

Facility Information Summary	
AER Reporting Year	2017
Licence Register Number	P0395-03
Name of site	Wyeth Nutritionals Ireland Limited
Site Location	Askeaton, Co. Limerick
NACE Code	1086
Class/Classes of Activity	7.2.1 and 2.1
National Grid Reference (6E, 6 N)	-8.98170 52.6091

A description of the activities/processes at the site for the reporting year. This should include information such as production increases or decreases on site, any infrastructural changes, environmental performance which was measured during the reporting year and an overview of compliance with your licence listing all exceedances of licence limits (where applicable) and what they relate to e.g. air, water, noise.

Wyeth Nutritionals Ireland Limited is one of Europe's leading producers of infant and child nutritional products. Established in 1974, this world-class facility is one of the largest purpose-built infant nutritional production facilities in the world. The factory produces both powdered formulas and a liquid ready-to-feed range of products.

Output from the factory in 2017 was less (-6%) than production output for 2016.


In line with the site's environmental policy a number of initiatives were implemented as part of the 2017 environmental management programme in the areas of water use, waste management and energy use that helped improve the overall environmental performance of the site.

A summary of proposed amendments to the site's Decommissioning Management Plan arising from a review of the plan is attached (as per Condition 10.2.2 of the IE Licence) Agreement is sought from the Agency to proceed with implementation of these amendments.

The noise mitigation and control programme is attached as required under Condition 6.14.2 of the IE Licence.

**Declaration:**

All the data and information presented in this report has been checked and certified as being accurate. The quality of the information is assured to meet licence requirements.

 Signature Group/Facility manager <small>(or nominated, suitably qualified and experienced deputy)</small>	30 March 2018 Date
--	-----------------------

**AIR-summary template**

Lic No:

P0395-03

Year

2017

Answer all questions and complete all tables where relevant

Additional information

- 1 Does your site have licensed air emissions? If yes please complete table A1 and A2 below for the current reporting year and answer further questions. If **you do not have** licenced emissions and **do not complete a solvent management plan** (table A4 and A5) you do not need to complete the tables

Yes	
-----	--

**Periodic/Non-Continuous Monitoring**

- 2 Are there any results in breach of licence requirements? If yes please provide brief details in the comment section of TableA1 below

No	
----	--

- 3 Was all monitoring carried out in accordance with EPA guidance note AG2 and using the basic air monitoring checklist? [Basic air monitoring checklist](#)

AGN2

Yes	
-----	--

**Table A1: Licensed Mass Emissions/Ambient data-periodic monitoring (non-continuous)**

Emission reference no:	Parameter/ Substance	Frequency of Monitoring	ELV in licence or any revision thereof	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence limit	Method of analysis	Annual mass load (kg)	Comments -reason for change in % mass load from previous year if applicable
A1-1	Nitrogen oxides (NOx/NO2)	Biannually		100 % of vaues < ELV	Min: 146.6 Max: 239.6	mg/Nm3	yes	EN 14792:2005	42,757	
A1-1	Carbon monoxide (CO)	Biannually			Min: 35 Max: 50.3	mg/Nm3	N/A	EN 15058:2004	9,444	
A1-1	volumetric flow	Biannually			Min: 26,401 Max: 26,401	Nm3/hour	N/A	OTH		
A2-1	Total Particulates	Quarterly		100 % of vaues < ELV	Min: 1.5 Max: 29.61	mg/Nm3	yes	EN 13284-1:2002	496	
A2-1	volumetric flow	Quarterly			Min: 28,155 Max: 33,362	Nm3/hour	N/A	EN 16911:2013		
A2-3	Total Particulates	Quarterly		100 % of vaues < ELV	Min: 26 Max: 45.08	mg/Nm3	yes	EN 13284-1:2002	11,482	
A2-3	volumetric flow	Quarterly			Min: 75,007 Max: 86,129	Nm3/hour	N/A	EN 16911:2013		
A2-4	Total Particulates	Quarterly		100 % of vaues < ELV	Min: 26.52 Max: 49.53	mg/Nm3	yes	EN 13284-1:2002	20,211	
A2-4	volumetric flow	Quarterly			Min:101,632 Max: 106,173	Nm3/hour	N/A	EN 16911:2013		
A2-6	Total Particulates	Quarterly		100 % of vaues < ELV	Min: 32.21 Max: 49.94		No	EN 13284-1:2002	20,193	
A2-6	volumetric flow	Quarterly			Min: 98,845 Max: 106,793		N/A	EN 16911:2013		
	Total Particulates					kg			52382	+37% due to increased drier activity and increased airflows.
	Nitrogen oxides (NOx/NO2)					kg			43,737	

AIR-summary template		Lic No:		P0395-03		Year		2017	
	Carbon monoxide (CO)				kg			9,482	-36% compared to 2016 mass emissions

Note 1: Volumetric flow shall be included as a reportable parameter

<b>AIR-summary template</b>	Lic No: P0395-03	Year	2017
<b>Continuous Monitoring</b>			

4	Does your site carry out continuous air emissions monitoring? If yes please review your continuous monitoring data and report the required fields below in Table A2 and compare it to its relevant Emission Limit Value (ELV)	SELECT	
5	Did continuous monitoring equipment experience downtime? If yes please record downtime in table A2 below	SELECT	
6	Do you have a proactive service agreement for each piece of continuous monitoring equipment?	SELECT	
7	Did your site experience any abatement system bypasses? If yes please detail them in table A3 below	SELECT	

**Table A2: Summary of average emissions -continuous monitoring**

Emission reference no:	Parameter/ Substance	ELV in licence or any revision thereof	Averaging Period	Compliance Criteria	Units of measurement	Annual Emission	Annual maximum	Monitoring Equipment downtime (hours)	Number of ELV exceedences in current reporting year	Comments
	SELECT			SELECT	SELECT					
	SELECT			SELECT	SELECT					
	SELECT			SELECT	SELECT					
	SELECT			SELECT	SELECT					
	SELECT			SELECT	SELECT					

note 1: Volumetric flow shall be included as a reportable parameter.

**Table A3: Abatement system bypass reporting table** [Bypass protocol](#)

Date*	Duration** (hours)	Location	Reason for bypass	Impact magnitude	Corrective action

\* this should include all dates that an abatement system bypass occurred

\*\* an accurate record of time bypass beginning and end should be logged on site and maintained for future Agency inspections please refer to bypass protocol link



**AER Monitoring returns summary template-WATER/WASTEWATER(SEWER)** Lic No: P0395-03 Year 2017

<p>1 Does your site have licensed emissions direct to surface water or direct to sewer? If yes please complete table W2 and W3 below for the current reporting year and answer further questions. <b>If you do not have</b> licensed emissions you <u>only</u> need to complete table W1 and or W2 for storm water analysis and visual inspections</p>	Additional information
Yes	
<p>2 Was it a requirement of your licence to carry out visual inspections on any surface water discharges or watercourses on or near your site? If yes please complete table W2 below summarising <u>only</u> any evidence of contamination noted during visual inspections</p>	
Yes	

**Table W1 Storm water monitoring**

Location reference	Location relative to site activities	PRTR Parameter	Licensed Parameter	Monitoring date	ELV or trigger level in licence or any revision thereof*	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence	Comments
	SELECT	SELECT	SELECT			SELECT		SELECT	SELECT	
	SELECT	SELECT	SELECT			SELECT		SELECT	SELECT	

\*trigger values may be agreed by the Agency outside of licence conditions

**Table W2 Visual inspections-Please only enter details where contamination was observed.**

Location Reference	Date of inspection	Description of contamination	Source of contamination	Corrective action	Comments
			SELECT		
			SELECT		

**Licensed Emissions to water and /or wastewater(sewer)-periodic monitoring (non-continuous)**

<p>3 Was there any result in breach of licence requirements? If yes please provide brief details in the comment section of Table W3 below</p>	Additional information
No	
<p>4 Was all monitoring carried out in accordance with EPA guidance and checklists for Quality of Aqueous Monitoring Data Reported to the EPA? If no please detail what areas require improvement in additional information box <a href="#">External/Internal Lab Quality checklist</a> <a href="#">Assessment of results checklist</a></p>	
Yes	

**Table W3: Licensed Emissions to water and /or wastewater (sewer)-periodic monitoring (non-continuous)**

Emission reference no:	Emission released to	Parameter/ Substance>Note 1	Type of sample	Frequency of monitoring	Averaging period	ELV or trigger values in licence or any revision thereof <sup>Note 2</sup>	Licence Compliance criteria	Measured value	Unit of measurement	Compliant with licence	Method of analysis	Procedural reference source	Procedural reference standard number	Annual mass load (kg)	Comments
SW1	Water	SELECT	composite	Annual	24 hour	5	All results < 1.2 x ELV	<1	TU	yes	Toxicity Analysis	ISO	6341:2012		

Note 1: Volumetric flow shall be included as a reportable parameter

Note 2: Where Emission Limit Values (ELV) do not apply to your licence please compare results against EQS for surface water or relevant receptor quality standards

## AER Monitoring returns summary template-WATER/WASTEWATER(SEWER)

Lic No: P0395-03

Year

2017

**Continuous monitoring**

5 Does your site carry out continuous emissions to water/sewer monitoring?

Additional Information	
Yes	

If yes please summarise your continuous monitoring data below in Table W4 and compare it to its relevant Emission Limit Value (ELV)

6 Did continuous monitoring equipment experience downtime? If yes please record downtime in table W4 below

No	
----	--

7 Do you have a proactive service contract for each piece of continuous monitoring equipment on site?

No	
----	--

8 Did abatement system bypass occur during the reporting year? If yes please complete table W5 below

No	
----	--

**Table W4: Summary of average emissions -continuous monitoring**

Emission reference no:	Emission released to	Parameter/ Substance	ELV or trigger values in licence or any revision thereof	Averaging Period	Compliance Criteria	Units of measurement	Annual Emission for current reporting year (kg)	% change +/- from previous reporting year	Monitoring Equipment downtime (hours)	Number of ELV exceedences in reporting year	Comments
SW1	Water	volumetric flow	2800	24 hour	No flow value shall exceed the .specific limit	m3/day			0	0	
SW1	Water	pH	6.5 - 9	24 hour	No pH value shall deviate from the .specified range	pH units			0	0	
SW1	Water	BOD	40	24 hour	All results < 1.2 times ELV, plus 8 from ten results must be < ELV	mg/L	3086	-56	0	0	Decrease possibly due to a more stable load and wastewater characteristics.
SW1	Water	Suspended Solids	50	24 hour	All results < 1.2 times ELV, plus 8 from ten results must be < ELV	mg/L	9926	-5	0	0	
SW1	Water	Total nitrogen	15	24 hour	All results < 1.2 times ELV, plus 8 from ten results must be < ELV	mg/L	1186	-8	0	0	
SW1	Water	Ammonia (as N)	10	24 hour	All results < 1.2 times ELV, plus 8 from ten results must be < ELV	mg/L	653	14	0	0	
SW1	Water	Total phosphorus	1.5	24 hour	All results < 1.2 times ELV, plus 8 from ten results must be < ELV	mg/L	102	-17	0	0	
SW1	Water	Ortho-phosphate (as PO4)	0.75	24 hour	All results < 1.2 times ELV, plus 8 from ten results must be < ELV	mg/L	25	-4	0	0	
SW1	Water	Fats, Oils and Greases	15	24 hour	All results < 1.2 times ELV, plus 8 from ten results must be < ELV	mg/L	2471	7	0	0	
SW1	Water	COD	-	24 hour		mg/L	15882	-12	0	0	

note 1: Volumetric flow shall be included as a reportable parameter.

**Table W5: Abatement system bypass reporting table**

Date	Duration (hours)	Location	Resultant emissions	Reason for bypass	Corrective action*	Was a report submitted to the EPA?	When was this report submitted?
						SELECT	

**AER Monitoring returns summary template-WATER/WASTEWATER(SEWER)**      Lic No: P0395-03      Year: 2017

--	--	--	--	--	--	--	--

\*Measures taken or proposed to reduce or limit bypass frequency



**Bund testing**

dropdown menu click to see options

**Additional information**

Are you required by your licence to undertake integrity testing on bunds and containment structures? if yes please fill out table B1 below listing all **new bunds and containment structures** on site, in addition to **all bunds which failed** the integrity test-**all bunding structures which failed including mobile bunds must be listed in the table below, please include all bunds outside the licenced testing period** (mobile bunds and chemstore included)

- 1
- 2 Please provide integrity testing frequency period
- Does the site maintain a register of bunds, underground pipelines (including stormwater and foul), Tanks, sumps and containers? (containers refers to "Chemstore" type units and mobile bunds)
- 3
- 4 How many bunds are on site?
- 5 How many of these bunds have been tested within the required test schedule?
- 6 How many mobile bunds are on site?
- 7 Are the mobile bunds included in the bund test schedule?
- 8 How many of these mobile bunds have been tested within the required test schedule?
- 9 How many sumps on site are included in the integrity test schedule?
- 10 How many of these sumps are integrity tested within the test schedule?

Yes	
3 years	
Yes	
27	
27	
0	
Yes	
0	
9	
9	
Yes	
Yes	
N/A	

**Please list any sump integrity failures in table B1**

- 11 Do all sumps and chambers have high level liquid alarms?
- 12 If yes to Q11 are these failsafe systems included in a maintenance and testing programme?
- 13 Is the Fire Water Retention Pond included in your integrity test programme?

**Table B1: Summary details of bund /containment structure integrity test**

Bund/Containment structure ID	Type	Specify Other type	Product containment	Actual capacity	Capacity required*	Type of integrity test	Other test type	Test date	Integrity reports maintained on site?	Results of test	Integrity test failure explanation <50 words	Corrective action taken	Scheduled date for retest	Results of retest (if in current reporting year)
	SELECT					SELECT			SELECT	SELECT		SELECT		

\* Capacity required should comply with 25% or 110% containment rule as detailed in your licence

Has integrity testing been carried out in accordance with licence requirements and are all structures tested in line with BS8007/EPA Guidance? [bundings and storage guidelines](#)

- 16 Are channels/transfer systems to remote containment systems tested?
- 17 Are channels/transfer systems compliant in both integrity and available volume?

Commentary	
No	
Yes	
Yes	

**Pipeline/underground structure testing**

Are you required by your licence to undertake integrity testing\* on underground structures e.g. pipelines or sumps etc? if yes please fill out table 2 below listing all underground structures and pipelines on site **which failed the integrity test and all which have not been tested within the integrity test period as specified**

- 2 Please provide integrity testing frequency period
- \*please note integrity testing means water tightness testing of all underground pipelines (as required under your licence)

Yes	
3 years	

**Table B2: Summary details of pipeline/underground structures integrity test**

Structure ID	Type system	Material of construction:	Does this structure have Secondary containment?	Type of secondary containment	Type integrity testing	Integrity reports maintained on site?	Results of test	Integrity test failure explanation <50 words	Corrective action taken	Scheduled date for retest	Results of retest (if in current reporting year)

Please use commentary for additional details not answered by tables/ questions above

<b>Groundwater/Soil monitoring template</b>	Lic No: P0395-03	Year: 2017
---	------------------	------------

		Comments
1	Are you required to carry out groundwater monitoring as part of your licence requirements?	yes
2	Are you required to carry out soil monitoring as part of your licence requirements?	no
3	Do you extract groundwater for use on site? If yes please specify use in comment section	no
4	Do monitoring results show that groundwater generic assessment criteria such as GTVs or IGVs are exceeded or is there an upward trend in results for a substance? If yes, please complete the Groundwater Monitoring Guideline Template Report (link in cell G8) and submit separately through ALDER as a licensee return AND answer questions 5-12 below.	yes
5	Is the contamination related to operations at the facility (either current and/or historic)	no
6	Have actions been taken to address contamination issues? If yes please summarise remediation strategies proposed/undertaken for the site	N/A
7	Please specify the proposed time frame for the remediation strategy	N/A
8	Is there a licence condition to carry out/update ELRA for the site?	yes
9	Has any type of risk assessment been carried out for the site?	yes
10	Has a Conceptual Site Model been developed for the site?	yes
11	Have potential receptors been identified on and off site?	yes
12		
	Is there evidence that contamination is migrating offsite?	no

Please provide an interpretation of groundwater monitoring data in the interpretation box below or if you require additional space please include a groundwater/contaminated land monitoring results interpretaion as an additional section in this AER

Analytical results from the 2017 monitoring rounds were in line with those of previous monitoring. The monitoring was completed in accordance with the site's Industrial Emissions Licence requirements and is reported in accordance with Stage 1 - Step 2 of the Environmental Protection Agency's Guidance on the Management of Contaminated Land and Groundwater at EPA Licenced Sites, issued in 2013.

The site is underlain by Waulsortian limestone bedrock, with the overlying subsoils ranging from 1.5 m to 4 m in thickness across the site. The inferred groundwater flow direction, confirmed at both monitoring rounds in 2016, in the limestone bedrock aquifer is to the east towards the River Deel. This is consistent with previous monitoring at the site.

Field measurements of water quality parameters and redox indicators were also generally consistent with previous rounds and indicate that dissolved oxygen concentrations in groundwater are low to moderate and groundwater is moderately reducing.

Monitoring results for Round 2 2017 can be summarised as follows:

- Major ion concentrations reported in September 2017 are comparable to the previous monitoring round in March 2017 for all wells excluding BH201.
- At well BH202 the majority of major ion concentrations increased between March 2017 and September 2017.
- Several major ions exceeded assessment criteria (mostly at BH202.
- Elevated concentrations of sodium chloride and potassium in groundwater at several wells are likely to reflect the site's coastal setting.
- Elevated concentrations of dissolved iron and manganese at borehole BH202 reflect the reduced groundwater conditions at this well.

Based on the current site status and monitoring data (particularly the major ion data) it is considered there is a limited degree of mixing between groundwater and surface water bodies close to the tidal River Deel estuary. During high tide in the river, the gradient of water flow is expected to be from the river outwards to the surrounding limestone aquifer, reversing under low tide conditions.

## Groundwater/Soil monitoring template

Lic No:

P0395-03

Year

2017

Table 1: Upgradient Groundwater monitoring results

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration++	Average Concentration+	unit	GTV's*	SELECT**	Upward trend in pollutant concentration over last 5 years of monitoring data
18/09/2017	BH201	pH	pH probe	Biannual	7.83	7.22	pH units		N/A	no
07/03/2017	BH201	COD	Colourimetric	Biannual	ND	ND	mg/l	N/A	N/A	no
18/09/2017	BH201	Calcium	ICP-OES	Biannual	65	65	mg/l	N/A	200	no
07/03/2017	BH201	Iron (dissolved)	ICP-OES	Biannual	ND	ND	mg/l	N/A	0.2	no
18/09/2017	BH201	Magnesium	ICP-OES	Biannual	7	7	mg/l	N/A	50	no
18/09/2017	BH201	Manganese (dissolved)	ICP-OES	Biannual	0.002		mg/l	N/A	0.05	no
18/09/2017	BH201	Potassium	ICP-OES	Biannual	4	4	mg/l	N/A	5	no
07/03/2017	BH201	Sodium	ICP-OES	Biannual	45	40.5	mg/l	N/A	150	no
18/09/2017	BH201	Total Alkalinity (CaCO <sub>3</sub> )	Metrohm	Biannual	230	222	mg/l	N/A	N/A	no
07/03/2017	BH201	Chloride	Aquakem	Biannual	51	45.5	mg/l	24 - 187.5	30	no
18/09/2017	BH201	Nitrate (as NO <sub>3</sub> )	Aquakem	Biannual	8.3	8.15	mg/l	37.5	25	no
07/03/2017	BH201	Nitrite (as NO <sub>2</sub> )	Aquakem	Biannual	ND	ND	mg/l	0.375	0.1	no
07/03/2017	BH201	Orthophosphate	Aquakem	Biannual	ND	ND	mg/l		0.03	no
18/09/2017	BH201	Sulphate as SO <sub>4</sub>	Aquakem	Biannual	26	24.5	mg/l	187.5	200	yes
07/03/2017	BH201	Fluoride	Dionex	Biannual	ND	ND	mg/l	1		no

.+ where average indicates arithmetic mean

.++ maximum concentration indicates the maximum measured concentration from all monitoring results produced during the reporting year

Table 2: Downgradient Groundwater monitoring results

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration	Average Concentration	unit	GTV's*	IGV	Upward trend in yearly average pollutant concentration over last 5 years of monitoring data
07/03/2017	BH203	pH	pH probe	Biannual	7.95	7.615	pH units	N/A		no
07/03/2017	BH203	COD	Colourimetric	Biannual	ND	ND	mg/l	N/A		no
18/09/2017	BH203	Calcium	ICP-OES	Biannual	73	69.5	mg/l	N/A	200	no
07/03/2017	BH203	Iron (dissolved)	ICP-OES	Biannual	0.84	0.84	mg/l	N/A	0.2	no

Groundwater/Soil monitoring template					Lic No:	P0395-03	Year	2017		
18/09/2017	BH203	Magnesium	ICP-OES	Biannual	9	8	mg/l	N/A	50	no
18/09/2017	BH203	Manganese (dissolved)	ICP-OES	Biannual	0.9	0.465	mg/l	N/A	0.05	no
18/09/2017	BH203	Potassium	ICP-OES	Biannual	14	11.5	mg/l	N/A	5	no
18/09/2017	BH203	Sodium	ICP-OES	Biannual	35	27.5	mg/l	N/A	150	no
18/09/2017	BH203	Total Alkalinity (CaCO <sub>3</sub> )	Metrohm	Biannual	266	254	mg/l	N/A		no
18/09/2017	BH203	Chloride	Aquakem	Biannual	29	28	mg/l	24 - 187.5	30	no
07/03/2017	BH203	Nitrate (as NO <sub>3</sub> )	Aquakem	Biannual	7	4.65	mg/l	37.5	25	no
18/09/2017	BH203	Nitrite (as NO <sub>2</sub> )	Aquakem	Biannual	0.1	0.09	mg/l	0.375	0.1	no
07/03/2017	BH203	Orthophosphate	Aquakem	Biannual	ND	ND	mg/l	N/A	0.03	no
18/09/2017	BH203	Sulphate as SO <sub>4</sub>	Aquakem	Biannual	45	45	mg/l	187.5	200	yes
07/03/2017	BH203	Fluoride	Dionex	Biannual	ND	ND	mg/l	1		no
<p>*please note exceedance of generic assessment criteria (GAC) such as a Groundwater Threshold Value (GTV) or an Interim Guideline Value (IGV) or an upward trend in results for a substance indicates that further interpretation of monitoring results is required. In addition to completing the above table, please complete the Groundwater Monitoring Guideline Template Report at the link provided and submit separately through ALDER as a licensee return or as otherwise instructed by the EPA.</p> <p style="text-align: right;"><a href="#">Groundwater monitoring template</a></p>										
<p>More information on the use of soil and groundwater standards/ generic assessment criteria (GAC) and risk assessment tools is available in the EPA published guidance (see the link in G31)</p> <p style="text-align: center;"><a href="#">Guidance on the Management of Contaminated Land and Groundwater at EPA Licensed Sites (EPA 2013).</a></p>										
<p>**Depending on location of the site and proximity to other sensitive receptors alternative Receptor based Water Quality standards should be used in addition to the GTV e.g. if the site is close to surface water compare to Surface Water Environmental Quality Standards (SWEQS), If the site is close to a drinking water supply compare results to the Drinking Water Standards (DWS)</p> <p style="text-align: right;"> <a href="#">Groundwater regulations</a> <a href="#">Drinking water (private supply) standards</a> <a href="#">Drinking water (public supply) standards</a> <a href="#">Interim Guideline Values (IGV)</a>  <a href="#">Surface water EQS</a> <a href="#">GTV's</a> </p>										

**Groundwater/Soil monitoring template**

Lic No:

P0395-03

Year

2017

**Table 3: Soil results**

Date of sampling	Sample location reference	Parameter/ Substance	Methodology	Monitoring frequency	Maximum Concentration	Average Concentration	unit
							SELECT
							SELECT

