.028                            | 0.1    | 8 hrs/day, 4 days/week         |

Note 1: Maximum flow from licensee multiplied by maximum concentration emission limit value in P0395-03.

Note 2: Emission points are no longer in use and are not provided for in the recommended amendment.

The licensee carried out air dispersion modelling using AERMOD (Version 16128r) to assess the impact of the proposal on ambient air quality. Modelling was carried out for the existing licenced scenario and the requested scenario (removing A2-2 and A2-5 and including A2-8).

The following assumptions were made:

- Maximum volumetric flows and maximum concentration limits for Total Particulates.
- That all emission points are operating 24 hours/day and 365 days/year. Actual recorded days of operation/week are provided in Table 1.
- It has been assumed that 50% of total particulates occur as PM<sub>10</sub> for comparison with the ambient standard for PM<sub>10</sub>. It has been assumed that 50% of total particulates occur as PM<sub>2.5</sub> for comparison with the ambient standard for PM<sub>2.5</sub>. Air emissions monitoring by the licensee on 04/10/2018 found an average of 27% of total particulates as PM<sub>10</sub> and 14% of total particulates as PM<sub>2.5</sub>.

**Table 2. Air dispersion modelling results**

| <b>Existing licenced scenario (six emission points: A2-1, A2-2, A2-3, A2-4, A2-5 &amp; A2-6)</b>                    |   |  |   |   |  |
|---|---|--|---|---|--|
| Parameter   | Averaging period                          | Background: $\mu\text{g}/\text{m}^3$ <sup>Note 1</sup> | Process contribution $\mu\text{g}/\text{m}^3$ | Predicted Environmental Concentration (PEC) $\mu\text{g}/\text{m}^3$ <sup>Note 2</sup> (and % of AQS) | Air Quality Standards <sup>Note 3</sup> ( $\mu\text{g}/\text{m}^3$ ) |
| PM <sub>10</sub> <sup>Note 4</sup>  | Max 24 hour mean (90.4 <sup>th</sup> ile) | 18.0   | 23.9  | 33.1 (66.2%)  | 50   |
| PM <sub>10</sub> <sup>Note 4</sup>  | Annual mean                               | 9.2  | 7.8   | 17.0 (42.5%)  | 40   |
| PM <sub>2.5</sub> <sup>Note 5</sup>   | Annual mean                               | 6.0  | 7.8   | 13.8 (55.2%)  | 25   |
| <b>Requested scenario (five emission points: A2-1, A2-3, A2-4, A2-6 &amp; A2-8 (new)) (A2-2 &amp; A2-5 removed)</b> |   |  |   |   |  |
| PM <sub>10</sub> <sup>Note 4</sup>  | Max 24 hour mean (90.4 <sup>th</sup> ile) | 18.0   | 21.2  | 30.4 (60.8%)  | 50   |
| PM <sub>10</sub> <sup>Note 4</sup>  | Annual mean                               | 9.2  | 6.8   | 16.0 (40%)  | 40   |
| PM <sub>2.5</sub> <sup>Note 5</sup>   | Annual mean                               | 6.0  | 6.8   | 12.8 (51.2%)  | 25   |

Note 1: Background levels are from EPA data from Kilkitt, Co. Monaghan (Zone D rural station).

Note 2: The methodology for combining short term (24 hour) process contributions with background levels is in accordance with Agency Air Dispersion Modelling Guidance Note AG4.

Note 3: Air Quality Standards Regulations 2011 (S.I. No. 180 of 2011).

Note 4: It has been assumed that 50% of total particulates occur as PM<sub>10</sub>.

Note 5: It has been assumed that 50% of total particulates occur as PM<sub>2.5</sub>.

Table 2 summarises the predicted impact of the requested changes. The results show that predicted concentrations are well below ambient air quality standards for PM<sub>10</sub> and PM<sub>2.5</sub> for the existing and requested scenarios. The inclusion of emission point A2-8 and the removal of A2-2 and A2-5 would result in lower predicted ambient concentrations of particulates, compared to what is currently licenced. The requested scenario would also reduce the maximum allowable mass emissions from the installation from 20.3 kg/hr to 17.02 kg/hr, which is a reduction of 3.2 kg/hr or 16%. The requested emission point (A2-8) has a mass emission of 0.1 kg/hr and its contribution is small in comparison to the permitted emissions from the installation.

The modelling is in accordance with the Agency's '*Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)*' guidance and is considered sufficiently detailed to assess the impact of the installation's emissions to air. The approach is conservative based on the following:

- All emission points were assumed to be operating 24 hours/day for 365 days/year, which is conservative compared to recorded actual hours of operation.
- All emission points were assumed to be operating at their maximum discharge volumes and maximum concentrations for 365 days/year.

