Slaney Foods International

Part of ABP Food Group

Technical Amendment

IEL Number: P0047-03

May 2018

Undertaken by:

ABP Food Group Environmental Department

Contents

1 Introduction

1.1 Background

Slaney Foods International, is located in the heart of the Slaney Valley, one of Ireland's prime farming regions. It is a company renowned for sourcing the highest quality livestock for its beef processing business. Slaney Foods, combines this best quality Irish Beef with ultra-modern processing facilities to offer a superb product range. Established as a family business in 1970, Slaney Foods International is today a joint venture of ABP Food Group, Europe's leading beef processor and Linden Foods, the leading Northern Irish beef processor. The company prides itself on its reputation for sourcing and producing only the highest quality Irish beef. This is why Slaney Foods International is recognised as "The Beef Specialist".

The core business is in the supply of premium carcase and primal cuts of beef, and Slaney Foods have developed strong and successful long term relationships with a variety of customers including leading multiples, the food service and food manufacturing industry. The joint venture includes the rendering business which operates under the name, Wexford Proteins.

Slaney Foods International Limited & Wexford Proteins hold an IEL Licence P0047-03 to carry out the following activities;

- The operation of a slaughter house with a carcass production capacity greater than 50 tonnes per day;
- The disposal or recycling of animal carcasses and animal waste with a treatment capacity exceeding 10 tonnes per day;

at Ryland, Bunclody, Co Wexford.

The plant employs approximately 450 people operating one day-time shift, five days per week with a very small number of Saturdays too.

1.2 Site Processes, Certification and Waste Water Treatment

Slaney Food International in Bunclody is a Primary Processing Plant for Beef located on the banks of the River Slaney in the south east of Ireland.

The site activities can be broken down as follows:

1. Beef Slaughtering, including edible tallow plant;
2. Beef Deboning;
3. Cold Storage;
4. Intermediate Pet Food Plant (Plate Freezing);
5. Rendering Plant (Category 3);
6. Waste Water Treatment

Slaney Foods International Operate under an Environmental Management System certified to ISO 14001, (2015)

ISO 14001 is an internationally agreed standard that sets out the requirements for an environmental management system. It helps Slaney Foods improve their environmental performance through more efficient use of resources and reduction of waste.

Waste Water Treatment Plant

The waste water treatment plant being operated at Slaney Foods comprises of a sophisticated process that includes primary, secondary and tertiary treatment processes as follows:

- Raw wastewater collection & pumping;
- Fine Screening;
- Balancing;
- Dissolved Air Flotation x2;
- Biological Treatment, including BOD removal, Nitrification & De-Nitrification;

- Clarification;
- Sand Filteration; and
- Sludge De-Watering.

While the individual elements of the treatment process are generally physically separate from each other they are operated in series to provide optimal results.

1.3 Licence Amendment Overview

Slaney Foods International are seeking a technical amendment to their Industrial Emissions Licence, Licence Number: P0047-03. This amendment will allow the site to discharge treated effluent under a two tier licence. This addition will give the site the ability to discharge both the current ELV's for the site while also allow the site to increase the volume flow discharged under a second tier. However this increased volume flow will have reduced ELV's, therefore the overall biological load forwarded to Slaney River will remain the same in both instances.

1 Slaney Foods Compliance Investigation

The EPA inspection team conducted a review of the performance and operation of the on-site waste water treatment plant (WWTP) at Slaney Foods International Limited. This review was undertaken as part of the compliance investigation (CI001514) which was opened by the EPA on foot of odour complaints being received. The odour complaints were generally in relation to waste water and rendering type odours.

ABP explained the cause of the odours was with respect to an open drainage line in which brought condensate from the rendering facility onsite to the waste water treatment plant. Odour was proceeding to release through open grates within the drainage network and proceed out into the environment.

A second reason was with respect to the increased volume of waste water build-up in the Balance tank. The balance tank was 75% full on the day in question. This level resulted from

the forward feed pump tripping the previous night which resulted in waste water being stored in the balance tank (an addition of 225m3) which is abnormal but also left the effluent age older which can also give off an odour.

Both issues have now been resolved by the installation of a sealed flexible plastic line which takes condensate from the rendering plant to treatment plant without giving rise to an odour issue. Balance tank pump failure resulted in older effluent which gave rise to odour. To rectify this issue a second standby pump was installed, which will function automatically should the duty one fail. A site inspection was conducted on the above, while also taking into consideration the waste water treatment plant performance.

The EPA inspection team made the following observations:

- Analysis of the influent indicated that the material was treatable and that all the parameter results were within the expected ranges.
- A good balance was noted between Alkalinity (result 350mg/l CaCO3) and Ammonia (result 40mg/l) in the influent. Nitrate and nitrite concentrations were at very low concentrations as expected in the early stages of the process.
- The licensee advised that pH correction in the balance tank is not usually required and that the pH readings are usually in the range of 6.5 - 7.5. However, routine testing of Alkalinity and pH in the balance tank is recommended to ensure conditions are optimised for treatment. Paper test strips can be used for this purpose.
- There were two DAF units that work in sequence. The second DAF unit is a chemical unit which was built specifically for this WWTP. Both of the DAF units were found to be working well on the day of the site visit. The saturation pressure at the DAF unit was 50 - 60 PSI which was considered to be satisfactory.