Where additional detail is required please enter it here in 200 words or less

## Environmental Liabilities template

Lic No:

P0395-03

Year

2017

[Click here to access EPA guidance on Environmental Liabilities and Financial provision](#)

		Commentary	
1	ELRA initial agreement status	Submitted and not agreed by EPA;	
2	ELRA review status	Review required and completed	
3	Amount of Financial Provision cover required as determined by the latest ELRA	€1,716, 605	
4	Financial Provision for ELRA status	Submitted and not agreed by EPA;	
5	Financial Provision for ELRA - amount of cover	All liabilities (known and inknow)	
6	Financial Provision for ELRA - type	Other please specify	Corp. Insurance Policy & Nestle S.A. Central Funds
7	Financial provision for ELRA expiry date	No date specified	
8	Closure plan initial agreement status	Closure plan submitted and not agreed by EPA	
9	Closure plan review status	Review required and completed	
10	Financial Provision for Closure status	Submitted and not agreed by EPA;	
11	Financial Provision for Closure - amount of cover	All liabilities (known and inknow)	
12	Financial Provision for Closure - type	Other please specify	Financial Security
13	Financial provision for Closure expiry date	€ 3,673,170	

<b>Environmental Management Programme/Continuous Improvement Programme template</b>		Lic No:	P0395-03	Year	2017
---	--	---------	----------	------	------

Highlighted cells contain dropdown menu click to view		Additional Information	
1	Do you maintain an Environmental Mangement System (EMS) for the site. If yes, please detail in additional information	Yes	ISO 14001:2015
2	Does the EMS reference the most significant environmental aspects and associated impacts on-site	Yes	
3	Does the EMS maintain an Environmental Management Programme (EMP) as required in accordance with the licence requirements	Yes	
4	Do you maintain an environmental documentation/communication system to inform the public on environmental performance of the facility, as required by the licence	Yes	

#### Environmental Management Programme (EMP) report

Objective Category	Target	Status (% completed)	How target was progressed	Responsibility	Intermediate outcomes
Waste reduction/Raw material usage efficiency	Reduction of 35% of water use per unit of production between 2010 and 2019.	80	Missed target in 2017. Continuing to work on specific projects to reduce water use.	Section Head	Improved Environmental Management Practices
Waste reduction/Raw material usage efficiency	Elimination of the landfilling of waste by 2015 and ensure that this elimination is maintained.	100	Continuing to work on specific projects to reduce overall waste generated.	Section Head	Improved Environmental Management Practices
Additional improvements	Incorporate sustainability into the procurement process for Irish suppliers of dairy ingredients.	100	Environmental sustainability programmes for all suppliers of Irish dairy ingredients have been reviewed and feedback given.	Section Head	Improved Environmental Management Practices
Additional improvements	Develop and manage areas for the promotion of biodiversity	90	Two areas developed with ongoing management and improvements.	Section Head	Improved Environmental Management Practices
Additional improvements	Implement initiatives that support sustainability involving the local community or employees.	50	New objective in 2017 with eight initiatives completed last year.	Section Head	Improved Environmental Management Practices

Environmental Management Programme/Continuous Improvement Programme template				Lic No:	P0395-03	Year	2017
Energy Efficiency/Utility conservation	Reduction of 3.5% in energy use per unit of production each year in 2016, 2017 and 2018.	50	Not on target. Improvement projects implemented but savings have been negated by changes in operating practices.	Section Head	Improved Environmental Management Practices		



## Noise monitoring summary report

Lic No: P0395-03

Year

2017

1 Was noise monitoring a licence requirement for the AER period?

Yes

If yes please fill in table N1 noise summary below

2 Was noise monitoring carried out using the EPA Guidance note, including completion of the "Checklist for noise measurement report" included in the guidance note as table 6?

Noise  
Guidance  
note NG4

Yes

3 Does your site have a noise reduction plan

Yes

4 When was the noise reduction plan last updated?

May-17

5 Have there been changes relevant to site noise emissions (e.g. plant or operational changes) since the last noise survey?

Yes

**Table N1: Noise monitoring summary**

Date of monitoring	Time period	Noise location (on site)	Noise sensitive location -NSL (if applicable)	LA <sub>eq</sub>	LA <sub>90</sub>	LA <sub>10</sub>	LA <sub>max</sub>	Tonal or Impulsive noise* (Y/N)	If tonal /impulsive noise was identified was 5dB penalty applied?	Comments (ex. main noise sources on site, & extraneous noise ex. road traffic)	Is site compliant with noise limits (day/evening/night)?
9th May 2017	Day		NSL 1	54	38	46	82	No	No	Local & distant traffic. Birds. Plant barely audible during traffic lulls.	Yes
9th May 2017	Day		NSL 2	58	41	58	78	No	No	Local & N69 traffic. Plant not audible, masked by traffic noise.	Yes
9th May 2017	Day		NSL 3	53	41	56	73	No	No	Local & N69 traffic. Plant not audible, masked by traffic noise. Dog barking. Ventilation system from nursing home.	Yes
9th May 2017	Day		NSL 4	54	46	56	76	No	No	Local and N69 traffic. Plant noise barely audible during traffic lulls. Birds.	Yes
9th May 2017	Day		NSL 5	49	34	46	75	No	No	Local traffic. Birds. Plant not audible.	Yes
9th May 2017	Day		NSL 6	46	33	48	63	No	No	Low level steady plant noise. Distant traffic. Birds. Farmyard noise.	Yes
9th May 2017	Evening		NSL 1	55	39	45	82	No	No	Local & distant traffic. Birds. Very low level plant noise audible in traffic lulls	Yes
9th May 2017	Evening		NSL 2	62	43	64	86	No	No	Local & N69 traffic. Plant barely audible, masked by traffic noise	Yes

9th May 2017	Evening		NSL 3	55	38	59	77	No	No	Local & N69 traffic. Plant barely audible, masked by traffic noise	Yes
9th May 2017	Evening		NSL 4	54	45	56	72	No	No	Local and N69 traffic. Birds. Plant barely audible, masked by traffic noise.	Yes
9th May 2017	Evening		NSL 5	53	40	57	76	No	No	Local traffic. Low level plant noise barely audible. Tractor operating in nearby field	Yes
9th May 2017	Evening		NSL 6	50	39	44	80	No	No	Distant traffic. Birds. Engine running in boatyard across river. Plant not audible	Yes
10th May 2017	Night		NSL 1	58	38	43	90	No	No	Local traffic. Very low level steady plant noise.	Yes
10th May 2017	Night		NSL 2	51	36	49	76	No	No	Local & N69 traffic. Steady low level plant noise audible during traffic lulls	Yes
10th May 2017	Night		NSL 3	43	37	44	64	No	No	Distant traffic. Ventilation system from nursing home. Steady low level plant noise	Yes
10th May 2017	Night		NSL 4	49	44	52	62	No	No	N69 traffic. Dogs barking, horse neighing. Low level steady plant noise.	Yes
10th May 2017	Night		NSL 5	41	38	43	57	No	No	Steady plant noise	Yes
10th May 2017	Night		NSL 6	40	37	40	70	No	No	Steady plant noise	Yes

\*Please ensure that a tonal analysis has been carried out as per guidance note NG4. These records must be maintained onsite for future inspection

If noise limits exceeded as a result of noise attributed to site activities, please choose the corrective action from the following options?

SELECT

\*\* please explain the reason for not taking action/resolution of noise issues?

Any additional comments? (less than 200 words)

## Resource Usage/Energy efficiency summary

Lic No:

P0395-03

Year

2017

## Additional information

- 1 When did the site carry out the most recent energy efficiency audit? Please list the recommendations in table 3 below
- 2 Is the site a member of any accredited programmes for reducing energy usage/water conservation such as the SEAI programme linked to the right? If yes please list them in additional information
- 3 Where Fuel Oil is used in boilers on site is the sulphur content compliant with licence conditions? Please state percentage in additional information

Enter date of audit	ETS in Nov. 2014
	We are a member of the LIEN and the SEAI Energy Agreements Program
Yes	
Yes	<1%

Energy Use	Previous year	Current year	Production +/- % compared to previous reporting year**	Energy Consumption +/- % vs overall site production*
Total Energy Used (MWHrs)	205,884	198,396	-6.59	2.99
Total Energy Generated (MWHrs)	37,094	36,699	N/A	N/A
Total Renewable Energy Generated (MWHrs)	0	0	N/A	N/A
Electricity Consumption (MWHrs)				
Fossil Fuels Consumption:				
Heavy Fuel Oil (m3)	0	0	N/A	N/A
Light Fuel Oil (m3)	0	0	N/A	N/A
Natural gas (m3)	18,449,062	18,612,540		
Coal/Solid fuel (metric tonnes)	0	0	N/A	N/A
Peat (metric tonnes)	0	0	N/A	N/A
Renewable Biomass	0	0	N/A	N/A
Renewable energy generated on site	0	0	N/A	N/A

\* where consumption of energy can be compared to overall site production please enter this information as percentage increase or decrease compared to the previous reporting year.

\*\* where site production information is available please enter percentage increase or decrease compared to previous year

Water use	Water extracted Previous year m3/yr.	Water extracted Current year m3/yr.	Production +/- % compared to previous reporting year**	Water Consumption +/- % vs overall site production*	Water Emissions	Water Consumption	Unaccounted for Water:
					Volume Discharged back to environment(m <sup>3</sup> /yr):	Volume used i.e not discharged to environment e.g. released as steam m3/yr	
Groundwater							
Surface water	745,485	734,707	-6	5	674,128	Not available	60,579
Public supply							
Recycled water							
Total	745,485	734,707	-6	5	674,128	Not available	60,579

\* where consumption of water can be compared to overall site production please enter this information as percentage increase or decrease compared to the previous reporting year.

\*\* where site production information is available please enter percentage increase or decrease compared to previous year

	Total	Landfill	Incineration	Recycled	Other
Hazardous (Tonnes)	17.484	0	9.904	7.55	0.03
Non-Hazardous (Tonnes)	11452.45	0	389.24	11063.21	0

<b>Resource Usage/Energy efficiency summary</b>	Lic No: P0395-03	Year	2017
---	------------------	------	------

Table R4: Energy Audit finding recommendations								
Date of audit	Recommendations	Description of Measures proposed	Origin of measures	Predicted energy savings %	Implementation date	Responsibility	Completion date	Status and comments
Nov-14	33 individual projects identified	Various	other initiative (please specify) SELECT	22%	01/01/2015	Energy Engineer	31/12/2019	Energy Target Setting is a Nestle corporate initiative used to plan energy and water reduction measures.
			SELECT					

**Table R5: Power Generation: Where power is generated onsite (e.g. power generation facilities/food and drink industry) please complete the following information**

	Unit ID	Unit ID	Unit ID	Unit ID	Station Total
Technology	CHP				
Primary Fuel	Natural Gas				
Thermal Efficiency	87.8%				
Unit Date of Commission	01/01/2005				
Total Starts for year	24/7 operation				
Total Running Time	8387 Hours				
Total Electricity Generated (GWH)	36.70				
House Load (GWH)	32.6228				
KWH per Litre of Process Water					
KWH per Litre of Total Water used on Site					

## Complaints and Incidents summary template

Lic No: P0395-03

Year

2017

Complaints

Additional information

Have you received any environmental complaints in the current reporting year? If yes please complete summary details of complaints received on site in table 1 below

Yes

Table 1 Complaints summary

Date	Category	Other type (please specify)	Brief description of complaint (Free txt <20 words)	Corrective action< 20 words	Resolution status	Resolution date	Further information
14/07/2017	Noise		Alleged noise coming from the plant over a two day period during the day time	None. Noi noise or potential noise source found.	Complete	17/07/2017	
13/11/2017	Noise		Alleged noise over the weeked and specifically on the Mondayd morning. Suggested that it may have been an issue with a PRV	Source of noise was PRV which was initially repaired and then modified to prevent a reoccurrence of the issue.	Complete	22/01/2018	
13/11/2017	Noise		Reported that a banging noise was coming from the plant and had been doing so since the previous week	Source of noise was PRV which was initially repaired and then modified to prevent a reoccurrence of the issue.	Complete	22/01/2018	
13/11/2017	Noise		Reported that a banging noise was coming from the plant and had been doing so since the previous week	Source of noise was PRV which was initially repaired and then modified to prevent a reoccurrence of the issue.	Complete	22/01/2018	
14/11/2017	Noise		Received a complaint regrding a complaint that had been made earlier	Source of noise was PRV which was initially repaired and then modified to prevent a reoccurrence of the issue.	Complete	22/01/2018	
07/12/2017	Noise		Security relayed a complaint regarding a noise that started at 4.50 AM	Source was a second PRV which was repaired and then modified to prevent a reoccurrence of the issue.	Complete	22/01/2018	
Total complaints open at start of reporting year		0					
Total new complaints received during reporting year		6					
Total complaints closed during reporting year		6					
Balance of complaints end of reporting year		0					





**WASTE SUMMARY** Lic No: P0395-03 Year 2017

**Table 4 Environmental monitoring-landfill only** [Landfill Manual-Monitoring Standards](#)

Was meteorological monitoring in compliance with Landfill Directive (LD) standard in reporting year +	Was leachate monitored in compliance with LD standard in reporting year	Was Landfill Gas monitored in compliance with LD standard in reporting year	Was SW monitored in compliance with LD standard in reporting year	Have GW trigger levels been established	Were emission limit values agreed with the Agency (ELVs)	Was topography of the site surveyed in reporting year	Has the statement under S53(A)(5) of WMA been submitted in reporting year	Comments

+ please refer to Landfill Manual linked above for relevant Landfill Directive monitoring standards

**Table 5 Capping-Landfill only**

Area uncapped*	Area with temporary cap	Area with final cap to LD Standard m2 ha, a	Area capped other	Area with waste that should be permanently capped to date under licence	What materials are used in the cap	Comments
SELECT UNIT	SELECT UNIT					

\*please note this includes daily cover area

**Table 6 Leachate-Landfill only**

9 Is leachate from your site treated in a Waste Water Treatment Plant?

SELECT

10 Is leachate released to surface water? If yes please complete leachate mass load information below

SELECT

Volume of leachate in reporting year(m3)	Leachate (BOD) mass load (kg/annum)	Leachate (COD) mass load (kg/annum)	Leachate (NH4) mass load (kg/annum)	Leachate (Chloride) mass load kg/annum	Leachate treatment on-site	Specify type of leachate treatment	Comments

Please ensure that all information reported in the landfill gas section is consistent with the Landfill Gas Survey submitted in conjunction with PRTR returns

**Table 7 Landfill Gas-Landfill only**

Gas Captured&Treated by LFG System m3	Power generated (MW / KWh)	Used on-site or to national grid	Was surface emissions monitoring performed during the reporting year?	Comments
			SELECT	



Comments on liner type





Environmental Protection Agency

[Guidance to completing the PRTR workbook](#)

# PRTR Returns Workbook

Version 1.1.19

<b>REFERENCE YEAR</b>	2017
-----------------------	------

## 1. FACILITY IDENTIFICATION

Parent Company Name	Wyeth Nutritionals Ireland Ltd
Facility Name	Wyeth Nutritionals Ireland Limited
PRTR Identification Number	P0395
Licence Number	P0395-03

### Classes of Activity

No.	class_name
-	Refer to PRTR class activities below

Address 1	Coolrahee
Address 2	Askeaton
Address 3	
Address 4	
	Limerick
Country	Ireland
Coordinates of Location	-8.98170 52.6091
River Basin District	IEGBNISH
NACE Code	1086
Main Economic Activity	Manufacture of homogenised food preparations and dietetic food
<b>AER Returns Contact Name</b>	Brian Shiel
<b>AER Returns Contact Email Address</b>	brian.shiel@wyethnutrition.com
<b>AER Returns Contact Position</b>	Safety, Health & Environment Lead
<b>AER Returns Contact Telephone Number</b>	061 601 307
<b>AER Returns Contact Mobile Phone Number</b>	087 1304522
<b>AER Returns Contact Fax Number</b>	
<b>Production Volume</b>	0.0
<b>Production Volume Units</b>	
<b>Number of Installations</b>	0
<b>Number of Operating Hours in Year</b>	0
<b>Number of Employees</b>	600
<b>User Feedback/Comments</b>	1) Reduced demand on CHP Plant due to load matching resulting in reduced carbo monoxide emissions. 2) BOD decrease due to more stable load and waste water characteristics.
<b>Web Address</b>	

## 2. PRTR CLASS ACTIVITIES

Activity Number	Activity Name
8(c)	Treatment and processing of milk
1(c)	Thermal power stations and other combustion installations

## 3. SOLVENTS REGULATIONS (S.I. No. 543 of 2002)

Is it applicable?	No
Have you been granted an exemption ?	
If applicable which activity class applies (as per Schedule 2 of the regulations) ?	
Is the reduction scheme compliance route being used ?	

## 4. WASTE IMPORTED/ACCEPTED ONTO SITE

[Guidance on waste imported/accepted onto site](#)

Do you import/accept waste onto your site for on-site treatment (either recovery or disposal activities) ?	No
--	----

This question is only applicable if you are an IPPC or Quarry site

4.1 RELEASES TO AIR

[Link to previous years emissions data](#)

| PRTR#: P0395 | Facility Name : Wyeth Nutritionals Ireland Limited | Filename : P0395\_2017.xls | Return Year : 2017 |

29/03/2018 15:56

**SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS**

RELEASES TO AIR		METHOD				Please enter all quantities in this section in KGs				QUANTITY	
No. Annex II	POLLUTANT Name	M/C/E	Method Used		Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description							
02	Carbon monoxide (CO)	M	EN 15058:2004		9444.0	27.0	11.0	0.0	9482.0	0.0	0.0
03	Carbon dioxide (CO2)	C	ETS		0.0	0.0	0.0	36231438.0	36231438.0	0.0	0.0
08	Nitrogen oxides (NOx/NO2)	M	ISO 10849:1996		42757.0	745.0	235.0	0.0	43737.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**SECTION B : REMAINING PRTR POLLUTANTS**

RELEASES TO AIR		METHOD				Please enter all quantities in this section in KGs				QUANTITY	
No. Annex II	POLLUTANT Name	M/C/E	Method Used		Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description							
					0.0	0.0	0.0	0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**SECTION C : REMAINING POLLUTANT EMISSIONS (As required in your Licence)**

RELEASES TO AIR		METHOD				Please enter all quantities in this section in KGs				QUANTITY	
Pollutant No.	POLLUTANT Name	M/C/E	Method Used		Emission Point 1	Emission Point 2	Emission Point 3	Emission Point 4	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description							
210	Dust	M	CRM	EN 13284-1:2002	496.0	11482.0	20211.0	20193.0	52382.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**Additional Data Requested from Landfill operators**

For the purposes of the National Inventory on Greenhouse Gases, landfill operators are requested to provide summary data on landfill gas (Methane) flared or utilised on their facilities to accompany the figures for total methane generated. Operators should only report their Net methane (CH4) emission to the environment under T(total) KG/yr for Section A: Sector specific PRTR pollutants above. Please complete the table below:

Landfill:	Wyeth Nutritionals Ireland Limited				
Please enter summary data on the quantities of methane flared and / or utilised	T (Total) kg/Year	M/C/E	Method Code	Designation or Description	Facility Total Capacity m3 per hour
Total estimated methane generation (as per site model)	0.0				N/A
Methane flared	0.0				0.0 (Total Flaring Capacity)
Methane utilised in engine/s	0.0				0.0 (Total Utilising Capacity)
Net methane emission (as reported in Section A above)	0.0				N/A

4.2 RELEASES TO WATERS

[Link to previous years emissions data](#)

| PRTR# : P0395 | Facility Name : Wyeth Nutritionals Ireland Limited | Filename : P0395\_2017.xls | Return Year : 2017 |

29/03/2018 15:56

**SECTION A : SECTOR SPECIFIC PRTR POLLUTANTS**

Data on ambient monitoring of storm/surface water or groundwater, conducted as part of your licence requirements, should NOT be submitted under AER / PRTR Reporting as this on

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT		Method Used			QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
12	Total nitrogen	M	OTH	Colometric Hach Method 1007	1186.0	1186.0	0.0	0.0
13	Total phosphorus	M	OTH	Colometric Hach Method 8190	102.0	102.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**SECTION B : REMAINING PRTR POLLUTANTS**

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT		Method Used			QUANTITY			
No. Annex II	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
					0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**SECTION C : REMAINING POLLUTANT EMISSIONS (as required in your Licence)**

RELEASES TO WATERS					Please enter all quantities in this section in KGs			
POLLUTANT		Method Used			QUANTITY			
Pollutant No.	Name	M/C/E	Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
238	Ammonia (as N)	M	OTH	10031	653.0	653.0	0.0	0.0
303	BOD	M	OTH	5-day BOD Test	3086.1	3086.1	0.0	0.0
314	Fats, Oils and Greases	E	ESTIMATE		2636.0	2636.0	0.0	0.0
306	COD	M	OTH	Hach Reactor digestion	15882.5	15882.5	0.0	0.0
240	Suspended Solids	M	OTH	Standard method	9926.5	9926.5	0.0	0.0
387	Ortho-phosphate (as P)	M	OTH	EN ISO 6878:2004	24.92	24.92	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.3 RELEASES TO WASTEWATER OR SEWER

[Link to previous years emissions data](#)

| PRTR# : P0395 | Facility Name : Wyeth Nutritionals Ireland Limited | Filename : P0395\_2017.xls | F

29/03/2018 15:56

**SECTION A : PRTR POLLUTANTS**

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
No. Annex II	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description				
					0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

**SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)**

OFFSITE TRANSFER OF POLLUTANTS DESTINED FOR WASTE-WATER TREATMENT OR SEWER					Please enter all quantities in this section in KGs			
POLLUTANT		METHOD			QUANTITY			
Pollutant No.	Name	M/C/E	Method Used		Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year	F (Fugitive) KG/Year
			Method Code	Designation or Description				
					0.0	0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

4.4 RELEASES TO LAND

[Link to previous years emissions data](#)

| PRTR# : P0395 | Facility Name : Wyeth Nutritionals Ireland Limited | Filename : P0395\_2017.xls | Return Year : 2017 |

29/03/2018 15:56

SECTION A : PRTR POLLUTANTS

RELEASES TO LAND				Please enter all quantities in this section in KGs			
POLLUTANT		METHOD		QUANTITY			
No. Annex II	Name	M/C/E	Method Used Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

SECTION B : REMAINING POLLUTANT EMISSIONS (as required in your Licence)

RELEASES TO LAND				Please enter all quantities in this section in KGs			
POLLUTANT		METHOD		QUANTITY			
Pollutant No.	Name	M/C/E	Method Used Method Code	Designation or Description	Emission Point 1	T (Total) KG/Year	A (Accidental) KG/Year
					0.0	0.0	0.0

\* Select a row by double-clicking on the Pollutant Name (Column B) then click the delete button

5. ONSITE TREATMENT & OFFSITE TRANSFERS OF WASTE

(PRTB: P036) | Facility Name: | Wyeth Nutritionals Ireland Limited | Filename: P036\_2017.xls | Return Year: 2017 |