- It has been assumed that 50% of total particulates will be as PM<sub>10</sub> and that all PM<sub>10</sub> will be as PM<sub>2.5</sub>, which would not be the case. This is supported by licensee monitoring in 2018 for total particulates, PM<sub>10</sub> and PM<sub>2.5</sub>. Two sampling runs were carried out for emission points A2-4 and A2-6, which are considered representative of the other emission points.
- The maximum background concentrations have been added to the maximum process contribution. It is stated in AG4 that '*it is unlikely that the maximum measured short-term background concentrations will overlap spatially with the maximum predicted process concentration*'.

The installation is located in a rural area approximately 0.5 km from Askeaton and there are no other Industrial Emissions (IE) or Integrated Pollution Control (IPC) installations in the immediate vicinity. The River Deel, which is part of the River Shannon and River Fergus Estuaries SPA (site code 004077) is bordering the installation to the east. Predicted concentrations beyond the installation boundary are well within the short term (daily) and long term (annual) standards for particulates.

It is recommended that the new emission point A2-8 be accommodated by Technical Amendment. The amendment does not allow an overall increase in emissions of Total Particulates. Also, it is imposing volumetric flow limits and therefore mass emission limits not included in the current licence, therefore it is more restrictive. The overall mass emissions of particulates will be reduced by 3.2 kg/hr. The requested changes would result in lower predicted concentrations than what is currently licenced. The recommended changes to the Schedules B and C of the licence are in summary:

- *Schedule B.1 Emissions to Air*: Maximum volumetric flows as modelled are specified for A2-8 (new) and for the dryer emission points in operation (A2-1, A2-3, A2-4 & A2-6).
- The concentration limit recommended for Total Particulates for A2-8 is 15 mg/m<sup>3</sup>, which is in accordance with BAT for the dairy sector (5-50 mg/m<sup>3</sup>).
- Emission points A2-2 (dryer) and A2-5 (agglomerator) will be removed from *Schedule B and C* as they are no longer in operation.
- *Schedule C.1.1 Control of Emissions to Air*: Control parameters for bag filtration are specified for A2-8.
- *Schedule C.1.2 Monitoring of Emissions to Air*: Emission point A2-8 will be included. Quarterly monitoring for Total Particulates will be maintained. Emissions monitoring is also required for PM<sub>10</sub> and PM<sub>2.5</sub>.

The licensee has also requested to accommodate a new minor emission point A3-38 (water vapour vent) and a potential emission point A4-1. The licensee has been advised to contact OEE to request approval of these changes under Condition 1 of its licence.

The R&D pilot plant will generate up to 80m<sup>3</sup>/day of effluent, which will be directed to the on-site WWTP. This effluent will be similar in nature to the existing effluent generated. The maximum licenced discharge from the WWTP to the River Deel (at SW1) is 2,800 m<sup>3</sup>/day. The average discharge is provided as 1,570 m<sup>3</sup>/day. Effluent from the pilot plant would represent approximately 5.1% of the average daily discharge and 2.9% of the maximum flow limit of 2,800 m<sup>3</sup>/day. A change to the licence limits for SW1 has not been requested and it is considered that the on-site WWTP has sufficient treatment capacity. There will be no increase in the volume of stormwater run-off as the area being developed is already hard-standing. Stormwater runoff will continue to discharge to water via existing oil separators to existing licenced storm water discharge points. Impacts on noise levels will be imperceptible and noise from the installation shall not give rise to sound pressure levels measured at noise sensitive locations which exceed the limit values.

## **5. Appropriate Assessment**

Appendix 1 lists the European Sites assessed, their associated qualifying interests and conservation objectives. A screening for Appropriate Assessment was undertaken to assess, in view of best scientific knowledge and the conservation objectives of the site, if the activities, individually or in combination with other plans or projects are likely to have a significant effect on any European Site. In this context, particular attention was paid to the European Sites at River Shannon and River Fergus Estuaries Special Protection Area (SPA) (004077), Lower River Shannon Special Area of Conservation (SAC) (002165), Askeaton Fen Complex SAC (002279), Barrigone SAC (000432), and Curraghchase Woods SAC (000174).

The activities are not directly connected with or necessary to the management of any European Site and the Agency considered, for the reasons set out below, that it can be excluded, on the basis of objective information, that the activities, individually or in combination with other plans or projects, will have a significant effect on any European Site and accordingly determined that an Appropriate Assessment of the activities was not required.

The reasons for this determination are:

- The changes will reduce the maximum allowable emissions from the installation, compared to what is currently permitted.
- The requested changes represent a reduced impact on ambient air quality compared to what is currently licenced.

## **6. Recommendation**

This memo recommends that the requested change be accommodated by a Technical Amendment (Amendment B) of Licence P0395-03 (held by Wyeth Nutritionals Ireland Limited), in accordance with Section 96(1)(c) of the EPA Acts 1992, as amended.

I recommend that the licence amendment be approved as set out in the attached Recommended Technical Amendment. The making of the amendment will not result in the relevant requirements of Section 83(5) of the EPA Acts 1992, as amended ceasing to be satisfied.