29/03/2018 15:56

Please enter all quantities on this sheet in Tonnes

12

Transfer Destination	European Waste Code	Hazardous	Quantity (Tonnes per Year)	Description of Waste	Waste Treatment Operation	Method Used		Location of Treatment	Use Waste: Name and Licence/Permit No of Next Destination Facility Non Use Waste: Name and Licence/Permit No of Recover/Disposer	Use Waste: Address of Next Destination Facility Non Use Waste: Address of Recover/Disposer	Name and Licence / Permit No. and Address of Final Recovery / Disposer (HAZARDOUS WASTE ONLY)	Actual Address of Final Destination i.e. Final Recovery / Disposal Site (HAZARDOUS WASTE ONLY)
						M/C/E	Method Used					
To Other Countries	07 01 04	Yes	1.56	other organic solvents, washing liquids and mother liquors	R2	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Geocycle,38152/BP,S.A. Scoribel,rue de Courriere 42,7181 Seneffe.,Belgium	S.A. Scoribel,rue de Courriere 42,7181 Seneffe.,Belgium
Within the Country	07 01 04	Yes	0.2	other organic solvents, washing liquids and mother liquors	R2	M	Weighed	Offsite in Ireland	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Veolia Waste Ireland,W0050-02	Corrin,Fermoy,Co. Cork,P61 FD74,Ireland
To Other Countries	15 02 02	Yes	0.23	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	16 05 07	Yes	1.064	discarded inorganic chemicals consisting of or containing dangerous substances	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	16 05 08	Yes	1.06	discarded organic chemicals consisting of or containing dangerous substances	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
Within the Country	16 05 08	Yes	0.14	discarded organic chemicals consisting of or containing dangerous substances	R4	M	Weighed	Offsite in Ireland	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Recycling,WFP/L/2017/1/10 11/01/R/4/T1	Ballysimon Road,Limerick ,Limerick.,Ireland
Within the Country	16 05 04	Yes	0.03	gases in pressure containers (including halons) containing dangerous substances	R1	M	Weighed	Offsite in Ireland	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Recycling,WFP/L/2017/1/10 11/01/R/4/T1	Ballysimon Road,Limerick ,Limerick.,Ireland
To Other Countries	16 05 06	Yes	6.96	laboratory chemicals, consisting of or containing dangerous substances, including mixtures of laboratory chemicals	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	06 01 05	Yes	0.16	nitric acid and nitrous acid	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	06 02 05	Yes	0.06	other bases	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	13 02 08	Yes	0.23	other engine, gear and lubricating oils	R9	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
Within the Country	15 01 10	Yes	0.74	packaging containing residues of or contaminated by dangerous substances	R3	M	Weighed	Offsite in Ireland	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland
To Other Countries	15 01 10	Yes	0.75	packaging containing residues of or contaminated by dangerous substances	R3	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	15 01 10	Yes	1.79	packaging containing residues of or contaminated by dangerous substances	R3	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Recyclafuel S.A.,D3200/61080/RGPED2 0082/AP,Zoning Industriel d'Ehin,B-4480 Enghis.,Belgium	Zoning Industriel d'Ehin,B-4480 Enghis.,Belgium
To Other Countries	06 01 04	Yes	0.02	phosphoric and phosphorous acid	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	06 02 04	Yes	0.03	sodium and potassium hydroxide	D9	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Lindenschmidt KG Umweltservice,04 714 98089,Krombacher Strabe 42-46,57223,Kreutzal.,Germany	Krombacher Strabe 42-46,57223,Kreutzal.,Germany
To Other Countries	06 01 01	Yes	0.01	sulphuric acid and sulphurous acid	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Recyclafuel S.A.,D3200/61080/RGPED2 0082/AP,Zoning Industriel d'Ehin,B-4480 Enghis.,Belgium	Zoning Industriel d'Ehin,B-4480 Enghis.,Belgium
To Other Countries	08 01 11	Yes	0.31	waste paint and varnish containing organic solvents or other dangerous substances	R1	M	Weighed	Abroad	Envia Ireland Ltd.,W0041-01	Smithstown Ind. Est.,Shannon,Co. Clare.,Ireland	Recycling Company Limited,W0253-01	Ballynagun West,Cree,Co. Clare.,Ireland
Within the Country	15 01 01	No	105.94	paper and cardboard packaging	R3	M	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	
Within the Country	20 01 01	No	24.9	paper and cardboard	R3	M	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	
Within the Country	20 03 01	No	301.89	mixed municipal waste	R1	M	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	
Within the Country	15 01 07	No	29.95	glass packaging	R5	M	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	
Within the Country	20 01 40	No	335.2	metals	R4	M	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	
Within the Country	15 01 06	No	806.62	mixed packaging	R3	M	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	
To Other Countries	20 01 25	No	179.63	edible oil and fat	R3	M	Weighed	Abroad	Benoons Products Ltd.,LN-53763	Road,Widnes,Cheeshire,WAB 0PF,United Kingdom	MacDermott Road,Widnes,Cheeshire,WAB 0PF,United Kingdom	
Within the Country	02 05 01	No	362.96	materials unsuitable for consumption or processing	R3	M	Weighed	Offsite in Ireland	Recycling Company Limited,W0253-01	Ballynagun West,Cree,Co. Clare.,Ireland	Ballynagun West,Cree,Co. Clare.,Ireland	
Within the Country	15 01 02	No	44.88	plastic packaging	R3	M	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	
Within the Country	02 05 02	No	2708.02	sludges from on-site effluent treatment	R3	M	Weighed	Offsite in Ireland	McDonnell Farms Biogas Ltd.,WFP/LK/2011.50/R2/T1	Dunmoylan,Shanagolden,Co. Limerick.,Ireland	Dunmoylan,Shanagolden,Co. Limerick.,Ireland	
Within the Country	20 01 35	Yes	2.14	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components	R4	M	Weighed	Offsite in Ireland	Irish Lamp Recycling Co. Ltd.,WFP-KE-14-0072-01	Woodstock Ind. Est.,Kilkenny Road,Athy Co. Kildare.,Ireland	Irish Lamp Recycling Co. Ltd.,WFP-KE-14-0072-01,Woodstock Ind. Est.,Kilkenny Road,Athy Co. Kildare.,Ireland	
Within the Country	20 01 38	No	51.57	wood other than that mentioned in 20 01 37 mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03	R3	M	Weighed	Offsite in Ireland	Veolia Waste Ireland,W0050-02	Corrin,Fermoy,Co. Cork,P61 F74,Ireland	Corrin,Fermoy,Co. Cork,P61 F74,Ireland	
Within the Country	17 09 04	No	76.92	wood other than that mentioned in 17 09 01, 17 09 02 and 17 09 03	R10	M	Weighed	Offsite in Ireland	Clare Waste & Recycling Company Ltd.,WCP/LK/10/652/01	Raheen Road,Tuamgraney,Co. Clare.,Ireland	Raheen Road,Tuamgraney,Co. Clare.,Ireland	
Within the Country	17 04 07	No	2.18	mixed metals	R4	M	Weighed	Offsite in Ireland	Ltd.,WCP/LK/10/652/01	Clare.,Ireland	Ballycar,Ardriscusha,Co. Clare.,Ireland	
Within the Country	17 03 02	No	197.36	bituminous mixtures containing other than those mentioned in 17 03 01	R5	M	Weighed	Offsite in Ireland	O'Connell Quarries,COR-CE-14-0005-01	Ballycar,Ardriscusha,Co. Clare.,Ireland	Ballycar,Ardriscusha,Co. Clare.,Ireland	
Within the Country	17 05 04	No	5110.96	soil and stones other than those mentioned in 17 05 03	R11a	M	Weighed	Offsite in Ireland	Greaney Concrete,WCP-LK-09-391-03	Stokesfield,Shanagolden,Co. Limerick,V94 F8K0,Ireland	Stokesfield,Shanagolden,Co. Limerick,V94 F8K0,Ireland	
Within the Country	17 01 01	No	875.23	concrete	R11a	M	Weighed	Offsite in Ireland	O'Connell Quarries,WCP-LK-09-391-05	Ballycar,Ardriscusha,Co. Clare.,Ireland	Ballycar,Ardriscusha,Co. Clare.,Ireland	
Within the Country	17 01 07	No	119.0	mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	R11a	M	Weighed	Offsite in Ireland	Eddie Russell,COR-CE-15-0005-01	Russell Villa,Samliebridge,Co. Clare.,Ireland	Russell Villa,Samliebridge,Co. Clare.,Ireland	
Within the Country	17 04 05	No	31.89	iron and steel	R4	M	Weighed	Offsite in Ireland	United Metals Recycling (Ireland) Ltd.,WFP-L2016-147A-R2	Eastway Business Park,Ballysimon,Limerick.,Ireland	Eastway Business Park,Ballysimon,Limerick.,Ireland	
Within the Country	20 03 07	No	87.35	bulky waste	R1	E	Weighed	Offsite in Ireland	Greenstar Env. Services Ltd.,W0082-2	Ballykeefe Towland,Dock Road,Limerick.,Ireland	Ballykeefe Towland,Dock Road,Limerick.,Ireland	



Mr Brian Shiels  
Wyeth Nutritionals Ireland Limited  
Askeaton  
Limerick

**Date**  
14 February 2017

Dear Brian,

## **DMP Update 2017**

### **Summary of Changes made to Decommissioning Management Plan, February 2017.**

This letter presents a summary of the updates made to the DMP report as part of the annual review of the DMP. The latest DMP was issued on 07<sup>th</sup> February 2017 entitled "Wyeth Nutritionals Ireland Limited - Decommissioning Management Plan (DMP) Review 2017" and was prepared by AECOM Limited.

The DMP was updated in accordance with latest EPA Guidance and was carried out as part of compliance with Condition 10.2.2 of the sites IE licence.

*"10.2.2 The plan shall be reviewed annually and proposed amendments thereto notified to the Agency for agreement as part of the AER. No amendments may be implemented without the written agreement of the Agency"*

With regard to the changes that were made to the DMP the following outlines the main changes which were made:

- There has been no change to the licence status at the site since the previous revision of the DMP and no operational changes of significance occurred during 2016. Two 975,000 litre sprinkler water tanks have been commissioned and are located adjacent to the WWTP.
- Updating the operational performance of the site to take account of any incidents, complaints and non-compliances since the previous DMP update;
- Updating of the Production Related Waste disposal costs to reflect most recent costs for removal of waste from the site.
- Update of the quantity of AC refrigerants, from 150kg to 214kg, to account for installation of new air conditioning units.
- Correction on costs assigned to cleaning of tanks leading to an increase of €10,000.
- Correction on costs assigned to cleaning of bunds & sumps leading to an increase of €10,650.
- A review of the most recent Asbestos Management Plan for the site to incorporate any changes.
- Increase in the quantity of wastes provided in Stage 1 Task 4, 5 and 6 to account for any additional wastes that may be generated.
- The restoration and aftercare management plan was also reviewed and costs were increased to reflect 2017 prices for completion of a limited investigation of potential source areas. Costs for this have been increased from €15,000 to €25,000. Bringing the total costs for the restoration and aftercare management plan, including a 20% contingency, to €81,600.

The net effect of the various changes outlined above is an overall increase in the amount of financial provisions required to fully implement the DMP from €3,565,681 (March 2015 estimated provision required) to €3,673,170 (February 2017 estimated provision required).

I hope all the above is clear, if you require any clarification on the above please do not hesitate to contact me.

Yours sincerely,

A handwritten signature in blue ink that reads "Patricia Howard".

Patricia Howard  
Senior Environmental Scientist  
AECOM Limited  
T: 00353 01 2933200  
M: 00353 87 2331426  
E: [patricia.howard@aecom.com](mailto:patricia.howard@aecom.com)



Ossian Geraghty  
& Associates

**IED Licence Noise Control Plan 2017**  
**Wyeth Nutritionals Ireland Ltd**  
**Askeaton, Co. Limerick**

**May 2017**

**Report No. 1026**

---

Ossian Geraghty & Associates Ltd  
Fawcetts Bridge, Dunally, Sligo  
Ph: 085 801 8733  
E-mail: [ogeraghty@ossian-geraghty.com](mailto:ogeraghty@ossian-geraghty.com)

---

# IED Licence Noise Control Plan 2017

## Wyeth Nutritionals Ireland Ltd

### Askeaton, Co. Limerick

#### Executive Summary

Ossian Geraghty & Associates Ltd (OGA) was engaged by Brian Shiel from Wyeth Nutritionals Ireland Ltd to prepare a noise mitigation and control programme for their Limerick site, as required in IED licence, ref no. P0395-03, issued by the Environmental Protection Agency, (EPA).

The licence assigns a noise limit ( $L_{eq,30min}$ ) of 55dB(A) by day and 45dB(A) by night at noise sensitive locations. In addition, there shall be no clearly audible tonal or impulsive noise component in the noise emission from the activity at noise sensitive locations.

The licensee must also prepare a noise mitigation and control programme to reduce noise emissions where applicable, in accordance with 6.14.2 of IED licence, ref no. P0395-03.

The survey consisted of the measurement of noise levels at noise sources throughout the site. The survey was undertaken on the 18<sup>th</sup> May 2017. The measurement of noise sources onsite was undertaken in conjunction with the annual IED Environmental Noise Survey 2017, OGA Report 1025.

The primary aim of this noise mitigation and control programme is to identify any noise source onsite that contribute to excessive noise at the noise sensitive locations, in excess of the noise limits set out in IED licence, ref no. P0395-03.

#### Objectives

The objectives of this assessment were to:

- determine the noise emissions from the various external noise sources onsite;
- record the octave spectra of the identified noise sources;
- undertake a subjective assessment of tonal and impulsive noise for each of the noise sources assessed; and
- identify noise sources where mitigation or noise control may be required.

The survey methodology followed Environmental Protection Agency (EPA) Office of Environmental Enforcement (OEE) "Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities", NG4, (January 2016), and ISO 1996 "Description and measurement of environmental noise".

The measurement duration at each noise source was of a sufficient duration to measure the average noise level. A summary of noise terminology is given in Appendix A.

An assessment of tonal and impulsive noise was undertaken subjectively at each noise source.

Noise measurements and reporting were undertaken by Ossian Geraghty BSc, MSc of Ossian Geraghty & Associates Ltd.

**May 2017**

---

### **Findings**

The average sound pressure levels were determined and octave spectra measured from noise sources across the Wyeth Nutritionals site.

An assessment of tonal and impulsive noise was undertaken subjectively for each of the noise sources assessed, and no tonal or impulsive noise sources were detected.

The site was fully compliant with the noise limits in IED Licence P0395-03 for 2017, at all noise sensitive locations, see report OGA Ref 1025. On this basis no specific noise sources have been selected for mitigation and control for 2017.

An assessment of the proposed New Card pilot plant extension to the RTF building was undertaken in 2017. This proposed new extension is unlikely to have any impact on the existing noise levels at noise sensitive locations.

One new noise source was identified onsite, a new sprinkler pump-house at the waste water treatment plant. This noise source is not commissioned yet and will be modelled to assess the potential noise impact at noise sensitive locations when it is operating.

May 2017

---

### **Statement of Limitations**

This report has been prepared in accordance with the agreement between Wyeth Nutritionals Ireland Ltd and Ossian Geraghty & Associates Ltd.

Within the limitations of the agreed upon scope of services, this work has been undertaken and performed in a professional manner, in accordance with generally accepted practices, using a degree of skill and care ordinarily exercised by members of its profession and consulting practice. No other warranty, expressed or implied, is made.

This report is solely for the use of Wyeth Nutritionals Ireland Ltd and any reliance on this report by third parties shall be at such party's sole risk and may not contain sufficient information for purposes of other parties or for other uses. This report shall only be presented in full and may not be used to support any other objective than those set out in the report, except where written approval with comments are provided by Ossian Geraghty & Associates Ltd.

---

# IED Licence Noise Control Plan 2017

Wyeth Nutritionals Ireland Ltd

Askeaton, Co. Limerick

## Table of Contents

1. Introduction .....	1
2. Objectives .....	1
3. Methodology.....	1
3.1 Measurement Details and Conditions.....	1
4. Review of Noise Complaints .....	2
5. Noise Modelling – New development RTF .....	2
6. Results .....	2
6.1 Sound Pressure Levels at Noise Sources .....	2
6.2 Tonal and Impulsive Analysis.....	2
7. Discussion .....	2
8. Conclusion.....	3
Appendix A: Noise Terminology .....	I
Appendix B Certificates of Calibration .....	III
Appendix C: Detailed Noise Measurement Results .....	IV
Appendix D: Noise Modelling Report New Card Extension .....	XVI

## 1. Introduction

Ossian Geraghty & Associates Ltd (OGA) was engaged by Brian Shiel from Wyeth Nutritionals Ireland Ltd to prepare a noise mitigation and control programme for their Limerick site, as required in IED licence, ref no. P0395-03, issued by the Environmental Protection Agency, (EPA).

The licence assigns a noise limit ( $L_{eq,30min}$ ) of 55dB(A) by day and 45dB(A) by night at noise sensitive locations. In addition, there shall be no clearly audible tonal or impulsive noise component in the noise emission from the activity at noise sensitive locations.

The licensee must also prepare a noise mitigation and control programme to reduce noise emissions where applicable, in accordance with 6.14.2 of IED licence, ref no. P0395-03.

The survey consisted of the measurement of noise levels at noise sources throughout the site. The survey was undertaken on the 18<sup>th</sup> May 2017. The measurement of noise sources onsite was undertaken in conjunction with the annual IED Environmental Noise Survey 2017, OGA Report 1025.

The primary aim of this noise mitigation and control programme is to identify any noise source onsite that contributes to excessive noise at the noise sensitive locations, in excess of the noise limits set out in IED licence, ref no. P0395-03.

## 2. Objectives

The objectives of this assessment were to:

- determine the noise emissions from the various external noise sources onsite;
- record the octave spectra of the identified noise sources;
- undertake a subjective assessment of tonal and impulsive noise for each of the noise sources assessed; and
- identify noise sources where mitigation or noise control may be required.

## 3. Methodology

The survey methodology followed Environmental Protection Agency (EPA) Office of Environmental Enforcement (OEE) "Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities", NG4, (January 2016), and ISO 1996 "Description and measurement of environmental noise".

The measurement duration at each noise source was of a sufficient duration to measure the average noise level. A summary of noise terminology is given in Appendix A.

An assessment of tonal and impulsive noise was undertaken subjectively at each noise source.

Noise measurements and reporting were undertaken by Ossian Geraghty BSc, MSc of Ossian Geraghty & Associates Ltd.

### 3.1 Measurement Details and Conditions

The survey conditions and instrumentation used are detailed in Table 3. A Bruel & Kjaer 2250 Type 1 sound level meter was used, which measured broadband noise levels, noise level statistics, and real time third octave spectra. The meter was used for quantitative tonal analysis at the measurement positions. The sound level meter calibration was checked immediately before and after measurement using a Bruel & Kjaer 4231 Calibrator. Calibration Certificates are presented in Appendix B.



May 2017

<b>Table 3. Survey Conditions and Instrumentation Details, Wyeth Nutritionals Ireland Ltd</b>				
<b>Survey conditions</b>				
<b>Survey period &amp; weather conditions</b>		Tuesday 18 <sup>th</sup> May 2017 Dry and overcast occasional sunny spells South to South Westerly breeze, 3-5 m/s, Temperature 9°C - 14°C		
<b>Plant operating conditions</b>		The plant was operating normally throughout survey.		
<b>Survey personnel</b>		Ossian Geraghty BSc, MSc, Ossian Geraghty & Associates Ltd.		
<b>Instrumentation details</b>				
<b>Manufacturer</b>	<b>Instrument</b>	<b>Calibrated by</b>	<b>Calibration Ref</b>	<b>Last Laboratory Calibration</b>
Bruel & Kjaer	SLM 2250, Serial No. 2506360, with 1/2" FF 0V Class 1 Microphone s/n: 2198156 B&K ZC 0032 P, Pre-amplifier, s/n: 17626 and UA-1650 90mm windshield	Gracey & Associates	2016-0557 2016-0561 2016-0567	June 2016
Bruel & Kjaer	Calibrator 4231 Serial No. 1898067	Gracey & Associates	2017-0154	January 2017

#### 4. Review of Noise Complaints

There were no complaints in relation to environmental noise from the site received between 1<sup>st</sup> June 2016 and 31<sup>st</sup> May 2017.

#### 5. Noise Modelling – New development RTF

A noise model of the Wyeth Nutritional Ireland site originally prepared in May 2016, was used to model the impact from the proposed New Card pilot plant extension in the RTF building. This modelling found that the proposed new facility is unlikely to have any impact on the existing noise levels at noise sensitive locations. A detailed report is contained in Appendix D.

#### 6. Results

##### 6.1 Sound Pressure Levels at Noise Sources

The average sound pressure levels were determined at noise sources throughout the site. Detailed noise measurement results are presented in Appendix C.

##### 6.2 Tonal and Impulsive Analysis

The Annual Noise Survey of Noise Sensitive Locations (NSLs), undertaken on the 9<sup>th</sup> and 10<sup>th</sup> May 2017, did not detect any clearly audible tonal component in the noise at any of the measurement positions during daytime, evening or night-time measurements.

When undertaking the measurement of noise sources each of the noise sources was assessed subjectively for tonal and impulsive noise. The measured noise levels were broadband in character at all the noise sources assessed. There were no clearly noticeable tones or impulsive sounds audible from noise sources at Wyeth Nutritionals Ireland Ltd. Measured noise octave spectra data is shown in Appendix C.

#### 7. Discussion

The daytime, evening and night-time noise levels were compliant with the IED licence requirements for the site at all noise sensitive locations, OGA Report 1025.

There was no clearly audible tonal or impulsive component in the noise at any of the noise sensitive locations positions, daytime, evening and night-time, OGA Report 1025.

As no tonal or impulsive noise sources were detected at noise sensitive locations and the broadband noise is within IED Licence limits, no specific recommendations for noise reductions have been made.

A new noise source was identified onsite, a new sprinkler pump-house at the waste water treatment plant. This noise source was measured and will be modelled to assess the potential noise impact at noise sensitive locations when it is operating.

**May 2017**

---

A review of noise complaints was undertaken between 1<sup>st</sup> June 2016 and 31<sup>st</sup> May 2017 and there were no noise complaints during this period.

## **8. Conclusion**

The average sound pressure levels were determined and octave spectra measured from noise sources across the Wyeth Nutritionals site.

An assessment of tonal and impulsive noise was undertaken subjectively for each of the noise sources assessed, and no tonal or impulsive noise sources were detected.

The site was fully compliant with the noise limits in IED Licence P0395-03 for 2017, at all noise sensitive locations, see report OGA Ref 1025. On this basis no specific noise sources have been selected for mitigation and control for 2017.

An assessment of the proposed New Card pilot plant extension to the RTF building was undertaken in 2017. This proposed new extension is unlikely to have any impact on the existing noise levels at noise sensitive locations.

One new noise source was identified onsite, a new sprinkler pump-house at the waste water treatment plant. This noise source is not commissioned yet and will be modelled to assess the potential noise impact at noise sensitive locations when it is operating.

**IED Licence Noise Control Plan 2017**  
**Wyeth Nutritionals Ireland Ltd**  
**Askeaton, Co. Limerick**  
**Appendix A: Noise Terminology**

## Noise Terminology

<b>dB(A)</b>	a logarithmic noise scale, called the decibel. The "A" indicates that a frequency weighting has been applied to take account of the variation in the sensitivity of the human ear as a function of frequency.
<b>L<sub>Aeq</sub></b>	the average noise level during the measurement period. It includes all noise events. The L <sub>Aeq</sub> value has been found to correlate well with human tolerance of noise, and is the value normally used in setting and monitoring industrial noise limits.
<b>L<sub>A90</sub></b>	the noise level exceeded for 90% of the time. It is generally taken as being representative of the steady background noise at a location. It tends to exclude short events such as cars passing, dogs barking, aircraft flyovers etc., and provides a good estimation of steady plant noise, when there is significant interference from other noise sources.
<b>L<sub>A10</sub></b>	the noise level exceeded for 10% of the time, and is a measure of the higher noise levels present in the ambient noise.
<b>L<sub>Amax</sub></b>	The highest noise level during a specified time period or during a specified number of events expressed as the absolute maximum level of the root-meansquare (r.m.s.) sound pressure level using time weighting 'F'.
<b>L<sub>AS</sub>, L<sub>AF</sub></b>	the live displayed noise level, updated at 1 second intervals, measured with the instrument's response time set to standardised "Slow" or "Fast" response. The live meter reading provides survey personnel with corroborative data for determining the noise level due to a specific audible sound source. The highest value measured is termed L <sub>Amax</sub> , and the lowest level detected is termed L <sub>Amin</sub> .
<b>Total Noise</b>	the overall noise level (L <sub>Aeq</sub> ), due to all noise noises (also termed ambient noise).
<b>Specific Noise</b>	a component of the total noise that can be quantified and attributed to a specific source.
<b>Residual Noise</b>	the noise level that would exist in the absence of the specific noise source
<b>Noise Profile</b>	noise level logged at short intervals (10 second intervals in this survey).

**IED Licence Noise Control Plan 2017**  
**Wyeth Nutritionals Ireland Ltd**  
**Askeaton, Co. Limerick**  
**Appendix B Certificates of Calibration**

# CERTIFICATE OF CALIBRATION

ISSUED BY Gracey & Associates BSI CERTIFICATE FS 25913  
DATE OF ISSUE 06 June 2016 CERTIFICATE NUMBER 2016-0557  
DATE OF CALIBRATION 02 June 2016  
CALIBRATION INTERVAL 12 months PAGE 1 OF 1



Gracey & Associates  
Barn Court Shelton Road  
Upper Dean PE28 0NQ  
Tel: 01234 708835  
Fax: 01234 252332  
www.gracey.com

TEST ENGINEER APPROVING SIGNATORY

Jamie Bishop

Greg Rice

Equipment **B&K 2250, s/n: 2506360**  
Description Hand Held Analyser, Bruel & Kjaer UK Limited  
Customer Gracey & Associates

## Standards

BS EN 60651 Class 1  
BS EN 60804 Class 1

## Conditions

Atmospheric Pressure 101.5 kPa  
Temperature 20.1 °C  
Relative Humidity 46.0 %

## Calibration Reference Sources

Equipment	S/N	Last Cal	Equipment	S/N	Last Cal
Druck DPI 141	479	29-Oct-15	HP 34401	3146A16728	02-Nov-15
Vaisala HMP23	S2430007	04-Nov-15			

## Notes

We certify that the above product was duly tested and found to be within the specification at the points measured (except where indicated). Measurements are traceable to UKAS reference sources from the UK National Physical Laboratory. Where no national or international standards exist, traceability is to standards maintained by the manufacturer. Our Quality Management System has been assessed to comply with BS EN ISO 9001:2008 - BSI Certificate number FS 25913. Tests were carried out in environmental conditions controlled to the extent appropriate to the instrument's specification. All relevant test certificates are available for inspection.

The uncertainties are for a confidence probability of not less than 95%.

Copyright of this certificate is owned by Gracey & Associates and may not be reproduced other than in full except with their prior written approval.

# CERTIFICATE OF CALIBRATION

ISSUED BY Gracey & Associates BSI CERTIFICATE FS 25913  
DATE OF ISSUE 02 June 2016 CERTIFICATE NUMBER 2016-0561  
DATE OF CALIBRATION 01 June 2016  
CALIBRATION INTERVAL 12 months PAGE 1 OF 2



Gracey & Associates  
Barn Court Shelton Road  
Upper Dean PE28 0NQ  
Tel: 01234 708835  
Fax: 01234 252332  
www.gracey.com

TEST ENGINEER APPROVING SIGNATORY  
Jamie Bishop Greg Rice

Equipment **B&K 4189, s/n: 2198156**  
Description Microphone - 1/2" FF 0V, Bruel & Kjaer UK Limited  
Customer Gracey & Associates

**Standards**  
BS EN 61672 Class 1

**Conditions**  
Atmospheric Pressure 101.7 kPa  
Temperature 20.7 °C  
Relative Humidity 45.8 %

#### Calibration Data

Sensitivity -27.20 dB

#### Calibration Reference Sources

Equipment	S/N	Last Cal	Equipment	S/N	Last Cal
B&K 4134 L	1935995	12-Mar-15	Druck DPI 141	479	29-Oct-15
HP 34401	3146A16728	02-Nov-15	Nor 1253	22456	12-Mar-15
Stanford DS36	33213	02-Nov-15	Vaisala HMP23	S2430007	04-Nov-15

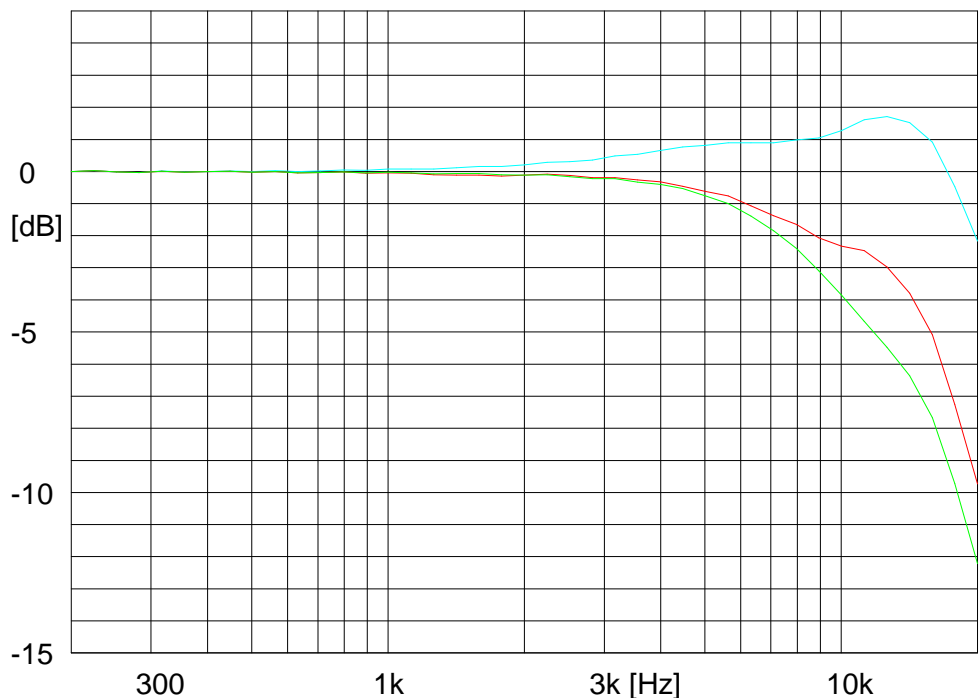
#### Notes

We certify that the above product was duly tested and found to be within the specification at the points measured (except where indicated). Measurements are traceable to UKAS reference sources from the UK National Physical Laboratory. Where no national or international standards exist, traceability is to standards maintained by the manufacturer. Our Quality Management System has been assessed to comply with BS EN ISO 9001:2008 - BSI Certificate number FS 25913. Tests were carried out in environmental conditions controlled to the extent appropriate to the instrument's specification. All relevant test certificates are available for inspection.

The uncertainties are for a confidence probability of not less than 95%.

Copyright of this certificate is owned by Gracey & Associates and may not be reproduced other than in full except with their prior written approval.

# Microphone Calibration Certificate



**Bruel and Kjaer**  
**Type: 4189**

Serial no: 2198156

Sensitivity: 43.6 mV/Pa  
-27.2 dB re. 1 V/Pa

Date: 01/06/2016

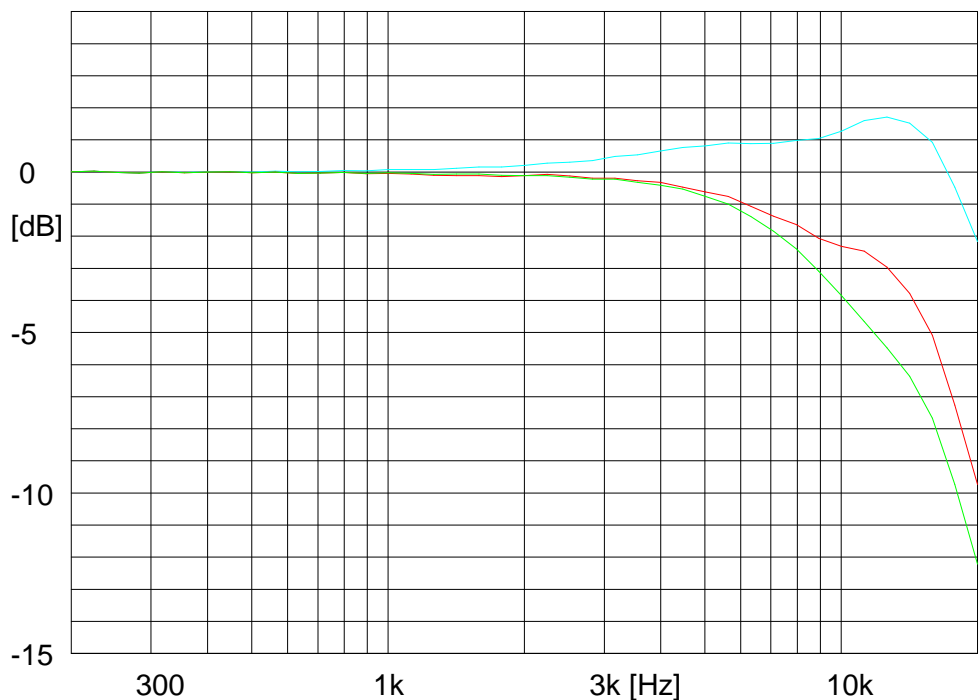
Signature:

Measurement conditions:  
Polarisation voltage: 0.0 V  
Pressure: 101.68 kPa  
Temperature: 20.7 °C  
Relative humidity: 45.8 %RH  
Results are normalised to the reference conditions.

Free field response  
Diffuse field response  
Pressure (Actuator) response

**Gracey & Associates**  
www.gracey.com

# Microphone Calibration Certificate



**Bruel and Kjaer**  
**Type: 4189**

Serial no: 2198156

Sensitivity: 43.6 mV/Pa  
-27.2 dB re. 1 V/Pa

Date: 01/06/2016

Signature:

Measurement conditions:  
Polarisation voltage: 0.0 V  
Pressure: 101.68 kPa  
Temperature: 20.7 °C  
Relative humidity: 45.8 %RH  
Results are normalised to the reference conditions.

Free field response  
Diffuse field response  
Pressure (Actuator) response

**Gracey & Associates**  
www.gracey.com

Comment:



# CERTIFICATE OF CONFORMANCE

ISSUED BY Gracey & Associates BSI CERTIFICATE FS 25913  
DATE OF ISSUE 06 June 2016 CERTIFICATE NUMBER 2016-0567  
DATE OF CALIBRATION 02 June 2016  
CALIBRATION INTERVAL 12 months PAGE 1 OF 1



Gracey & Associates  
Barn Court Shelton Road  
Upper Dean PE28 0NQ  
Tel: 01234 708835  
Fax: 01234 252332  
www.gracey.com

TEST ENGINEER APPROVING SIGNATORY  
Jamie Bishop Greg Rice

Equipment **B&K ZC 0032, s/n: 17626**  
Description Preamplifier - 2250, Bruel & Kjaer UK Limited  
Customer Gracey & Associates

**Standards**  
Manufacturer's Original Specifications

**Conditions**  
Atmospheric Pressure 101.5 kPa  
Temperature 20.1 °C  
Relative Humidity 46.0 %

## Calibration Reference Sources

Equipment	S/N	Last Cal	Equipment	S/N	Last Cal
Druck DPI 141	479	29-Oct-15	HP 34401	3146A16728	02-Nov-15
Vaisala HMP23	S2430007	04-Nov-15			

## Notes

We certify that the above product was duly tested and found to be within the specification at the points measured (except where indicated). Measurements are traceable to UKAS reference sources from the UK National Physical Laboratory. Where no national or international standards exist, traceability is to standards maintained by the manufacturer. Our Quality Management System has been assessed to comply with BS EN ISO 9001:2008 - BSI Certificate number FS 25913. Tests were carried out in environmental conditions controlled to the extent appropriate to the instrument's specification. All relevant test certificates are available for inspection.

The uncertainties are for a confidence probability of not less than 95%.

Copyright of this certificate is owned by Gracey & Associates and may not be reproduced other than in full except with their prior written approval.

# CERTIFICATE OF CALIBRATION

ISSUED BY Gracey & Associates BSI CERTIFICATE FS 25913  
DATE OF ISSUE 16 January 2017 CERTIFICATE NUMBER 2017-0154  
DATE OF CALIBRATION 09 January 2017  
CALIBRATION INTERVAL 12 months PAGE 1 OF 2



Gracey & Associates  
Barn Court Shelton Road  
Upper Dean PE28 0NQ  
Tel: 01234 708835  
Fax: 01234 252332  
www.gracey.com

TEST ENGINEER APPROVING SIGNATORY  
Jamie Bishop Greg Rice

Equipment **B&K 4231, s/n: 1898067**  
Description Calibrator - Acoustic - Class 1, Bruel & Kjaer UK Limited  
Customer Gracey & Associates

**Standards**  
BS EN 60942 Class 1

**Conditions**  
Atmospheric Pressure 100.5 kPa  
Temperature 20.1 °C  
Relative Humidity 42.0 %

#### Calibration Data

Output Level 94.06 dB  
Frequency 999.82 Hz

#### Calibration Reference Sources

Equipment	S/N	Last Cal	Equipment	S/N	Last Cal
B&K 4134 L	1675305	25-Jul-16	Druck DPI 141	479	29-Oct-15
HP 34401	3146A16728	02-Nov-15	Nor 1253	20848	19-Jul-16
Stanford DS36	33213	02-Nov-15	Vaisala HMP23	S2430007	04-Nov-15

#### Notes

We certify that the above product was duly tested and found to be within the specification at the points measured (except where indicated). Measurements are traceable to UKAS reference sources from the UK National Physical Laboratory. Where no national or international standards exist, traceability is to standards maintained by the manufacturer. Our Quality Management System has been assessed to comply with BS EN ISO 9001:2008 - BSI Certificate number FS 25913. Tests were carried out in environmental conditions controlled to the extent appropriate to the instrument's specification. All relevant test certificates are available for inspection.

The uncertainties are for a confidence probability of not less than 95%.

Copyright of this certificate is owned by Gracey & Associates and may not be reproduced other than in full except with their prior written approval.

**IED Licence Noise Control Plan 2017**  
**Wyeth Nutritionals Ireland Ltd**  
**Askeaton, Co. Limerick**  
**Appendix C: Detailed Noise Measurement Results**

May 2017

<b>Table C.1 Detailed Noise Measurement Results, Wyeth Nutritional Ireland Ltd, May 2017</b>													
Source	Sound Pressure Level dB(A)	Reference Distance <sup>1</sup>	Octave bands Sound Pressure Levels (dB)									Impulsive or Tonal Qualities	Periods of Emission
			32	63	125	250	500	1k	2k	4k	8k		
Drier 5	81.5	5 Meters	88.3	92.5	94.5	85.4	76.8	66.1	58.2	48.8	44.5	None detected	Variable
Drier 4	88.8	5 Meters	92.6	91.1	91.4	93.9	88.0	74.8	64.0	51.0	42.6	None detected	Variable
Drier 3	87.3	5 Meters	91.5	92.3	84.9	88.8	87.6	80.8	73.8	65.2	56.8	None detected	Variable
Drier 1	92.6	2 Meters	90.6	88.9	93.9	93.1	92.3	87.8	80.5	73.3	63.3	None detected	Variable
Drier Tower 5 Vents	62.8	5 Meters	74.5	69.6	66.4	66.0	60.3	55.8	53.9	49.8	42.9	None detected	Variable
Vent at base of stairs to drier towers	69.0	5 Meters	70.3	69.1	66.5	65.1	67.0	62.6	63.2	57.1	52.8	None detected	Continuous
AHU 27	73.5	2 Meters	75.5	76.2	74.7	77.5	70.5	67.6	63.2	57.0	48.1	None detected	Continuous
AHU 20	72.3	2 Meters	74.5	72.2	66.6	66.3	75.1	61.8	55.4	51.6	49.4	None detected	Continuous
AHU 21	68.4	3 Meters	75.7	71.2	64.9	66.5	70.9	57.9	51.6	47.0	44.5	None detected	Continuous
AHU080	84.0	2 Meters	79.7	80.3	77.9	78.9	77.3	76.2	77.6	78.3	62.3	None detected	Continuous
Can Plant SW Stack	75.0	1 Meter	75.6	74.8	76.9	72.6	68.7	69.5	67.9	64.6	64.7	None detected	Continuous
Can Plant SE Stack	76.3	1 Meter	80.7	76.2	73.3	72.8	72.5	72.0	68.3	66.4	59.9	None detected	Continuous

*Continued on next page*

May 2017

<b>Table C.1 Detailed Noise Measurement Results, Wyeth Nutritional Ireland Ltd, May 2017</b>													
Source	Sound Pressure Level dB(A)	Reference Distance <sup>1</sup>	Octave bands Sound Pressure Levels (dB)									Impulsive or Tonal Qualities	Periods of Emission
			32	63	125	250	500	1k	2k	4k	8k		
<i>Continued from previous page</i>													
Can Plant Tall Narrow Stack	77.5	1 Meters	76.2	76.9	75.3	73.4	73.7	73.1	71.5	62.6	57.2	None detected	Continuous
Beside AHU 19 Arrow style stack	81.7	3 Meters	77.6	74.0	70.4	80.8	75.2	72.3	67.1	60.3	53.9	None detected	Continuous
AHU 18/19	78.7	0.5 Meters	83.6	82.9	76.8	79.0	76.3	74.1	70.0	62.5	57.3	None detected	Continuous
OHIO	78.3	5 Meters	76.4	80.9	88.0	81.5	74.1	73.9	66.5	59.4	51.3	None detected	Variable
Evaporator 5	90.4	1 Meter	88.5	97.5	93.9	88.7	88.8	84.8	82.2	77.3	70.6	None detected	Variable
Evaporator 4	95.5	1 Meter	84.5	80.4	85.4	86.6	85.3	84.3	92.1	87.2	76.9	None detected	Variable
Process 2 Cooler <sup>2</sup>	79.8	1 Meter	75.9	80.2	78.8	76.0	74.6	73.5	73.0	71.4	69.5	None detected	Variable
Evaporator 1 & 2	91.5	1 Meter	79.9	84.8	83.4	86.6	88.5	87.4	84.5	79.3	72.8	None detected	Variable
Process 2X Evaporator <sup>2</sup>	92.9	1 Meter	83.1	92.2	94.3	94.5	91.5	87.8	81.7	77.1	74.5	None detected	Variable
Process 3 Evaporator	88.9	1 Meter	84.7	83.3	82.6	84.9	84.1	83.0	83.3	78.7	70.6	None detected	Variable
Process 1 Cooler <sup>2</sup>	94.8	1 Meter	75.9	82.1	84.3	90.6	93.2	91.6	84.4	79.3	73.5	None detected	Variable
<i>Continued on next page</i>													

May 2017

<b>Table C.1 Detailed Noise Measurement Results, Wyeth Nutritional Ireland Ltd, May 2017</b>													
Source	Sound Pressure Level dB(A)	Reference Distance <sup>1</sup>	Octave bands Sound Pressure Levels (dB)									Impulsive or Tonal Qualities	Periods of Emission
			32	63	125	250	500	1k	2k	4k	8k		
<i>Continued from previous page</i>													
SBU1 Recirculation Pump	80.9	1 Meter	75.7	79.1	78.6	75.9	76.3	73.4	75.6	72.3	65.2	None detected	Variable
Evaporator 3 <sup>2</sup>	85.6	1 Meter	78.3	88.3	88.3	88.9	87.1	86.3	79.3	74.7	69.7	None detected	Variable
Cooling Tower 1	82.1	2 Meters	82.9	85.9	82.3	80.0	77.4	76.1	73.3	75.8	66.0	None detected	Variable
Cooling Tower 2	76.9	2 Meters	81.9	88.0	82.1	78.3	75.7	70.0	66.6	63.0	56.7	None detected	Variable
Cooling Tower 3	77.8	4 Meters	83.1	89.1	82.9	79.8	76.0	70.9	66.6	63.6	58.4	None detected	Variable
Boilerhouse Louvre Between CT2 & CT3	74.8	1 Meter	80.9	84.8	78.2	76.3	71.5	66.3	66.4	65.1	64.2	None detected	Variable
Steam Release Stack Boilerhouse Roof	76.6	1 Meter	81.1	83.4	79.8	79.8	74.9	66.9	67.7	63.5	56.9	None detected	Intermittent
Boiler house East Side Louvres	69.9	2 Meters	74.4	71.7	69.9	68.8	64.8	62.1	62.1	62.4	61.7	None detected	Intermittent
Boiler house East	68.6	10 Meters	75.3	75.2	69.3	67.3	65.3	61.1	60.7	60.5	57.2	None detected	Continuous
Boilerhouse West Side – 4 Pumps 3 on	79.4	0.5 Meters	75.4	76.4	78.0	77.2	79.6	73.0	68.8	69.5	61.6	None detected	Continuous
<i>Continued on next page</i>													

May 2017

<b>Table C.1 Detailed Noise Measurement Results, Wyeth Nutritional Ireland Ltd, May 2017</b>													
Source	Sound Pressure Level dB(A)	Reference Distance <sup>1</sup>	Octave bands Sound Pressure Levels (dB)									Impulsive or Tonal Qualities	Periods of Emission
			32	63	125	250	500	1k	2k	4k	8k		
<i>Continued from previous page</i>													
Boiler house west side, 7 pumps, 6 on	85.1	1 Meter	78.2	80.2	78.6	79.6	83.1	79.2	76.2	77.9	67.9	None detected	Continuous
CHP Plant East Side	71.8	5 Meters	79.3	77.4	68.2	64.5	65.4	68.2	63.2	63.2	59.1	None detected	Continuous
CHP Plant West Side	70.1	5 Meters	78.5	78.7	71.7	68.9	65.8	66.8	61.2	60.9	56.8	None detected	Continuous
RTF Watermiser No 948 NE Corner <sup>2</sup>	90.7	2 Meters	76.9	76.9	79.4	82.9	86.7	86.5	81.1	75.0	71.0	None detected	Variable
RTF Watermiser No 1140 NE Corner <sup>2</sup>	91.4	1 Meter	77.1	88.0	87.0	87.7	90.9	86.9	80.8	77.3	76.6	None detected	Variable
RTF (Fans on wall East Side)	67.2	6 Meters	67.8	65.1	68.4	72.4	63.2	60.1	58.7	52.7	45.3	None detected	Continuous
Laboratory Stacks	78.7	2 Meters	76.0	74.1	75.0	75.3	72.6	70.5	68.5	73.4	71.0	None detected	Continuous
AHU16	82.3	1 Meter	81.5	84.1	82.7	78.8	79.4	78.4	74.2	69.3	63.2	None detected	Continuous
AHU007	76.0	1 Meter	69.6	75.5	72.1	67.1	62.7	62.9	60.6	74.4	61.2	None detected	Continuous
AHU10	73.0	1 Meter	70.5	78.1	72.8	70.2	68.2	69.1	65.2	62.2	51.1	None detected	Continuous
AHU11	66.2	1 Meter	69.4	76.6	72.6	68.3	62.9	60.3	56.6	52.4	42.0	None detected	Continuous
<i>Continued on next page</i>													

May 2017

<b>Table C.1 Detailed Noise Measurement Results, Wyeth Nutritional Ireland Ltd, May 2017</b>													
Source	Sound Pressure Level dB(A)	Reference Distance <sup>1</sup>	Octave bands Sound Pressure Levels (dB)									Impulsive or Tonal Qualities	Periods of Emission
			32	63	125	250	500	1k	2k	4k	8k		
<i>Continued from previous page</i>													
AHU15	71.4	1 Meter	71.6	78.4	75.1	70.9	68.5	66.5	63.1	58.0	51.0	None detected	Continuous
AHU14	67.7	1 Meter	68.7	70.7	79.3	67.5	64.8	60.5	57.3	54.1	40.0	None detected	Continuous
AHU101	80.0	1 Meter	75.4	77.1	84.7	81.8	77.4	75.5	69.2	63.9	58.1	None detected	Continuous
AHU102	70.9	1 Meter	74.3	76.9	74.5	73.7	68.4	66.6	58.6	54.1	45.3	None detected	Continuous
AHU13	76.8	1 Meter	74.9	78.2	77.8	79.1	73.8	73.0	66.4	58.8	54.7	None detected	Continuous
AHU17	69.5	1 Meter	69.5	70.9	71.2	68.7	67.3	68.4	63.7	63.8	53.1	None detected	Continuous
Treated Effluent Buffer Tank Pump RHS <sup>2</sup>	75.0	1 Meter	66.3	63.9	63.1	62.6	65.7	71.1	70.1	62.6	58.9	None detected	Variable
Treated Effluent Buffer Tank Pump LHS	77.7	1 Meter	72.2	72.9	73.2	75.3	69.7	72.5	72.4	65.9	59.7	None detected	Variable
Raw Effluent Tank Pump NW Side	82.6	5 Meters	76.2	78.4	74.2	74.4	81.1	78.0	74.2	70.1	61.8	None detected	Variable
Raw Effluent Tank Pump SW Side	88.2	1 Meter	71.6	74.9	74.4	78.2	83.8	83.2	81.7	79.0	72.7	None detected	Variable
<i>Continued on next page</i>													