Signed,



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Marian Doyle  
Environmental Licensing Programme

**Appendix 1: List of European Sites assessed, their associated qualifying interests and conservation objectives.**

|   | <b>European Site (site code)</b>                      | <b>Qualifying interests</b><br><br>(* denotes a priority habitat)  | <b>Conservation objectives</b>  |
|---|---|--|---|
| 1 | River Shannon and River Fergus Estuaries SPA (004077) | <p><b>Habitats</b><br/>Wetlands</p> <p><b>Species</b><br/>Cormorant <i>Phalacrocorax carbo</i><br/>Whooper Swan <i>Cygnus</i><br/>Light-bellied Brent Goose <i>Branta bernicla hrota</i><br/>Shelduck <i>Tadorna</i><br/>Wigeon <i>Anas penelope</i><br/>Teal <i>Anas crecca</i><br/>Pintail <i>Anas acuta</i><br/>Shoveler <i>Anas clypeata</i><br/>Scaup <i>Aythya marila</i><br/>Ringed Plover <i>Charadrius hiaticula</i><br/>Golden Plover <i>Pluvialis apricaria</i><br/>Grey Plover <i>Pluvialis squatarola</i><br/>Lapwing <i>Vanellus vanellus</i><br/>Knot <i>Calidris canutus</i><br/>Dunlin <i>Calidris alpina</i><br/>Black-tailed Godwit <i>Limosa limosa</i><br/>Bar-tailed Godwit <i>Limosa lapponica</i><br/>Curlew <i>Numenius arquata</i><br/>Redshank <i>Tringa totanus</i><br/>Greenshank <i>Tringa nebularia</i><br/>Black-headed Gull <i>Chroicocephalus ridibundus</i></p>   | As per NPWS (2012) Conservation objectives for River Shannon and River Fergus Estuaries SPA (004077). Generic Version 1.0. Department of Arts, Heritage and the Gaeltacht (dated 17/09/2012). |
| 2 | Lower River Shannon SAC (002165)                      | <p><b>Habitats</b><br/>Sandbanks which are slightly covered by sea water all the time<br/>Estuaries<br/>Mudflats and sandflats not covered by seawater at low tide<br/>*Coastal lagoons<br/>Large shallow inlets and bays<br/>Reefs<br/>Perennial vegetation of stony banks<br/>Vegetated sea cliffs of the Atlantic and Baltic coasts<br/><i>Salicornia</i> and other annuals colonizing mud and sand<br/>Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)<br/>Bottlenose Dolphin <i>Tursiops truncatus</i><br/>Otter <i>Lutra lutra</i><br/>Mediterranean salt meadows (<i>Juncetalia maritim</i>)<br/>3260 Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation<br/><i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>)<br/>*Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>)</p> | As per NPWS (2012) Conservation objectives for Lower River Shannon SAC (002165). Generic Version 1.0. Department of Arts, Heritage and the Gaeltacht (dated 07/08/2012).                      |

|   |                                   |  |  |
|---|-----------------------------------|--|--|
|   |                                   | <p><b>Species</b></p> <p>Freshwater Pearl Mussel <i>Margaritifera margaritifera</i></p> <p>Sea Lamprey <i>Petromyzon marinus</i></p> <p>Brook Lamprey <i>Lampetra planeri</i></p> <p>River Lamprey <i>Lampetra fluviatilis</i></p> <p>Atlantic Salmon <i>Salmo salar</i> (only in fresh water)</p>   |  |
| 3 | Askeaton Fen Complex SAC (002279) | <p><b>Habitats</b></p> <p>7210 Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i>*</p> <p>7230 Alkaline fens</p>   | As per NPWS (2018) Conservation objectives for Askeaton Fen Complex SAC (002279). Version 1. Department of Culture, Heritage and the Gaeltacht (dated 18/05/2018). |
| 4 | Barrigone SAC (000432)            | <p><b>Habitats</b></p> <p>5130 <i>Juniperus communis</i> formations on heaths or calcareous grasslands</p> <p>6210 Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (* important orchid sites)</p> <p>8240 Limestone pavements*</p> <p><b>Species</b></p> <p>1065 Marsh Fritillary <i>Euphydryas aurinia</i></p> | As per NPWS (2018) Conservation objectives for Barrigone SAC (000432). Generic Version 6.0. Department of Culture, Heritage and the Gaeltacht (dated 21/02/2018).  |
| 5 | Curraghchase Woods SAC (000174)   | <p>1303 Lesser Horseshoe Bat <i>Rhinolophus hipposideros</i></p> <p>91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (Alno-Padion, Alnion incanae, Salicion albae)*</p> <p>91J0 <i>Taxus baccata</i> woods of the British Isles*</p>  | As per NPWS (2018) Conservation objectives for Curraghchase Woods SAC (000174). Version 1. Department of Culture, Heritage and the Gaeltacht (dated 30/07/2018).   |