May 2017

<b>Table C.1 Detailed Noise Measurement Results, Wyeth Nutritionals Ireland Ltd, May 2017</b>													
Source	Sound Pressure Level dB(A)	Reference Distance <sup>1</sup>	Octave bands Sound Pressure Levels (dB)									Impulsive or Tonal Qualities	Periods of Emission
			32	63	125	250	500	1k	2k	4k	8k		
<i>Continued from previous page</i>													
Raw Effluent Tank Pump NE Side	83.8	1 Meter	73.5	76.3	80.1	74.2	78.9	80.1	77.2	69.9	69.6	None detected	Variable
Raw Effluent Tank Pump SE Side	87.5	1 Meter	76.1	75.2	74.0	76.7	87.9	80.1	79.4	73.2	68.2	None detected	Variable
SBR Tank 1 Recirc Pump 1 <sup>2</sup>	78.0	1 Meter	66.7	69.0	69.4	78.1	71.8	68.7	67.4	64.2	56.0	None detected	Variable
SBR Tank 1 Recirc Pump 2 <sup>2</sup>	76.1	1 Meter	66.2	70.2	67.5	75.0	71.3	69.8	69.4	67.2	57.5	None detected	Variable
SBR Tank 2 Recirc Pump 1	78.3	1 Meter	71.0	76.0	83.3	80.7	72.6	70.7	70.8	65.9	60.0	None detected	Variable
SBR Tank 2 Recirc Pump 2 <sup>2</sup>	77.1	1 Meter	67.6	66.9	66.9	73.9	71.5	71.3	71.7	67.1	58.2	None detected	Variable
WWTP Blower Pump 03-FN-213	82.5	1 Meter	74.3	73.0	83.6	83.2	72.7	76.5	76.2	72.7	70.0	None detected	Variable
WWTP Blower Pump 03-FN-211	81.2	1 Meter	73.4	66.9	79.1	79.9	70.3	74.2	77.6	71.4	65.8	None detected	Variable
WWTP Blower Pump (Most Northerly)	81.4	1 Meter	73.1	70.8	79.2	75.8	73.4	76.5	74.4	71.9	72.2	None detected	Variable
WWTP Blower Pump 03-FN-215 <sup>2</sup>	79.4	1 Meter	66.8	70.0	78.0	80.7	74.9	70.9	72.1	69.2	66.7	None detected	Variable
AHU 31	65.5	2 Meters	72.7	75.1	74.9	67.5	63.2	59.4	53.7	49.2	40.2	None detected	Continuous
<i>Continued on next page</i>													

May 2017

<b>Table C.1 Detailed Noise Measurement Results, Wyeth Nutritional Ireland Ltd, May 2017</b>													
Source	Sound Pressure Level dB(A)	Reference Distance <sup>1</sup>	Octave bands Sound Pressure Levels (dB)									Impulsive or Tonal Qualities	Periods of Emission
			32	63	125	250	500	1k	2k	4k	8k		
<i>Continued from previous page</i>													
AHU 28	74.0	2 Meters	75.9	76.4	79.4	77.6	71.6	67.3	61.2	55.6	48.7	None detected	Continuous
New Source beside boiler house	83.4	2 Meters	77.5	88.2	88.0	87.1	81.9	76.7	70.5	67.3	57.1	None detected	Variable
<b>New Sources – Not Commissioned Yet</b>													
New Sprinkler Pump Room (WWTP)	79.3	4 Meters	70.1	78.0	87.3	84.3	78.7	67.2	66.8	61.1	54.4	None detected	Variable

 Notes. <sup>1</sup>Distance between the measurement source and the microphone-<sup>2</sup>Source not operating at time of the survey, previous data reported, May 2016.

**Table C.2 Noise Abatement, Wyeth Nutritionals Ireland Ltd, May 2017**

Source	Noise Control/Abatement	Max SPL (dB)
Drier 5	n/a	88
Drier 4	n/a	91
Drier 3	INVC's Quiet Fan Technology	90
Drier 1	n/a	100
Drier Tower 5 Vents	n/a	80
Vent at base of stairs to drier towers	n/a	78
AHU 27	n/a	84
AHU 20	n/a	81
AHU 21	n/a	83
Can Plant NE Stack	n/a	87
Can Plant SW Stack	n/a	83
Can Plant NW Stack	n/a	81
Can Plant SE Stack	n/a	91
Can Plant Tall Narrow Stack	n/a	89
Beside AHU 19 Arrow style stack	n/a	100
AHU 18/19	n/a	96
OHIO	n/a	83
Evaporator 5	Screening	100
Evaporator 4	Screening	97
<i>Continued on next page</i>		

**Table C.2 Noise Abatement, Wyeth Nutritionals Ireland Ltd, May 2017**

Source	Noise Control/Abatement	Max SPL (dB)
<i>continued from previous page</i>		
Process 2 Cooler	Screening	90
Evaporator 1 & 2	Screening	99
Process 2X Evaporator	Screening	98
Process 1 Cooler	Screening	100
Process 3 Evaporator	Screening	97
SBU1 Recirculation Pump	Screening	87
Evaporator 3	Screening	99
Cooling Tower 1	n/a	87
Cooling Tower 2	n/a	86
Cooling Tower 3	n/a	91
Boilerhouse Stack	n/a	100
Boilerhouse Louvre Between CT2 & CT3	n/a	89
Steam Release Stack Boilerhouse Roof	n/a	94
Boiler house East Side Louvres	n/a	78
Boilerhouse East Side	n/a	89
Boilerhouse West side	n/a	93
CHP Stack	n/a	100
CHP Plant East Side	n/a	80
<i>Continued on next page</i>		

**Table C.2 Noise Abatement, Wyeth Nutritionals Ireland Ltd, May 2017**

Source	Noise Control/Abatement	Max SPL (dB)
<i>continued from previous page</i>		
CHP Plant West Side	n/a	80
RTF Watermiser No 948 NE Corner	n/a	96
RTF Watermiser No 1140 NE Corner	n/a	100
RTF (Fans on wall East Side)	n/a	78
Laboratory Stacks	n/a	87
AHU16	n/a	98
AHU10	n/a	80
AHU11	n/a	87
AHU15	n/a	82
AHU14	n/a	81
AHU101	n/a	87
AHU102	n/a	87
AHU13	n/a	90
AHU17	n/a	86
Treated Effluent Buffer Tank Pump RHS	n/a	87
Treated Effluent Buffer Tank Pump LHS	n/a	88
Raw Effluent Tank Pump SW Side	n/a	89
Raw Effluent Tank Pump NW Side	n/a	85
<i>Continued on next page</i>		

**Table C.2 Noise Abatement, Wyeth Nutritionals Ireland Ltd, May 2017**

Source	Noise Control/Abatement	Max SPL (dB)
<i>continued from previous page</i>		
Raw Effluent Tank Pump NE Side	n/a	90
SBR Tank 1 Recirc Pump 1	n/a	88
SBR Tank 1 Recirc Pump 2	n/a	86
SBR Tank 2 Recirc Pump 1 <sup>1</sup>	n/a	-
SBR Tank 2 Recirc Pump 2 <sup>1</sup>	n/a	-
WWTP Blower Pump 03-FN-208 <sup>1</sup>	Acoustic Enclosure	-
WWTP Blower Pump 03-FN-211 <sup>1</sup>	Acoustic Enclosure	-
WWTP Blower Pump 03-FN-213	Acoustic Enclosure	92
WWTP Blower Pump 03-FN-215	Acoustic Enclosure	87
AHU 31	n/a	77
AHU 28	n/a	86
New Source beside boilerhouse	n/a	96

**Note:** All noise measurements were undertaken post abatement. <sup>1</sup>Not measured, assumed to be similar to adjoining pumps.

**IED Licence Noise Control Plan 2017**  
**Wyeth Nutritionals Ireland Ltd**  
**Askeaton, Co. Limerick**  
**Appendix D: Noise Modelling Report New Card Extension**



**WYETH NUTRITION, ASKEATON, CO. LIMERICK**

**NOISE ASSESSMENT WITH NEW CARD EXTENSION**

Acoustics Report A1014 R03

21st April 2017

Report for: Ossian Geraghty & Associates Ltd  
Fawcetts Bridge  
Dunally  
Co. Sligo  
Republic of Ireland

Report issued to: Ossian Geraghty & Associates Ltd  
Attention: Ossian Geraghty

Prepared by: Gavin Irvine BSc (Hons) MIOA  
Checked by: David O'Neill BSc, MSc, CEng, MIOA

Issue/Revision number: A1014 R03  
Date: 21/04/2017





**Contents**

- 1 Introduction ..... 1
- 2 Site Layout..... 1
- 3 Noise Modelling ..... 2
  - 3.1 Calculation Method ..... 2
  - 3.2 Source Sound Power Levels..... 3
    - 3.2.1 Existing noise sources ..... 3
    - 3.2.2 New Card noise sources ..... 3
  - 3.3 Current Situation ..... 4
    - 3.3.1 Existing Noise Level Measurements ..... 4
    - 3.3.2 Modelled Predictions with New Card Extension..... 5
- 4 Conclusion ..... 8

- Appendix A: New Card extension floor plans and noise source locations
- Appendix B: ISO 9613-2 Calculation Parameters
- Appendix C: Noise Sources (including maximum permitted noise level for each source)
- Appendix D: Tabulated Calculation Results (Noise Sources Ranked for each NSL)



## 1 Introduction

Ion Acoustics is appointed by Ossian Geraghty & Associates Limited to provide a desktop assessment of industrial noise at the existing Wyeth Nutrition facility in Askeaton, County Limerick, Ireland. Noise levels of the existing operational plant have been measured and documented by Ossian Geraghty & Associates in 2015. The measurements included noise levels at several noise sensitive locations (NSLs) and source noise levels for the majority of operational plant at the facility. More recently Arup have measured noise levels at the same receptors in May 2016. Previous assessments have been carried out and documented by Ion Acoustics in the reports A1014/R01 and A1014/R02. The most recent report (A1014/R02 from 11<sup>th</sup> October 2016) detailed a revised model with various new plant installed at the facility.

This report assesses the cumulative impact of noise from the new New Card pilot plant extension to the south of the site in combination with the existing noise levels. Previous assessments dealt only with external noise data, while the noise levels provided for the New Card extension are mostly of internal plant. For these, the noise breakout has been calculated by considering the sound insulation of the building envelope. The external sources include various pumps and a new cooling tower.

The source noise levels have been used as the input to a computer model (IMMI<sup>1</sup>) which has been calibrated to daytime noise levels measured at the NSLs. The modelled noise level is indicative of a typical daytime operational scenario with the majority of noise sources at the site operational.

## 2 Site Layout

The existing site location is shown below in Figure 1 (image provided by Ossian Geraghty & Associates). The N69 road runs along the south of the site and is subject to a reasonable flow of road traffic. There are residential receptors to the north (NSL 1), north-east (NSL 5 & NSL 6), south-east (NSL 4) and south (NSL 2 & NSL 3). The existing site is located in a primarily rural location, but includes several large industrial buildings which contain a variety of internal and external plant items.

Detailed floor plans of the extension with indicated noise sources are included in Appendix A.

---

<sup>1</sup> <http://www.woelfel.de/en/products/immi.html>

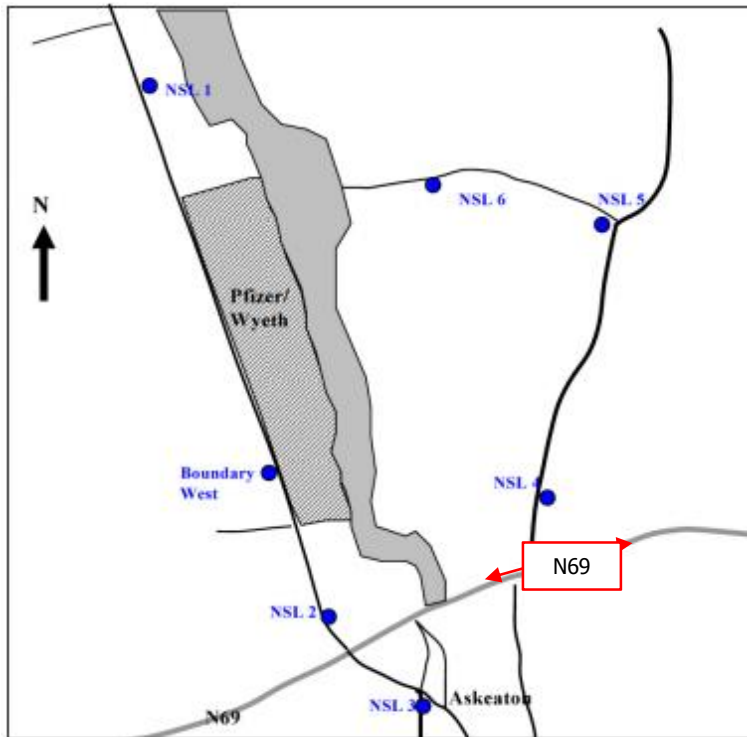


Figure 1 – Site Location Plan showing Wyeth Nutrition facility location, NSLs and nearby roads (from Ossian Geraghty & Associates)

### 3 Noise Modelling

Noise modelling software (IMMI) has been used to model the existing situation and to then model the increase in noise level at the NSLs arising from increasing the source noise levels of the existing plant. The software implements the ISO 9613-2 calculation method described below.

#### 3.1 Calculation Method

The calculation method used for this assessment is outlined in ISO 9613-2 'Attenuation of sound during propagation outdoors'. Environmental noise from sources such as industrial plant is reduced by distance, atmospheric losses, screening effects and other "miscellaneous" losses. Noise levels can be increased or reduced by the interaction of sound waves with the ground. The ISO propagation model calculates the predicted sound pressure level at a specified distance by taking the sound power level and subtracting a number of attenuation factors according to the various losses and the ground effect as described above. The noise level can be represented by the equation:

$$\text{Predicted Noise Level} = L_{WA} + D - A_{geo} - A_{atm} - A_{gr} - A_{bar} - A_{misc} \dots\dots\dots(1)$$

The calculation is carried out for each sound source at the existing facility and the predicted noise levels are summed together to give the overall 'A' weighted predicted sound level at the NSLs. Distance loss (or  $A_{geo}$  in the equation above) is generally the most significant factor. Appendix B describes the attenuation factors in more detail.

The following modelling assumptions have been made:



- Downwind propagation to reflect the worst case in terms of propagation;
- mixed ground absorption (G=0.5) has been assumed; although the site is made up of predominantly hard surfaces such as tarmac, the surrounding area is rural countryside;
- receiver height of 1.5 metres for all NSLs, to reflect the height of the measurement microphone during onsite measurements made by Ossian Geraghty & Associates;
- ambient air temperature of 10°C and 70% relative humidity.
- the calculation has been made on the basis of A-weighted noise levels with the parameters calculated on the basis of the 500Hz octave band.

This assessment is solely concerned with the plant noise from the Wyeth Nutrition facility. Additional noise sources such as road traffic noise have not been included in the assessment.

### 3.2 Source Sound Power Levels

The input to the computer model is the source sound power level (dB L<sub>WA</sub>) of each source.

#### 3.2.1 Existing noise sources

As per the previous assessment, noise levels of plant existing as of October 2016 have been measured by Ossian Geraghty and Associates close to specific existing operational plant units. These noise levels have been measured in terms of L<sub>Aeq</sub> sound pressure (L<sub>pA</sub>) values, and have then been converted into sound power (L<sub>W</sub>) values using the formula:

$$L_W = L_{Aeq} + 20\log(d) + 8 \text{ dB} \dots\dots\dots(2)$$

where d refers to the distance of the measurement microphone from the source. This equation applies to hemi-spherical radiation, i.e. assuming that the source is radiating into a notional hemisphere. The measurements were made close to the noise sources where feasible, at a distance of between 0.5 and 2 metres. Where this was not possible measurements were made at distances up to 5 to 6 metres. Measurements made at a greater distance may have been influenced by other noise sources in the nearby vicinity, and additional reflecting surfaces.

The directivity of each of these noise source (D in equation 1) has been assigned in the computer model based on observations and images provided by Ossian Geraghty & Associates. There are several sources which will propagate sound in one particular direction - this is especially the case for louvered noise sources, where a beaming effect occurs. For this latest report, the sound power level of existing sources which are also close to a wall have been reduced by 3dB to take into account the reflection. Modelled noise levels are higher than the measurements and therefore refinements have sought to reduce the modelled noise levels to better reflect the existing situation.

#### 3.2.2 New Card noise sources

Noise data for the new pilot plant extension has been provided in the form of:

- sound power levels gathered from the Arup draft noise report (dated 8/03/2017);
- source locations indicated on floor plans (revisions from 31/1/2017), with dBA sound pressure levels specified;
- source names alongside sound pressure levels tabulated on the GEA Environmental data spreadsheet (dated 27/01/2017).



This data has been compiled (as sound power levels) and the internal sources have been reduced by the cladding performance,  $R_w$ , to calculate the breakout sound power radiated externally. The breakout  $L_w$  levels have been calculated according to:

$$L_{w,breakout \text{ per side}} = L_{w,internal} - R_w - 10\log(n) \dots\dots\dots(3)$$

where  $n$  is the number of sides or directions through which the sound is likely to escape. The Arup report describes Kingspan RW/80 panels with a performance of 45 dB  $R_w$ . This cannot be achieved by the Kingspan alone but would be a reasonable value for the combination of the cladding panels and the internal lining. The formula above assumes that there are no losses within the room for acoustic absorption and therefore reflects a conservative assessment.

The breakout sound power source values are specified as point sources in the model on the appropriate external facades. A number of sources are external, with source levels used as provided. A full list of New Card noise sources with the estimated number of breakout directions is shown in Appendix C.

All noise levels are ranked in order for each NSL and are included in Appendix D. The overall noise level at each receptor position is the logarithmic sum of sound pressure level contributions from all the noise sources.

### 3.3 Current Situation

#### 3.3.1 Existing Noise Level Measurements

The existing noise levels at the NSLs measured by Ossian Geraghty & Associates in May 2015 for report A1014/R01 are shown in Table 1. The existing noise levels at the NSLs measured by Arup in May 2016 are shown in Table 2. These are identified in terms of the 'Mean Specific Noise Level dB(A)' for daytime, evening and night-time periods. The specific noise level is the noise level which was attributed solely to external plant noise from the Wyeth Nutrition facility. In most cases, this was determined by the underlying background noise level ( $L_{A90}$ ), as the plant was only faintly audible at most locations. This was especially the case during the daytime and evening measurements where the plant noise was masked by road traffic noise from the N69. During the night-time measurements the plant was still only faintly audible at most NSLs, but it is likely that operational activity reduced during the night-time hours. The main exception was at NSL 6, where plant was noted as the main noise source in the May 2015 measurements and the specific noise was characterised by the measured  $L_{Aeq}$  values. Noise levels measured by Arup in May 2016 were significantly lower however and plant noise was described as at a steady low level.

**Table 1 –Noise Level of operational plant at NSLs measured by OGA May 2015**

Receptor	Mean Specific Noise Level dB(A)		
	Daytime	Evening	Night-time
NSL 1	<<42	<36	<<33
NSL 2	<48	<43	<<43
NSL 3	<<48	<<44	<40
NSL 4	<49	<50	<44
NSL 5	<40	<<43	36
NSL 6	45	40	41

**Table 2 –Noise Level of operational plant at NSLs measured by Arup May 2016**

Receptor	Mean Specific Noise Level dB(A)		
	Daytime	Evening	Night-time
NSL 1	<<32	<<25	38
NSL 2	<<45	45	43
NSL 3	<<44	<<40	31
NSL 4	<45	<48	<34
NSL 5	<<33	<<35	36
NSL 6	33	34	36

It is noted that the noise sources at the existing facility could operate in a continuous, variable or intermittent manner. It is therefore difficult to determine which specific items of plant were operational during measurements made in different periods. Furthermore changes in traffic and with time of day could also affect the measured levels since the plant noise is barely audible at most locations.

However, a general assumption can be made that the majority of plant will operate during the daytime period, with a reduction in activity during the evening and night-time periods. The evening noise levels are generally lower than or similar to the daytime and the night-time noise levels are generally lower than the daytime and evening levels. Arup's measurements indicated a small increase in the noise levels at NSL 6 at night but this is not remarked upon in their draft report. The noise levels measured at the NSLs would also have been affected by meteorological conditions such as wind speed and direction and by shielding effects from nearby land or buildings.

It is also noted that the noise levels attributable to external plant at all NSLs are compliant with the Environmental Protection Agency (EPA) noise limits of 55 dB  $L_{Aeq}$  (daytime), 50 dB  $L_{Aeq}$  (evening) and 45dB  $L_{Aeq}$  (night-time).

### 3.3.2 Modelled Predictions with New Card Extension

The current site layout was supplied by Ossian Geraghty & Associates, which was imported into the model to form a base map. Heights of buildings were determined from elevations. The buildings around the site can shield noise sources and reduce noise levels. However noise will also be reflected from the buildings which are made up of predominantly hard materials.

In determining a suitable baseline operational scenario for the model, the strategy agreed with Ossian Geraghty & Associates has been to model the impact of all noise sources with some

refinements to the existing sources to better reflect the measured noise levels. The scenario with all sources operational is considered to be representative of a typical daytime situation.

To assess the effect of the new extension, the modelled noise levels have therefore been compared to the measured daytime levels identified by Ossian Geraghty & Associates and Arup, and to the results of the previous noise modelling exercise (from October 2016); the comparison is shown in Table 3. Predictions of noise from the extension alone were also provided in the draft Arup report from March 2017. These are also stated for comparison.

**Table 3 - Daytime Noise Measurements and Predictions, dB(A)**

Receptor	OGA Measured May 2015	Arup Measured May 2016	Ion Cumulative Oct 2016	Arup Predictions (New Card Only)	Ion Predictions (New Card Only)	Ion Cumulative Apr 2017
NSL 1	<<42	<<32	42.8	18.8	16.9	42.3
NSL 2	<48	<<45	47.4	36.8	33.5	46.0
NSL 3	<<48	<<44	46.4	31.4	27.8	45.0
NSL 4	<49	<45	47.8	29.2	27.5	46.9
NSL 5	<40	<<33	42.3	23.0	20.6	41.8
NSL 6	45	33	46.5	20.7	22.5	45.7

As Table 3 shows, Ion Acoustics' predictions are reasonably in line with the Arup calculations, although there is a small difference which is likely to be due to the modelling assumptions. In both cases, the modelled noise levels from the new extension are at a low level and predicted noise levels are comfortably below the daytime noise levels both in terms of the modelled and the measured noise levels. The predicted noise levels from the extension alone are also 10dB lower than the measured noise levels at night. Therefore the new extension will not make a significant difference to the existing noise levels from the site.

The cumulative predictions are still higher than the EPA 45 dB night-time limit, but it is likely that less plant is operational at night and the cumulative predictions still show some discrepancies in relation to the measured results although the measured results are also variable. Any discrepancy however is due to the earlier October 2016 model not the new extension. The October 2016 model assumed all plant is operational at all times, since there was no information to make any other assumption. Modelled noise levels from the existing facility have been reduced by refining making some estimates in relation of the directivity of the specific noise sources. Therefore the new cumulative predictions are slightly lower than that described in the previous October 2016 report.

Noise map representing the existing situation are shown in Figure 3 for the cumulative scenario and Figure 4 for the New Card extension only.

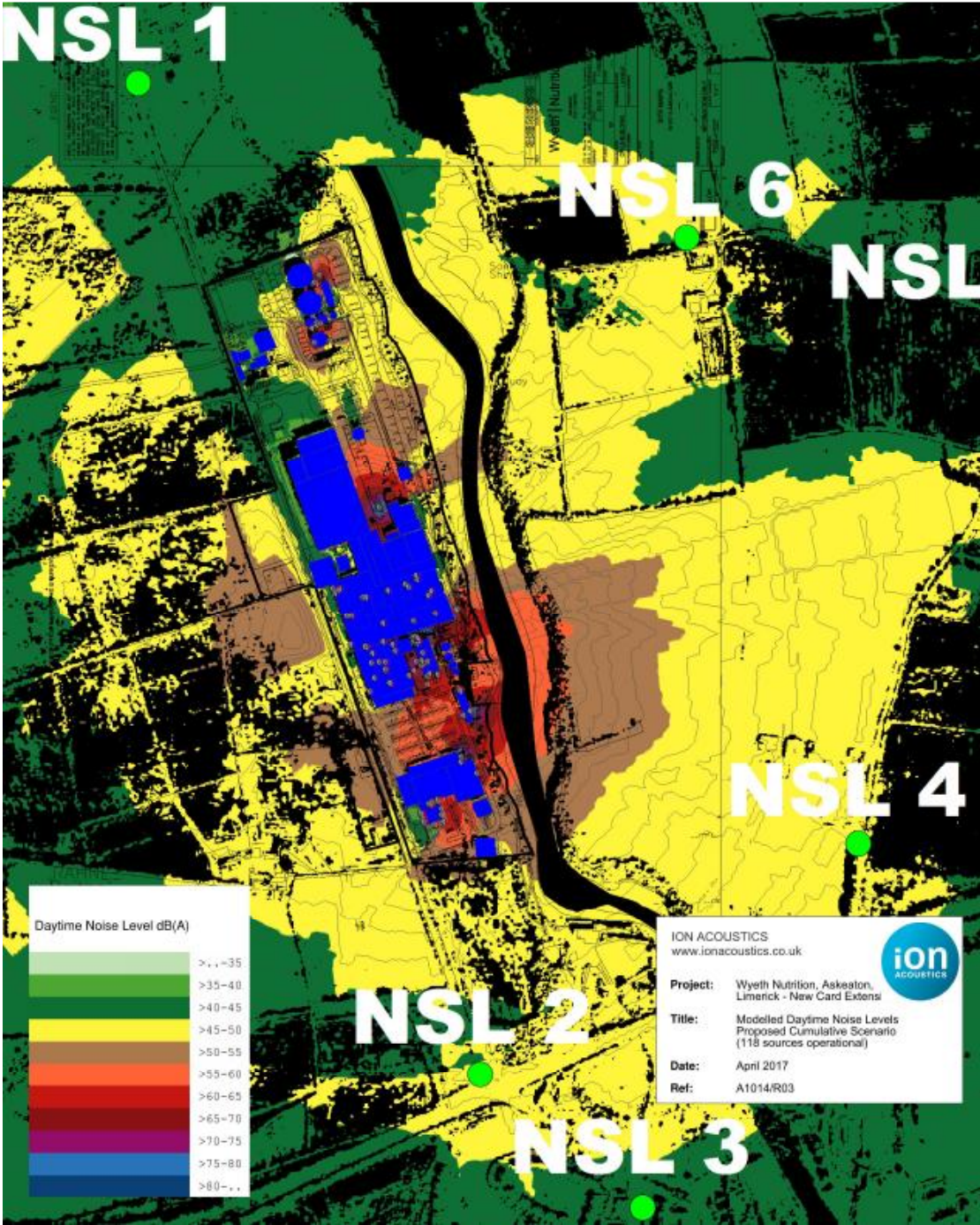


Figure 3 – Noise Contour Plot of Cumulative Daytime Operational Scenario



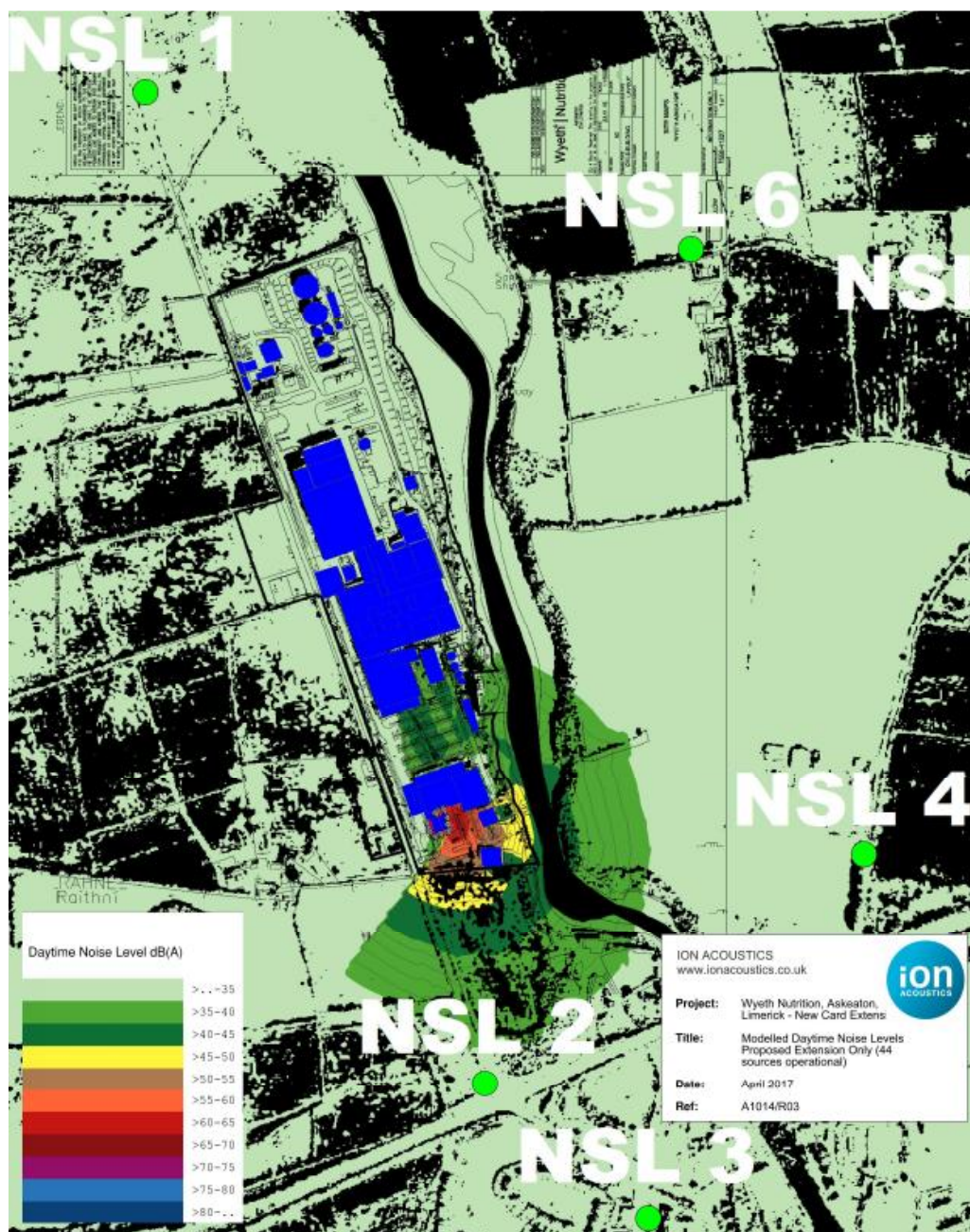


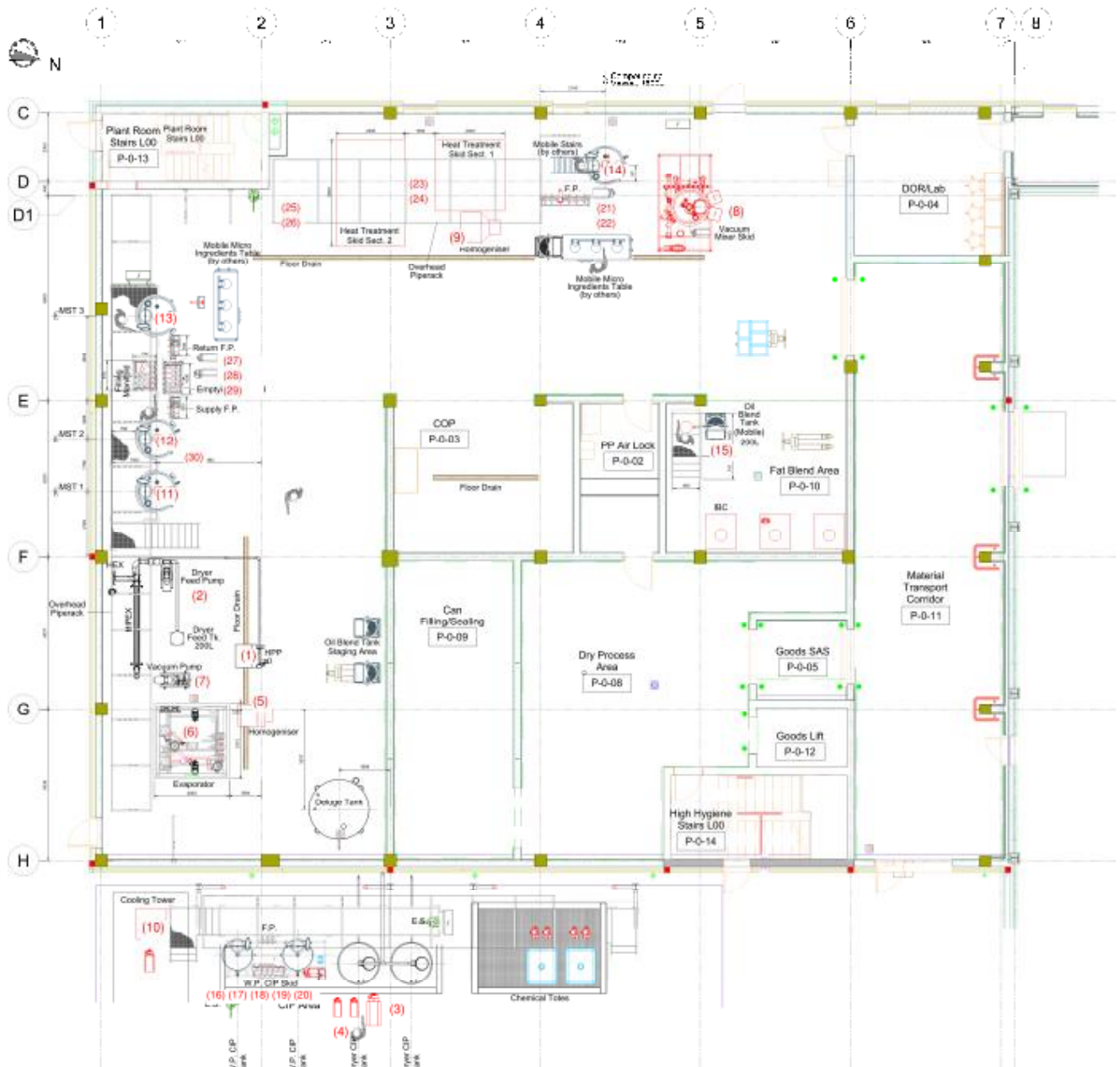
Figure 4 – Noise Contour Plot of New Card Extension Daytime Operational Scenario

#### 4 Conclusion

Ion Acoustics have carried out an industrial plant noise assessment of the impact of a new pilot plant extension at the Wyeth Nutrition facility in Askeaton, Co. Limerick, Ireland. The modelled noise levels have then been compared to compliance measurements made at the NSLs by Ossian Geraghty & Associates in May 2015 and Arup in May 2016. It can be seen that the new facility makes no impact on the existing noise levels neither in terms of the modelled results nor in terms of the measured results since the predicted levels are more than 10 dB below the measured results. The most recent measured results show compliance with the daytime, evening and night-time noise limits.

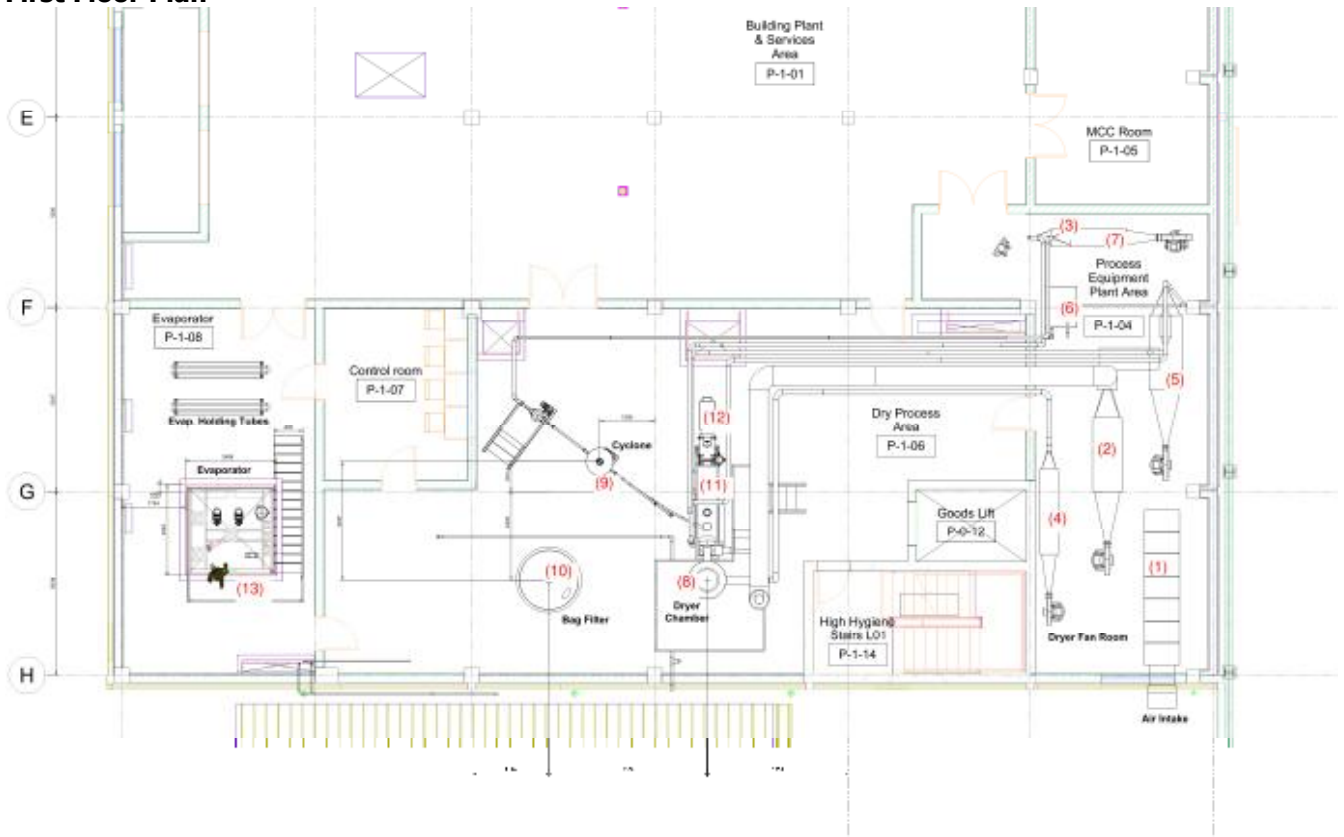
Appendix A: New Card extension floor plans and noise source locations

**Ground Floor Plan**

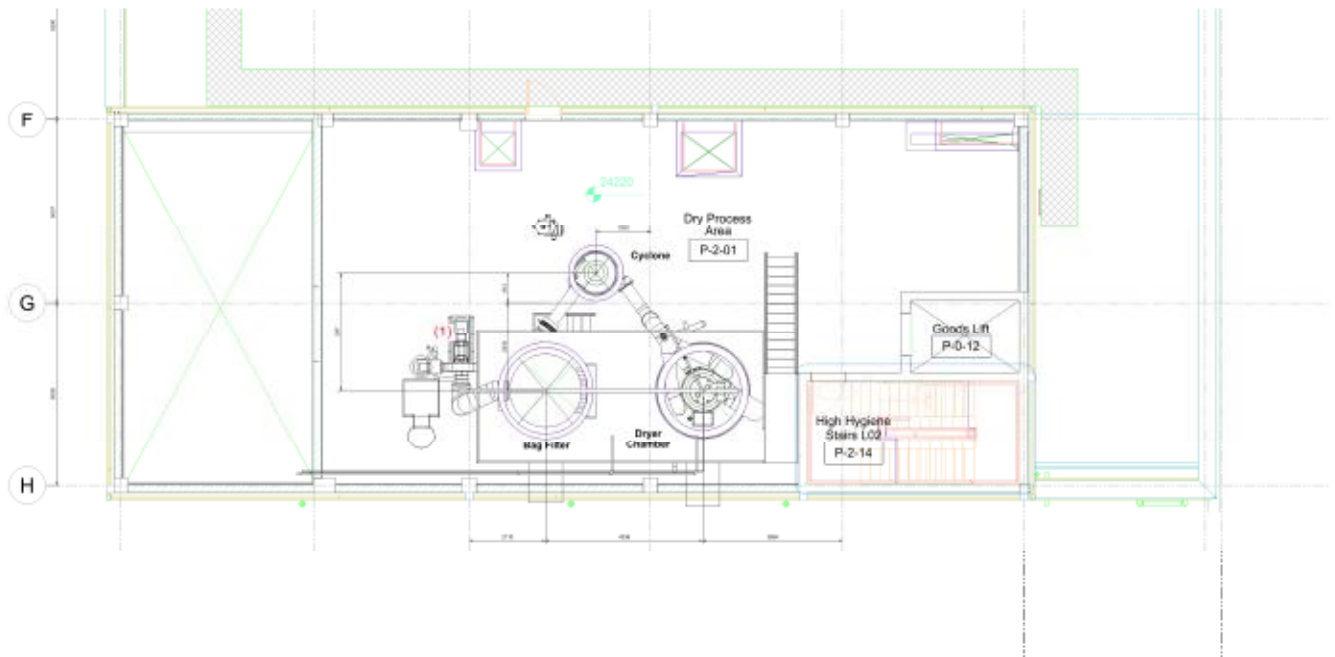


Appendix A: New Card extension floor plans and noise source locations

**First Floor Plan**



**Second Floor Plan**



## Appendix B: ISO 9613-2 Calculation Parameters

### Geometrical Divergence (Distance Loss) - $A_{geo}$

Geometrical divergence is the name given to the distance loss which occurs as the source sound power is spread out over an increasing surface area as the distance from the source increases. This is the most significant loss associated with propagation and the loss rate is the same at all frequencies. Industrial plant units are considered to be point sources and therefore there is a 6dB loss per doubling of distance. This is expressed mathematically according to:

$A_{geo} = 20\log(d) + 11\text{dB}$ , where  $d$  is the distance from the noise source, in metres.

### Atmosphere Attenuation - $A_{atm}$

Atmospheric losses occur as the energy in the sound wave is converted to heat. This is a frequency-dependent process and high frequencies are more readily attenuated than low frequencies. The losses are dependent on humidity and temperature and are represented by the following equation:

$A_{atm} = d\alpha$ , where  $d$  is distance from the noise source (in metres), and  $\alpha$  is atmospheric absorption coefficient (dB/m).

Part 1 of ISO 9613 provides tables with the values of  $\alpha$  corresponding to various temperatures and humidity. The calculations take a conservative approach, assuming a temperature of 10°C and a relative humidity of 70% which gives low levels of atmospheric attenuation, as shown in the table below.

### Atmospheric Absorption Coefficients at 10°C and 70% RH

Octave Band Centre Frequency (Hz)	63 Hz	125 Hz	250 Hz	500 Hz	1kHz	2kHz	4kHz	8kHz
Atmospheric Absorption Coefficient (dB/m)	0.0001	0.0004	0.001	0.0019	0.0037	0.0097	0.0328	0.117

For this assessment, calculations have only been made in the 500Hz frequency band, so the attenuation coefficient of 0.0019 at 500Hz has been applied only.

### Ground Effect - $A_{gr}$

This factor describes the effect of sound waves reflected off the ground interfering with the sound waves propagating directly from source to receiver. The prediction of ground effect depends on the source height, receiver height, and propagation distance between the source and receiver and the ground conditions.

The ground conditions are described according to a variable  $G$  which varies between 0 for "hard" ground (which includes paving, water, ice, concrete and any sites with low porosity) and 1 for "soft" ground (which includes ground covered by grass, crops, trees and other vegetation).

The predictions have been carried out using source heights of the individual noise sources, as measured and supplied by Ossian Geraghty and Associates. A receiver height of 1.5m has been used, to reflect the height of the measurement microphone at the receptor locations. Mixed ground attenuation ( $G = 0.5$ ) has been used, as the site is predominantly made up of hard surfaces but is surrounded by countryside.

### Barrier Attenuation - $A_{bar}$

When a source is not visible behind an imperforate element, a loss occurs as the sound waves are refracted around the barrier. A barrier could include screening by topographical features as well as other man-made objects such as fences and buildings. There are a number of buildings at the site,



## Appendix B: ISO 9613-2 Calculation Parameters

which will provide shielding at various receptor locations.

### **Miscellaneous Losses - $A_{misc}$**

Miscellaneous losses in the ISO 9613-2 calculation can be used to account for losses through propagation through trees and across housing and reflections off buildings. These losses are not considered in our calculations however. Reflections off buildings have been considered, as they can lead to increases in noise levels at receptor locations.

Wyeth Nutrition, Askeaton, Co. Limerick  
Noise Assessment with New Card Extension

Appendix C: Noise Sources

**New Card noise sources**

#	Name	SPL dBA	Lw dB	# Sides	Rw 45
<b>GF</b>					
1	Dryer Homogeniser (HPP)	74	82	2	34.0
2	Dryer feed pump	74	82	1	37.0
3	Dryer CIP forward pump - outside	77	85		85.0
4	Dryer CIP circulation pump - outside	74	82		82.0
5	Homogeniser	77	85	2	37.0
6	Evaporator pumps	90	98	2	50.0
7	Vacuum pump	90	98	2	50.0
8	Vacuum mixer skid	85	93	1	48.0
9	Homogeniser	77	85	1	40.0
10	Cooling tower - outside	86	94		94.0
11	Mixer, MST 1	70	78	1	33.0
12	Mixer, MST 2	70	78	1	33.0
13	Mixer, MST 3	70	78	1	33.0
14	Compounding mixer	70	78	1	33.0
15	<del>Oil Blend mixer tank</del>	<del>70</del>	<del>78</del>		<del>78.0</del>
16	CIP Pump - outside	74	78		78.0
17	Chem Pum, CIP Area - outside	70	78		78.0
18	Chem Pum, CIP Area - outside	70	78		78.0
19	Chem Pum, CIP Area - outside	70	78		78.0
20	Chem Pum, CIP Area - outside	70	78		78.0
21	Water pump	75	83	1	38.0
22	Product pump	74	82	1	37.0
23	Heat Treat. Skid S1 product pump	75	82	1	37.0
24	Heat Treat. Skid S1 product pump	74	82	1	37.0
25	Heat Treat. Skid S2 water pump	75	83	2	35.0
26	Product pump - Heat Treat. Skid S2	77	85	2	37.0
27	Return FP (product pump?)	74	82	1	37.0
28	Product pump near Emptying Manifold	63	71	1	26.0
29	CIP Retainer/product pump	63	71	1	26.0
30	MST water pump?	75	83	1	38.0
<b>1F</b>					
1	Dryer Air inlet fan	86	94	2	46.0
2	Main Dryer fan	82	90	2	42.0
3	Dryer - Nozzle cooling fan	86	94	2	46.0
4	Dryer - Static fluid bed fan	83	91	2	43.0
5	Dryer VF fan	84	92	2	44.0
6	Fines return blower	72	80	2	32.0
7	Purge air fan	82	90	2	42.0
8	Dryer chamber hammer	105	113	1	68.0
9	Cyclone hammer	105	113	1	68.0
10	Bag filter hammer	105	113	1	68.0
11	Dryer sifter	80	88	1	43.0
12	Dryer VF	80	88	1	43.0
13	Evaporator TVR	95	103	2	55.0
<b>2F</b>					
1	Exhaust Fan	71	79	2	31.0

Wyeth Nutrition, Askeaton, Co. Limerick  
Noise Assessment with New Card Extension

Appendix C: Noise Sources

**Existing Noise Source**

Source Name	Periods of Emission	Measured Sound Pressure Level dB(A)	Distance from source (m)	Sound Power Level LWA dB	Notes
Steam Release Stack Boilerhouse Roof	Intermittent	84	1	92	
Boiler house East Side Louvres	Intermittent	68	2	82	
Boilerhouse West Side – 4 Pumps 3 on	Continuous	79	0.5	81	
Boiler house west side, 7 pumps, 6 on	Continuous	83	1	91	
CHP Plant East Side	Continuous	75	5	97	
CHP Stack	Variable	92	1	100	no noise level data - Lw 100dB assumed
CHP Plant West Side	Continuous	70	5	91	
RTF Watermiser No 948 NE Corner	Variable	91	2	105	
RTF Watermiser No 1140 NE Corner	Variable	93	1	101	
RTF (Fans on wall East Side)	Continuous	68	6	91	
Laboratory Stacks	Continuous	77	1	85	
AHU16	Continuous	88	1	96	
AHU9	Continuous	73	1	81	
AHU10	Continuous	70	1	78	
AHU 11	Continuous	77	1	85	no noise level data - Lw 85dB assumed
AHU15	Continuous	72	1	80	
AHU14	Continuous	71	1	79	
AHU8	Continuous	77	1	85	no noise level data - Lw 85dB assumed
AHU101	Continuous	77	1	85	no noise level data - Lw 85dB assumed
AHU102	Continuous	77	1	85	no noise level data - Lw 85dB assumed
AHU13	Continuous	80	1	88	
AHU17	Continuous	76	1	84	
Treated Effluent Buffer Tank Pump RHS	Variable	77	1	85	
Treated Effluent Buffer Tank Pump LHS	Variable	78	1	86	
Raw Effluent Tank Pump SW Side	Continuous	87	5	108	
Raw Effluent Tank Pump NW Side	Continuous	75	1	83	
Raw Effluent Tank Pump NE Side	Continuous	80	1	88	
SBR Tank 2 Recirc Pump 1	Variable				Tanks 1/2 similar - one system is a backup for the other
SBR Tank 2 Recirc Pump 2	Variable				
SBR Tank 1 Recirc Pump 1	Variable	78	1	86	
SBR Tank 1 Recirc Pump 2	Variable	76	1	84	
WWTP Blower Pump 03-BL-108	Variable				only 2 blower pumps run at once...
WWTP Blower Pump 03-FN-211	Variable				
WWTP Blower Pump 03-FN-213	Variable	82	1	90	
WWTP Blower Pump 03-FN-215	Variable	77	1	85	
AHU 31	Continuous	67	2	81	
AHU 28	Continuous	76	2	90	
New Source beside boiler house	Variable	86	2	100	
1 Louvres 2mx3m	Continuous	70	5	92	
2 Louvres 3mx1.5m	Continuous	63	5	85	
3 Louvres 2mx3m	Continuous	65	5	87	
4 Louvres 2mx3m	Continuous	58	5	80	
5 Louvres 1mx2m	Continuous	71	5	93	
6 Louvres 2mx2m	Continuous	62	5	84	

Wyeth Nutrition, Askeaton, Co. Limerick  
 Noise Assessment with New Card Extension

Appendix C: Noise Sources

Source Name	Periods of Emission	Measured Sound Pressure Level dB(A)	Distance from source (m)	Sound Power Level L <sub>WA</sub> dB	Notes
Drier 5	Variable	83	5	105	
Drier 4	Variable	91	5	113	
Drier 3	Variable	85	5	107	
Drier 1	Variable	98	2	112	
Drier Tower 5 Vents	Variable	70	5	92	
Vent at base of stairs to drier towers	Continuous	68	5	90	
AHU 27	Continuous	74	2	88	
AHU 26	Continuous	74	1	82	
AHU 20	Continuous	71	2	85	
AHU 22	Continuous	80	3	97	
AHU 21	Continuous	73	3	91	
Can Plant NE Stack	Continuous	77	1	85	
Can Plant SW Stack	Continuous	73	1	81	
Can Plant NW Stack	Continuous	76	1	84	
Can Plant SE Stack	Continuous	81	0.5	83	
Can Plant Tall Narrow Stack	Continuous	79	1	87	
Beside AHU 19 Arrow style stack	Continuous	100	3	117	
<sup>2</sup> AHU 18/19	Continuous	86	0.5	88	
OHIO	Variable	80	5	102	
Evaporator 5	Variable	91	1	99	
Evaporator 4	Variable	87	1	95	
Process 2 Cooler	Variable	80	1	88	
<sup>2</sup> Evaporator 1 & 2	Variable	94	1	102	
<sup>2</sup> Process 2X Evaporator	Variable	93	1	101	
<sup>2</sup> Process 3 Evaporator	Variable	92	1	100	
Process 1 Cooler	Variable	95	1	103	
<sup>2</sup> SBU1 Recirculation Pump	Variable	77	1	85	
<sup>2</sup> Evaporator 3	Variable	89	1	97	
Cooling Tower 1	Variable	77	2	91	
Cooling Tower 2	Variable	76	2	90	
Cooling Tower 3	Variable	81	4	101	
Boilerhouse stack	Variable	92	1	100	no noise level data - Lw 100dB assumed
Boilerhouse bypass stack	Variable	92	1	100	no noise level data - Lw 100dB assumed
Boilerhouse Louvre Between CT2 & CT3	Variable	79	1	87	





Appendix D: Tabulated Calculation Results (Noise Sources Ranked for each NSL)

Cumulative Modelled Results – Noise Sources Ranked in order

IMMI Receptor Reference	IMMI Source Name	Individual Source Noise Level (dB)	Summative Noise Level (dB)
<b>Receptor NSL 1</b>			
EZO002 +	Drier 4 Stack	36.716	36.716
EZO004 +	Drier 1 Stack	35.991	39.379
EZO017 +	beside AHU 19 Stack	33.929	40.468
EZO019 +	OHV	32.262	41.087
EZO003 +	Drier 3 Stack	31.620	41.52
EZO001 +	Drier 5 Stack	28.829	41.776
EZO060 +	Boiler/He bypass-est	25.511	41.877
EZO058 +	Boiler/He Stack-est	23.884	41.942
EZO051 +	Effluent Pump SWSide	22.984	42.007
EZO061 +	CHP Stack	21.448	42.035
EZO071 +	1 Louvres	21.083	42.07
EZO075 +	5 Louvres	20.551	42.1
EZO011 +	AHU 16	18.118	42.138
EZO015 +	Can Plant Narrow Sk	17.029	42.131
EZO119 +	10 Cooling tower	16.883	42.144
EZO073 +	3 Louvres	16.322	42.165
EZO029 +	Can Plant NE Stack	15.247	42.164
EZO010 +	AHU 22	15.099	42.172
EZO072 +	2 Louvres	14.487	42.18
EZO030 +	Cooling Tower 3	14.247	42.187
EZO041 +	Laboratory Stacks	14.062	42.194
EZO014 +	Can Plant NW Stack	13.598	42.2
EZO015 +	Can Plant SE Stack	13.067	42.209
EZO056 +	WWTP Pump 03-FN-213	12.378	42.209
EZO009 +	RTF Watermiser140NE	12.163	42.244
EZO018 +	AHU 18/19	11.661	42.217
EZO008 +	AHU 26	11.191	42.221
EZO057 +	WWTP Pump 03-FN-215	11.185	42.224
EZO086 +	NEW Process 1 Cooler	10.526	42.227
EZO013 +	Can Plant SW Stack	10.348	42.23
EZO065 +	AHU 102	9.837	42.233
EZO074 +	4 Louvres	9.820	42.235
EZO023 +	Evaporator 1 & 2	9.351	42.237
EZO021 +	AHU 27	9.207	42.24
EZO054 +	SBR Tank 1 Pump 1	8.251	42.241
EZO038 +	RTF Watermiser948 NE	7.373	42.243
EZO025 +	Process 3 Evaporator	7.297	42.244
EZO076 +	6 Louvres	5.411	42.246
EZO052 +	Effluent Pump NWSide	4.923	42.248
EZO055 +	SBR Tank 1 Pump 2	4.836	42.248
EZO027 +	Evaporator 3	4.797	42.247
EZO028 +	Cooling Tower 1	4.761	42.248
EZO053 +	Effluent Pump NESide	4.59	42.248
EZO070 +	NEW AHU 28	4.354	42.249
EZO067 +	NEW Boiler House S/c	3.811	42.25
EZO042 +	AHU 16	3.568	42.252
EZO021 +	Evaporator 4	2.48	42.251
EZO020 +	Evaporator 5	2.104	42.251
EZO029 +	Cooling Tower 2	1.738	42.252
EZO049 +	Buffer Tank Pump RHS	0.869	42.252
EZO050 +	Buffer Tank LHS	-0.077	42.252
EZO031 +	B-Hse Louvre CT2/CT3	-0.138	42.253
EZO032 +	Steam Release Stack	-0.615	42.253
EZO035 +	Boiler/He WSide Pump	-1.531	42.253
EZO047 +	AHU 13	-3.166	42.253
EZO022 +	Process 2 Cooler	-4.526	42.253
EZO120 +	3 Dryer CIP Forward	-5.579	42.253
EZO036 +	CHP Plant E Side	-6.767	42.253
EZO006 +	Drier Tower 5 Vents	-6.7	42.253
EZO006 +	Vent Drier tower base	-7.656	42.254
EZO121 +	4 Dryer CIP circ pump	-8.463	42.254
EZO040 +	RTF Fans E Side Wall	-8.569	42.254
EZO024 +	Process 2 Evaporator	-9.361	42.254
EZO009 +	AHU 20	-10.518	42.254
EZO046 +	AHU 14	-11.821	42.254
EZO124 +	16 CIP pump	-12.128	42.254
EZO123 +	17 Chem pump	-12.168	42.254
EZO122 +	18 Chem pump	-12.209	42.254
EZO125 +	19 Chem pump	-12.250	42.254
EZO126 +	20 Chem pump	-12.311	42.254
EZO026 +	SBR Recirculat Pump	-13.644	42.254
EZO064 +	AHU 101	-13.866	42.254
EZO048 +	AHU 17	-14.723	42.254
EZO045 +	AHU 15	-16.513	42.254
EZO037 +	CHP Plant W Side	-18.997	42.254
EZO043 +	AHU 9	-19.891	42.254
EZO063 +	AHU 8	-19.249	42.254
EZO033 +	B-Hse East Louvres	-22.122	42.254
EZO062 +	AHU 11 - est	-22.123	42.254
EZO134 +	13 exvap TVR	-22.468	42.254
EZO135 +	9 cyclone hammer	-22.84	42.254
EZO136 +	10 bag filter	-22.909	42.254
EZO069 +	NEW AHU 31	-26.455	42.254
EZO024 +	Boiler/He WSide 4pump	-26.661	42.254
EZO044 +	AHU 30	-29.428	42.254
EZO146 +	1 Air inlet fan	-31.281	42.254
EZO140 +	3 nozzle cooling fan	-31.289	42.254
EZO143 +	5 VF fan	-31.227	42.254
EZO138 +	13 exvap TVR	-31.692	42.254
EZO145 +	4 static fluid bed	-36.183	42.254
EZO144 +	2 main fan	-37.195	42.254
EZO141 +	7 purge air fan	-37.347	42.254
EZO147 +	13 exvap TVR	-37.792	42.254
EZO138 +	12 dryer VF	-39.049	42.254
EZO129 +	3 nozzle cooling fan	-42.693	42.254
EZO114 +	7 Vacuum pump	-42.791	42.254
EZO111 +	5 Evap pump	-42.794	42.254
EZO115 +	7 Vacuum pump	-42.83	42.254
EZO110 +	6 Evap Pump	-42.83	42.254
EZO109 +	8 Vacuum mixer	-43.297	42.254
EZO127 +	1 Air inlet fan	-45.377	42.254
EZO145 +	1 Exhaust fan	-45.389	42.254
EZO130 +	4 static fluid bed	-45.828	42.254
EZO142 +	6 fines return blowe	-47.312	42.254
EZO131 +	5 VF fan	-47.518	42.254
EZO137 +	11 dryer sifter	-47.699	42.254
EZO128 +	2 Main fan	-48.756	42.254
EZO133 +	7 purge air fan	-48.795	42.254
EZO105 +	9 Homogeniser	-50.194	42.254
EZO102 +	26 product pump	-52.486	42.254
EZO106 +	21 Water pump?	-52.713	42.254
EZO103 +	23 product pump?	-52.891	42.254
EZO104 +	24 product pump?	-52.931	42.254
EZO108 +	12 product pump?	-53.52	42.254
EZO101 +	25 water pump?	-54.403	42.254
EZO095 +	30 MST water pump?	-54.825	42.254
EZO113 +	5 Homogeniser	-55.669	42.254
EZO100 +	26 product pump	-55.819	42.254
EZO096 +	27 return FP	-55.822	42.254
EZO116 +	2 Dryer FP	-55.827	42.254
EZO112 +	5 Homogeniser	-55.831	42.254
EZO148 +	1 Exhaust Fan	-55.908	42.254
EZO107 +	14 Compounding mixer	-57.812	42.254
EZO099 +	25 water pump?	-57.813	42.254
EZO132 +	6 fines return blowe	-58.532	42.254
EZO118 +	1 Dry Homog HPP	-58.746	42.254
EZO137 +	1 Dry Homog HPP	-58.829	42.254
EZO092 +	13 MST3	-59.821	42.254
EZO093 +	12 MST2	-59.823	42.254
EZO094 +	11 MST1	-59.824	42.254
EZO088 +	28 CIP est	-60.427	42.254
EZO097 +	28 product pump	-66.417	42.254
Sum			42.254

IMMI Receptor Reference	IMMI Source Name	Individual Source Noise Level (dB)	Summative Noise Level (dB)
<b>Receptor NSL 2</b>			
EZO017 +	beside AHU 19 Stack	42.35	42.35
EZO004 +	Drier 1 Stack	39.665	44.222
EZO002 +	Drier 4 Stack	34.747	44.688
EZO009 +	Drier 3 Stack	34.697	45.103
EZO119 +	10 cooling tower	32.767	45.348
EZO001 +	Drier 5 Stack	31.807	45.538
EZO061 +	CHP Stack	29.196	45.638
EZO060 +	Boiler/He Bypass-est	26.551	45.72
EZO058 +	Boiler/He Stack-est	22.979	45.793
EZO030 +	Cooling Tower 3	24.758	45.826
EZO032 +	Steam Release Stack	22.317	45.846
EZO120 +	3 Dryer CIP forward	21.494	45.881
EZO059 +	Process 3 Evaporator	20.423	45.892
EZO070 +	NEW AHU 28	19.763	45.883
EZO121 +	4 Dryer CIP circ pump	18.536	45.893
EZO018 +	AHU 18/19	18.338	45.901
EZO026 +	CHP Plant E Side	17.723	45.908
EZO066 +	NEW Process 1 Cooler	17.556	45.913
EZO041 +	Laboratory Stacks	17.25	45.921
EZO028 +	Cooling Tower 1	16.236	45.926
EZO029 +	Evaporator 5	16.14	45.93
EZO062 +	AHU 11 - est	16.047	45.934
EZO006 +	Vent Drier tower base	15.348	45.938
EZO019 +	OHV	15.232	45.942
EZO009 +	Cooling Tower 2	15	45.943
EZO005 +	Drier Tower 5 Vents	15.133	45.948
EZO047 +	AHU 13	14.763	45.952
EZO123 +	17 Chem pump	14.646	45.956
EZO122 +	18 Chem pump	14.626	45.959
EZO025 +	Process 3 Evaporator	14.601	45.962
EZO124 +	16 CIP pump	14.545	45.965
EZO125 +	19 Chem pump	14.526	45.968
EZO126 +	20 Chem pump	14.507	45.971
EZO007 +	AHU 27	14.492	45.973
EZO031 +	B-Hse Louvre CT2/CT3	14.248	45.977
EZO015 +	Can Plant SE Stack	13.984	45.98
EZO064 +	AHU 101	13.91	45.983
EZO049 +	Buffer Tank Pump RHS	13.833	45.985
EZO048 +	AHU 17	12.752	45.987
EZO037 +	CHP Plant W Side	12.723	45.989
EZO023 +	Evaporator 1 & 2	12.452	45.991
EZO027 +	Evaporator 3	12.299	45.992
EZO016 +	Can Plant Narrow Sk	13.901	45.995
EZO065 +	AHU 102	11.544	45.996
EZO014 +	Can Plant NW Stack	11.522	45.998
EZO005 +	Boiler/He WSide 4pump	11.421	45.999
EZO038 +	RTF Watermiser948 NE	10.374	46.001
EZO012 +	Can Plant NE Stack	10.109	46.002
EZO008 +	AHU 26	9.467	46.003
EZO022 +	Process 2 Cooler	8.449	46.004
EZO043 +	AHU 9	8.207	46.005
EZO044 +	AHU 10	8.66	46.005
EZO069 +	NEW AHU 31	8.065	46.006
EZO067 +	NEW Boiler House S/c	8.047	46.007
EZO040 +	RTF Fans E Side Wall	7.723	46.007
EZO042 +	AHU 16	7.45	46.008
EZO013 +	Can Plant SW Stack	7.237	46.009
EZO033 +	B-Hse East Louvres	6.742	46.009
EZO046 +	AHU 14	6.282	46.008
EZO010 +	AHU 22	5.934	46.01
EZO021 +	Evaporator 4	5.423	46.01
EZO009 +	AHU 20	3.695	46.011
EZO001 +	AHU 21	3.263	46.011
EZO075 +	6 Louvres	0.215	46.011
EZO094 +	Boiler/He WSide 4pump	-0.25	46.011
EZO109 +	8 Vacuum mixer	-0.977	46.011
EZO136 +	10 bag filter	-1.269	46.011
EZO056 +	WWTP Pump 03-FN-313	-1.359	46.011
EZO135 +	9 cyclone hammer	-1.479	46.011
EZO039 +	RTF Watermiser140NE	-3.83	46.011
EZO072 +	3 Louvres	-3.9	46.011
EZO073 +	1 Louvres	-4.164	46.011
EZO054 +	SBR Tank 1 Pump 1	-4.209	46.011
EZO050 +	Buffer Tank LHS	-4.785	46.011
EZO049 +	Buffer Tank Pump RHS	-5.485	46.011
EZO026 +	SBR Recirculat Pump	-5.629	46.011
EZO063 +	AHU 8	-5.905	46.011
EZO055 +	SBR Tank 1 Pump 2	-6.465	46.012
EZO147 +	13 exvap TVR	-8.699	46.012
EZO057 +	WWTP Pump 03-FN-215	-8.401	46.012
EZO053 +	Effluent Pump NESide	-11.312	46.012
EZO075 +	5 Louvres	-11.956	46.012
EZO139 +	13 exvap TVR	-12.358	46.012
EZO105 +	7 Vacuum pump	-13.269	46.012
EZO110 +	6 Evap Pump	-13.407	46.012
EZO045 +	AHU 15	-14.175	46.012
EZO109 +	8 Vacuum mixer	-15.847	46.012
EZO148 +	3 nozzle cooling fan	-16.408	46.012
EZO071 +	1 Louvres	-19.261	46.012
EZO111 +	6 Evap pump	-19.742	46.012
EZO114 +	7 Vacuum pump	-19.744	46.012
EZO146 +	1 Air inlet fan	-20.13	46.012
EZO141 +	7 purge air fan	-20.428	46.012
EZO052 +	Effluent Pump NWSide	-21.072	46.012
EZO143 +	5 VF fan	-22.0	



Appendix D: Tabulated Calculation Results (Noise Sources Ranked for each NSL)

NSL	Source	Distance (m)	LAeq (dB)	LAeq (dB)	LAeq (dB)	LAeq (dB)	LAeq (dB)
NSL 1	Source 1	10	70	65	60	55	50
NSL 1	Source 2	15	65	60	55	50	45
NSL 1	Source 3	20	60	55	50	45	40
NSL 1	Source 4	25	55	50	45	40	35
NSL 1	Source 5	30	50	45	40	35	30
NSL 1	Source 6	35	45	40	35	30	25
NSL 1	Source 7	40	40	35	30	25	20
NSL 1	Source 8	45	35	30	25	20	15
NSL 1	Source 9	50	30	25	20	15	10
NSL 1	Source 10	55	25	20	15	10	5
NSL 1	Source 11	60	20	15	10	5	0
NSL 1	Source 12	65	15	10	5	0	-5
NSL 1	Source 13	70	10	5	0	-5	-10
NSL 1	Source 14	75	5	0	-5	-10	-15
NSL 1	Source 15	80	0	-5	-10	-15	-20
NSL 1	Source 16	85	-5	-10	-15	-20	-25
NSL 1	Source 17	90	-10	-15	-20	-25	-30
NSL 1	Source 18	95	-15	-20	-25	-30	-35
NSL 1	Source 19	100	-20	-25	-30	-35	-40
NSL 1	Source 20	105	-25	-30	-35	-40	-45
NSL 1	Source 21	110	-30	-35	-40	-45	-50
NSL 1	Source 22	115	-35	-40	-45	-50	-55
NSL 1	Source 23	120	-40	-45	-50	-55	-60
NSL 1	Source 24	125	-45	-50	-55	-60	-65
NSL 1	Source 25	130	-50	-55	-60	-65	-70
NSL 1	Source 26	135	-55	-60	-65	-70	-75
NSL 1	Source 27	140	-60	-65	-70	-75	-80
NSL 1	Source 28	145	-65	-70	-75	-80	-85
NSL 1	Source 29	150	-70	-75	-80	-85	-90
NSL 1	Source 30	155	-75	-80	-85	-90	-95
NSL 1	Source 31	160	-80	-85	-90	-95	-100
NSL 1	Source 32	165	-85	-90	-95	-100	-105
NSL 1	Source 33	170	-90	-95	-100	-105	-110
NSL 1	Source 34	175	-95	-100	-105	-110	-115
NSL 1	Source 35	180	-100	-105	-110	-115	-120
NSL 1	Source 36	185	-105	-110	-115	-120	-125
NSL 1	Source 37	190	-110	-115	-120	-125	-130
NSL 1	Source 38	195	-115	-120	-125	-130	-135
NSL 1	Source 39	200	-120	-125	-130	-135	-140
NSL 1	Source 40	205	-125	-130	-135	-140	-145
NSL 1	Source 41	210	-130	-135	-140	-145	-150
NSL 1	Source 42	215	-135	-140	-145	-150	-155
NSL 1	Source 43	220	-140	-145	-150	-155	-160
NSL 1	Source 44	225	-145	-150	-155	-160	-165
NSL 1	Source 45	230	-150	-155	-160	-165	-170
NSL 1	Source 46	235	-155	-160	-165	-170	-175
NSL 1	Source 47	240	-160	-165	-170	-175	-180
NSL 1	Source 48	245	-165	-170	-175	-180	-185
NSL 1	Source 49	250	-170	-175	-180	-185	-190
NSL 1	Source 50	255	-175	-180	-185	-190	-195
NSL 1	Source 51	260	-180	-185	-190	-195	-200
NSL 1	Source 52	265	-185	-190	-195	-200	-205
NSL 1	Source 53	270	-190	-195	-200	-205	-210
NSL 1	Source 54	275	-195	-200	-205	-210	-215
NSL 1	Source 55	280	-200	-205	-210	-215	-220
NSL 1	Source 56	285	-205	-210	-215	-220	-225
NSL 1	Source 57	290	-210	-215	-220	-225	-230
NSL 1	Source 58	295	-215	-220	-225	-230	-235
NSL 1	Source 59	300	-220	-225	-230	-235	-240
NSL 1	Source 60	305	-225	-230	-235	-240	-245
NSL 1	Source 61	310	-230	-235	-240	-245	-250
NSL 1	Source 62	315	-235	-240	-245	-250	-255
NSL 1	Source 63	320	-240	-245	-250	-255	-260
NSL 1	Source 64	325	-245	-250	-255	-260	-265
NSL 1	Source 65	330	-250	-255	-260	-265	-270
NSL 1	Source 66	335	-255	-260	-265	-270	-275
NSL 1	Source 67	340	-260	-265	-270	-275	-280
NSL 1	Source 68	345	-265	-270	-275	-280	-285
NSL 1	Source 69	350	-270	-275	-280	-285	-290
NSL 1	Source 70	355	-275	-280	-285	-290	-295
NSL 1	Source 71	360	-280	-285	-290	-295	-300
NSL 1	Source 72	365	-285	-290	-295	-300	-305
NSL 1	Source 73	370	-290	-295	-300	-305	-310
NSL 1	Source 74	375	-295	-300	-305	-310	-315
NSL 1	Source 75	380	-300	-305	-310	-315	-320
NSL 1	Source 76	385	-305	-310	-315	-320	-325
NSL 1	Source 77	390	-310	-315	-320	-325	-330
NSL 1	Source 78	395	-315	-320	-325	-330	-335
NSL 1	Source 79	400	-320	-325	-330	-335	-340
NSL 1	Source 80	405	-325	-330	-335	-340	-345
NSL 1	Source 81	410	-330	-335	-340	-345	-350
NSL 1	Source 82	415	-335	-340	-345	-350	-355
NSL 1	Source 83	420	-340	-345	-350	-355	-360
NSL 1	Source 84	425	-345	-350	-355	-360	-365
NSL 1	Source 85	430	-350	-355	-360	-365	-370
NSL 1	Source 86	435	-355	-360	-365	-370	-375
NSL 1	Source 87	440	-360	-365	-370	-375	-380
NSL 1	Source 88	445	-365	-370	-375	-380	-385
NSL 1	Source 89	450	-370	-375	-380	-385	-390
NSL 1	Source 90	455	-375	-380	-385	-390	-395
NSL 1	Source 91	460	-380	-385	-390	-395	-400
NSL 1	Source 92	465	-385	-390	-395	-400	-405
NSL 1	Source 93	470	-390	-395	-400	-405	-410
NSL 1	Source 94	475	-395	-400	-405	-410	-415
NSL 1	Source 95	480	-400	-405	-410	-415	-420
NSL 1	Source 96	485	-405	-410	-415	-420	-425
NSL 1	Source 97	490	-410	-415	-420	-425	-430
NSL 1	Source 98	495	-415	-420	-425	-430	-435
NSL 1	Source 99	500	-420	-425	-430	-435	-440
NSL 1	Source 100	505	-425	-430	-435	-440	-445
NSL 1	Source 101	510	-430	-435	-440	-445	-450
NSL 1	Source 102	515	-435	-440	-445	-450	-455
NSL 1	Source 103	520	-440	-445	-450	-455	-460
NSL 1	Source 104	525	-445	-450	-455	-460	-465
NSL 1	Source 105	530	-450	-455	-460	-465	-470
NSL 1	Source 106	535	-455	-460	-465	-470	-475
NSL 1	Source 107	540	-460	-465	-470	-475	-480
NSL 1	Source 108	545	-465	-470	-475	-480	-485
NSL 1	Source 109	550	-470	-475	-480	-485	-490
NSL 1	Source 110	555	-475	-480	-485	-490	-495
NSL 1	Source 111	560	-480	-485	-490	-495	-500
NSL 1	Source 112	565	-485	-490	-495	-500	-505
NSL 1	Source 113	570	-490	-495	-500	-505	-510
NSL 1	Source 114	575	-495	-500	-505	-510	-515
NSL 1	Source 115	580	-500	-505	-510	-515	-520
NSL 1	Source 116	585	-505	-510	-515	-520	-525
NSL 1	Source 117	590	-510	-515	-520	-525	-530
NSL 1	Source 118	595	-515	-520	-525	-530	-535
NSL 1	Source 119	600	-520	-525	-530	-535	-540
NSL 1	Source 120	605	-525	-530	-535	-540	-545
NSL 1	Source 121	610	-530	-535	-540	-545	-550
NSL 1	Source 122	615	-535	-540	-545	-550	-555
NSL 1	Source 123	620	-540	-545	-550	-555	-560
NSL 1	Source 124	625	-545	-550	-555	-560	-565
NSL 1	Source 125	630	-550	-555	-560	-565	-570
NSL 1	Source 126	635	-555	-560	-565	-570	-575
NSL 1	Source 127	640	-560	-565	-570	-575	-580
NSL 1	Source 128	645	-565	-570	-575	-580	-585
NSL 1	Source 129	650	-570	-575	-580	-585	-590
NSL 1	Source 130	655	-575	-580	-585	-590	-595
NSL 1	Source 131	660	-580	-585	-590	-595	-600
NSL 1	Source 132	665	-585	-590	-595	-600	-605
NSL 1	Source 133	670	-590	-595	-600	-605	-610
NSL 1	Source 134	675	-595	-600	-605	-610	-615
NSL 1	Source 135	680	-600	-605	-610	-615	-620
NSL 1	Source 136	685	-605	-610	-615	-620	-625
NSL 1	Source 137	690	-610	-615	-620	-625	-630
NSL 1	Source 138	695	-615	-620	-625	-630	-635
NSL 1	Source 139	700	-620	-625	-630	-635	-640
NSL 1	Source 140	705	-625	-630	-635	-640	-645
NSL 1	Source 141	710	-630	-635	-640	-645	-650
NSL 1	Source 142	715	-635	-640	-645	-650	-655
NSL 1	Source 143	720	-640	-645	-650	-655	-660
NSL 1	Source 144	725	-645	-650	-655	-660	-665
NSL 1	Source 145	730	-650	-655	-660	-665	-670
NSL 1	Source 146	735	-655	-660	-665	-670	-675
NSL 1	Source 147	740	-660	-665	-670	-675	-680
NSL 1	Source 148	745	-665	-670	-675	-680	-685
NSL 1	Source 149	750	-670	-675	-680	-685	-690
NSL 1	Source 150	755	-675	-680	-685	-690	-695
NSL 1	Source 151	760	-680	-685	-690	-695	-700
NSL 1	Source 152	765	-685	-690	-695	-700	-705
NSL 1	Source 153	770	-690	-695	-700	-705	-710
NSL 1	Source 154	775	-695	-700	-705	-710	-715
NSL 1	Source 155	780	-700	-705	-710	-715	-720
NSL 1	Source 156	785	-705	-710	-715	-720	-725
NSL 1	Source 157	790	-710	-715	-720	-725	-730
NSL 1	Source 158	795	-715	-720	-725	-730	-735
NSL 1	Source 159	800	-720	-725	-730	-735	-740
NSL 1	Source 160	805	-725	-730	-735	-740	-745
NSL 1	Source 161	810	-730	-735	-740	-745	-750
NSL 1	Source 162	815	-735	-740	-745	-750	-755
NSL 1	Source 163	820	-740	-745	-750	-755	-760
NSL 1	Source 164	825	-745	-750	-755	-760	-765
NSL 1	Source 165	830	-750	-755	-760	-765	-770
NSL 1	Source 166	835	-755	-760	-765	-770	-775
NSL 1	Source 167	840	-760	-765	-770	-775	-780
NSL 1	Source 168	845	-765	-770	-775	-780	-785
NSL 1	Source 169	850	-770	-775	-780	-785	-790
NSL 1	Source 170	855	-775	-780	-785	-790	-795
NSL 1	Source 171	860	-780	-785	-790	-795	-800
NSL 1	Source 172	865	-785	-790	-795	-800	-805
NSL 1	Source 173						

# Wyeth Nutrition, Askeaton, Co. Limerick Noise Assessment with New Card Extension



## Appendix D: Tabulated Calculation Results (Noise Sources Ranked for each NSL)

IMMI Receptor Reference	IMMI Source Name	Individual Source Noise Level (dB)	Summative Noise Level (dB)
EQ0002	Drier 4 Stack	35.549	35.549
EQ0017	beside AHU 19 Stack	34.912	38.252
EQ0036	CWP Plant E Side	30.434	38.917
EQ0023	Evaporator 1 & 2	29.632	39.401
EQ0003	Drier 3 Stack	28.685	39.754
EQ0039	RTF Watermiser1140NE	28.644	40.078
EQ0001	Drier 5 Stack	28.117	40.346
EQ0061	CWP Stack	27.707	40.576
EQ0058	Boilerhse Stack-est	27.696	40.795
EQ0004	Drier 1 Stack	27.678	41.002
EQ0060	Boilerhse bypass-est	27.598	41.192
EQ0019	OHIO	25.884	41.318
EQ0066	NEW Process 1 Cooler	23.54	41.39
EQ0025	Process 3 Evaporator	22.005	41.439
EQ0021	Evaporator 4	21.772	41.466
EQ0119	10 Cooling tower	20.087	41.517
EQ0010	AHU 22	19.615	41.545
EQ0020	Evaporator 5	19.537	41.572
EQ0027	Evaporator 3	19.527	41.6
EQ0005	Steam Release Stack	18.894	41.623
EQ0040	RTF Fans E Side Wall	18.114	41.642
EQ0006	Vent Drier tower base	17.913	41.66
EQ0056	WWTP Pump 03-FN-213	16.803	41.675
EQ0005	Drier Tower 5 Vents	16.814	41.688
EQ0031	B-He Louvre CT2/CT3	16.728	41.703
EQ0007	AHU 27	16.393	41.715
EQ0024	Process 2 Evaporator	16.183	41.728
EQ0075	5 Louvers	15.085	41.737
EQ0071	1 Louvers	14.888	41.746
EQ0022	Process 2 Cooler	14.783	41.755
EQ0030	Cooling Tower 3	14.461	41.763
EQ0053	Effluent Pump NWSide	14.388	41.771
EQ0008	AHU 26	13.529	41.777
EQ0059	Buffer Tank LHS	12.378	41.783
EQ0067	NEW Boiler House Src	12.062	41.788
EQ0051	Effluent Pump SWSide	12.042	41.792
EQ0064	AHU 10	11.868	41.797
EQ0070	NEW AHU 28	11.581	41.801
EQ0057	WWTP Pump 03-FN-215	11.361	41.805
EQ0015	Can Plant SE Stack	9.872	41.808
EQ0047	AHU 13	9.82	41.81
EQ0038	RTF Watermiser948NE	9.612	41.813
EQ0065	AHU 102	9.461	41.815
EQ0016	Can Plant Narrow Stk	9.356	41.818
EQ0042	AHU 16	8.224	41.82
EQ0012	Can Plant NE Stack	7.659	41.821
EQ0076	5 Louvers	7.614	41.822
EQ0041	Laboratory Stacks	7.187	41.825
EQ0048	AHU 17	5.972	41.826
EQ0120	3 Dryer CIP Forward	5.684	41.827
EQ0014	Can Plant NW Stack	5.607	41.828
EQ0049	Buffer Tank Pump RHS	5.51	41.829
EQ0035	Boilerhse WSide 7ozump	5.271	41.83
EQ0028	Cooling Tower 1	4.996	41.831
EQ0121	4 Dryer CIP circ pump	3.487	41.831
EQ0029	Cooling Tower 2	3.419	41.832
EQ0013	Can Plant SW Stack	3.398	41.833
EQ0074	4 Louvers	3.024	41.833
EQ0124	16 CIP pump	1.459	41.834
EQ0123	17 Chem pump	1.254	41.834
EQ0046	AHU 14	1.137	41.834
EQ0122	18 Chem pump	1.028	41.835
EQ0125	19 Chem pump	0.749	41.835
EQ0009	AHU 20	0.725	41.835
EQ0043	AHU 9	0.587	41.836
EQ0126	20 Chem pump	0.473	41.836
EQ0011	AHU 21	-0.125	41.836
EQ0052	Effluent Pump NWSide	-0.175	41.836
EQ0033	B-He East Louvers	-0.238	41.837
EQ0062	AHU 11 - est	-1.058	41.837
EQ0018	AHU 18/19	-2.119	41.837
EQ0072	2 Louvers	-2.223	41.837
EQ0073	3 Louvers	-2.223	41.837
EQ0026	SBU Recirculair Pump	-4.722	41.838
EQ0136	10 bag filter	-6.134	41.838
EQ0135	9 cyclone hammer	-6.143	41.838
EQ0134	8 dryer hammer	-6.146	41.838
EQ0034	Boilerhse WSide 4pump	-7.561	41.838
EQ0055	SBF Tank 1 Pump 2	-8.213	41.838
EQ0044	AHU 10	-8.667	41.838
EQ0045	AHU 15	-9.583	41.838
EQ0069	NEW AHU 31	-11.905	41.838
EQ0054	SBF Tank 1 Pump 1	-12.551	41.838
EQ0077	CWP Plant W Side	-12.746	41.838
EQ0063	AHU 8	-13.467	41.838
EQ0139	13 evap TVR	-18.079	41.838
EQ0111	6 Evap pump	-26.154	41.838
EQ0114	7 Vacuum pump	-26.281	41.838
EQ0146	1 Air inlet fan	-26.154	41.838
EQ0129	3 nozzle cooling fan	-28.187	41.838
EQ0140	3 nozzle cooling fan	-28.262	41.838
EQ0143	5 VF fan	-30.201	41.838
EQ0127	1 Air inlet fan	-30.432	41.838
EQ0137	11 dryer sifter	-31.346	41.838
EQ0138	12 dryer VF	-31.146	41.838
EQ0130	4 static fluid bed	-31.173	41.838
EQ0145	4 static fluid bed	-31.178	41.838
EQ0144	2 main fan	-32.193	41.838
EQ0141	7 purge air fan	-32.253	41.838
EQ0128	2 main fan	-32.325	41.838
EQ0133	7 purge air fan	-32.366	41.838
EQ0147	13 evap TVR	-32.69	41.838
EQ0131	5 VF fan	-33.515	41.838
EQ0110	6 Evap Pump	-39.097	41.838
EQ0115	7 Vacuum pump	-39.443	41.838
EQ0113	5 Homogeniser	-40.152	41.838
EQ0132	6 fines return blowe	-42.19	41.838
EQ0142	6 fines return blowe	-42.288	41.838
EQ0149	1 Exhaust fan	-42.879	41.838
EQ0118	1 Dry Homog HPP	-42.932	41.838
EQ0148	1 Exhaust Fan	-42.949	41.838
EQ0109	8 Vacuum mixer	-44.417	41.838
EQ0112	5 Homogeniser	-52.138	41.838
EQ0105	9 Homogeniser	-52.445	41.838
EQ0095	30 MST water pump?	-52.878	41.838
EQ0116	2 Dryer FP	-53.348	41.838
EQ0106	23 Water pump?	-53.864	41.838
EQ0096	27 return FP	-54.119	41.838
EQ0100	26 product pump?	-54.239	41.838
EQ0108	22 product pump?	-54.85	41.838
EQ0104	24 product pump?	-55.449	41.838
EQ0103	23 product pump?	-55.451	41.838
EQ0102	26 product pump	-55.464	41.838
EQ0117	1 Dry Homog HPP	-55.608	41.838
EQ0099	25 water pump?	-56.254	41.838
EQ0101	25 water pump?	-57.466	41.838
EQ0094	11 MST1	-57.843	41.838
EQ0093	12 MST2	-58.02	41.838
EQ0092	13 MST3	-58.141	41.838
EQ0107	14 Compounding mixer	-58.852	41.838
EQ0088	29 CIP	-65.063	41.838
EQ0097	28 product pump	-65.078	41.838
Sum			41.838

IMMI Receptor Reference	IMMI Source Name	Individual Source Noise Level (dB)	Summative Noise Level (dB)
EQ0002	Drier 4 Stack	40.328	40.328
EQ0017	beside AHU 19 Stack	39.718	43.044
EQ0019	OHIO	35.473	43.745
EQ0003	Drier 3 Stack	34.883	44.278
EQ0039	RTF Watermiser1140NE	33.136	44.598
EQ0004	Drier 1 Stack	33.084	44.893
EQ0060	Boilerhse bypass-est	30.773	45.058
EQ0061	CWP Stack	30.715	45.215
EQ0058	Boilerhse Stack-est	27.918	45.295
EQ0001	Drier 5 Stack	27.13	45.361
EQ0036	CWP Plant E Side	25.777	45.488
EQ0010	AHU 22	25.254	45.45
EQ0075	5 Louvers	24.058	45.482
EQ0056	WWTP Pump 03-FN-213	23.32	45.508
EQ0040	RTF Fans E Side	22.128	45.528
EQ0119	10 Cooling tower	22.063	45.547
EQ0071	1 Louvers	21.98	45.566
EQ0006	Vent Drier tower base	21.636	45.584
EQ0027	AHU 27	20.721	45.598
EQ0005	Drier Tower 5 Vents	20.569	45.612
EQ0040	RTF Fans E Side Wall	20.198	45.624
EQ0057	WWTP Pump 03-FN-215	17.824	45.631
EQ0008	AHU 26	17.779	45.638
EQ0030	Cooling Tower 3	16.753	45.643
EQ0063	Effluent Pump NWSide	16.573	45.647
EQ0076	5 Louvers	15.011	45.651
EQ0016	Can Plant Narrow Stk	14.467	45.654
EQ0015	Can Plant SE Stack	14.107	45.657
EQ0021	Evaporator 1 & 2	13.733	45.66
EQ0066	NEW Process 1 Cooler	13.578	45.663
EQ0051	Effluent Pump SWSide	13.554	45.665
EQ0012	Can Plant NE Stack	13.015	45.668
EQ0029	Cooling Tower 1	13.007	45.67
EQ0014	Can Plant NW Stack	12.182	45.672
EQ0067	NEW Boiler House Src	11.259	45.673
EQ0038	RTF Watermiser948NE	11.237	45.675
EQ0020	Evaporator 5	11.11	45.677
EQ0025	Process 3 Evaporator	10.583	45.678
EQ0074	4 Louvers	9.68	45.679
EQ0032	Steam Release Stack	9.372	45.68
EQ0074	4 Louvers	9.304	45.681
EQ0027	Evaporator 3	8.185	45.682
EQ0041	Laboratory Stacks	8.053	45.683
EQ0072	2 Louvers	7.906	45.683
EQ0120	3 Dryer CIP Forward	7.565	45.684
EQ0013	Can Plant SW Stack	7.543	45.685
EQ0052	Effluent Pump NWSide	7.488	45.685
EQ0065	AHU 18/19	7.278	45.686
EQ0065	AHU 102	6.987	45.686
EQ0021	Evaporator 4	6.65	45.687
EQ0029	Cooling Tower 2	6.266	45.687
EQ0031	B-He Louvre CT2/CT3	6.059	45.688
EQ0042	AHU 16	5.428	45.688
EQ0049	Buffer Tank Pump RHS	4.944	45.689
EQ0121	4 Dryer CIP circ pump	4.62	45.689
EQ0064	AHU 10	4.483	45.689
EQ0054	SBF Tank 1 Pump 2	4.088	45.69
EQ0070	NEW AHU 28	3.891	45.69
EQ0011	AHU 21	3.51	45.69
EQ0047	AHU 13	3.416	45.69
EQ0046	B-He East Louvers	2.434	45.691
EQ0125	19 Chem pump	0.723	45.691
EQ0126	20 Chem pump	0.718	45.691
EQ0122	18 Chem pump	0.689	45.691
EQ0124	16 CIP pump	0.685	45.691
EQ0123	17 Chem pump	0.679	45.691
EQ0009	AHU 20	-0.041	45.691
EQ0022	Process 2 Cooler	-0.287	45.692
EQ0035	Boilerhse WSide 7ozump	-0.917	45.692
EQ0024	Process 2 Evaporator	-1.519	45.692
EQ0054	SBF Tank 1 Pump 1	-1.162	45.692
EQ0134	8 dryer hammer	-4.177	45.692
EQ0135	9 cyclone hammer	-4.203	45.692
EQ0136	10 bag filter	-4.223	45.692
EQ0045	AHU 14	-4.061	45.692
EQ0048	AHU 17	-8.365	45.692
EQ0045	AHU 15	-8.722	45.692
EQ0043	AHU 9	-9.356	45.692
EQ0063	AHU 8	-9.945	45.692
EQ0026	SBU Recirculair Pump	-9.984	45.692
EQ0062	AHU 11 - est	-14.835	45.692
EQ0037	CWP Plant W Side	-16.329	45.692
EQ0139	13 evap TVR	-17.288	45.692
EQ0034	Boilerhse WSide 4pump	-18.188	45.692
EQ0044	AHU 10	-21.519	45.692
EQ0069	NEW AHU 31	-21.558	45.692
EQ0146	1 Air inlet fan	-26.078	45.692
EQ0140	3 nozzle cooling fan	-26.191	45.692
EQ0146	1 Evap pump	-26.548	45.692
EQ0144	7 Vacuum pump	-26.556	45.692
EQ0143	5 VF fan	-28.107	45.692
EQ0129	3 nozzle cooling fan	-28.111	45.692
EQ0145	4 static fluid bed	-29.12	45.692
EQ0137	11 dryer sifter	-29.289	45.692
EQ0138	12 dryer VF	-29.271	45.692
EQ0144	2 main fan	-30.125	45.692
EQ0141	7 purge air fan	-30.171	45.692
EQ0130	4 static fluid bed	-30.948	45.692
EQ0128	2 main fan	-33.573	45.692
EQ0133	7 purge air fan	-33.868	45.692
EQ0127	1 Air inlet fan	-34.664	45.692
EQ0147	13 evap TVR	-34.73	45.692
EQ0131	5 VF fan	-37.803	45.692
EQ0113	5 Homogeniser	-39.564	45.692
EQ0142	6 fines return blowe	-40.168	45.692
EQ0110	6 Evap Pump	-40.361	45.692
EQ0115	7 Vacuum pump	-40.373	45.692
EQ0148	1 Exhaust fan	-40.938	45.692
EQ0149	1 Exhaust fan	-41.07	45.692
EQ0109	8 Vacuum mixer	-41.468	45.692
EQ0132	6 fines return blowe	-42.162	45.692
EQ0118	1 Dry Homog HPP	-42.948	45.692
EQ0105	9 Homogeniser	-49.548	45.692
EQ0106	21 Water pump?	-51.534	45.692
EQ0095	30 MST water pump?	-52.435	45.692
EQ0108	22 product pump?	-52.507	45.692
EQ0103	23 product pump?	-52.588	45.692
EQ0104	24 product pump?	-52.598	45.692
EQ0102	26 product pump	-52.918	45.692
EQ0100	25 product pump	-53.071	45.692
EQ0096	27 return FP	-53.348	45.692
EQ0117	1 Dry Homog HPP	-53.366	45.692
EQ0116	2 Dryer FP	-53.403	45.692
EQ0101	25 water pump?	-54.948	45.692
EQ0099	25 water pump?	-55.076	45.692
EQ0117	1 Dry Homog HPP	-56.377	45.692
EQ0107	14 Compounding mixer	-56.511	4

## NOTES

### **Noise controls on existing equipment:**

- Acoustic enclosures, mufflers on exhausts and insulated ducting on the blowers in the wastewater treatment plant.
- Screening at the cooling towers on the boiler house roof.
- Mufflers fitted on the vacuum pump exhausts for lines 2, 3 and 4.
- An acoustic panel on the plant room wall for the intermediate hoppers.
- INVC's Quiet Fan Technology fitted to Drier 3 Exhaust Fan.