- The appearance of the mixed liquor in the aeration basin was satisfactory and the colour was chocolate brown. The cone test indicated a good open structure to the sludge, good separation, no interference with sludge settlement and no foaming. The Mixed Liquor Suspended Solids (MLSS) reading was 4400 mg/l and the Sludge Volume Index was 120 mg/l which were both satisfactory results.
- Nitrate and nitrite concentrations in the final anoxic tank were found to be zero indicating optimum performance by the bacteria in the waste water treatment process.
- The solids profile in the final clarifier indicated excellent sludge settlement (Centre of Clarifier MLSS= 10,000 mg/l, Mid-Section of Clarifier MLSS = 4,200 mg/l and Outer Section of Clarifier MLSS =1,200mg/l) on the day of the site visit.
- The final effluent quality was found to be very good (Alkalinity- 80mg/l CaCO3, Ammonia - 0.2 mg/l, pH 6.95 and UVT reading was 18.2% indicating good removal of organics) and overall the plant was found to be operating to a very high standard on the day of the site visit and there were no specific operational issues identified.
- The biofilter beds were considered to be operating well and it was noted that the biofilter media had been replaced at the end of the summer of 2017. The licensee stated that the biofilter media is normally replaced every 3 to 5 years. The quality of the media is checked visually and the back pressure measurement is undertaken weekly. The biofilter media is sprayed with water to prevent it drying out which eliminates any odour release. The biofilter beds have air extraction fans with scrubbers to remove the odours.

On the basis of the above site visit being so successful the compliance investigation was closed out.

However Slaney Foods are of the opinion, further remediation measures could ensure compliance in the future, with the addition of a two tier licence. This will be further explained and discussed in section '3. Discussion and Reasoning for Amendment' of this report.

2 Discussion and Reasoning for Amendment

Stated in section 4 of this report. The EPA inspection team concluded the treatment plant at Slaney Foods was producing effluent well within the emission limit values specified in Industrial Emissions Licence Number: P0047-03.

It was noted on the day of inspection Frank Harvey, the expert in waste water treatment, expressed his gratitude towards how well the treatment plant at Slaney Foods was operating, to produce significant reductions across all parameter ranges within the waste water. The compliance investigation was closed out on this odour issue as a result of the site inspection.

However, Slaney Foods believe further proactive measures could result in further reductions to potential odour sources within the waste water treatment plant.

During times of heavy rain fall and extra wash down throughout the year, a large volume of additional waste water will arise. These streams will be forwarded to the treatment plant in which will increase the volume in the Balance tank. As the Agency are aware the balance tank has the potential to generate odours if large volumes of waste water are stored in the tank at any one time. For this reason Slaney Foods propose a technical amendment to their discharge limits in the form of a two tier licence. Tier 1 will be for normal operating conditions which will consist of the current emission limit values, while tier 2 will be used in times of heavy rainfall and for days in which the treatment plant will receive additional waste water volumes due to increased washings. Overall, tier 2 will increase the discharge volumes of final effluent while reducing each parameter emission limit values. This will increase the total volume of waste water discharged but will have the same overall daily load going to the Slaney River as that of the current ELV's.

Present and proposed Emission Limit Values are presented in section 4 of this report.

4. Present and Proposed ELV's

4.1 Present ELV's

Emission limit values currently licenced under Industrial Emissions Licence Number: P0047-03 are presented in Table 1 below.

Emissions to Water: SW1

Name of Receiving Waters: Slaney River

Location: Slaney River North Eastern corner of the site

Current licenced volume to be emitted:

Maximum in any one day: 390 m³

Maximum rate per hour: 17 m³

Table 1

Parameter	Current Emission Limit Values	Emission Limit Values (Daily Load)
Temperature	25 ºC (Note 1)	
pH	6 - 9	
Toxicity	5 TU	
	Mg/l	**Kg/day**
BOD	20	7.8
Suspended Solids	30	11.7
Total Oxidised Nitrogen (as N)	10	3.9
Ammonia (as N)	10	3.9
Orthophosphate (as P)	2	0.78
Oils, Fats, Grease	10	3.9

Note 1: The ambient temperature of the receiving water shall not be artificially increased by more than 1.5 ºC. The temperature of the receiving water downstream of the outfall shall not be artificially increased above 21.5 ºC May to October and 10 ºC November to April.

4.2 Proposed ELV's under a Second Tier

Emission limit values proposed under a second tier for Slaney Foods are presented in Table 2 below:

Emissions to Water: SW1

Name of Receiving Waters: Slaney River

Location: Slaney River North Eastern corner of the site

Proposed volume to be emitted:

Maximum in any one day: 528 m³

Maximum rate per hour: 22 m³

Table 2

Parameter	Proposed Emission Limit Values	Proposed Emission Limit Values (Daily Load)
Temperature	25 ºC (Note 1)	
pH	6 – 9	
Toxicity	5 TU	
	Mg/l	**Kg/day**
BOD	14.77	7.798
Suspended Solids	22.15	11.695
Total Oxidised Nitrogen (as N)	7.38	3.896
Ammonia (as N)	7.38	3.896
Orthophosphate (as P)	1.47	0.776
Oils, Fats, Grease	7.38	3.896

Note 1: The ambient temperature of the receiving water shall not be artificially increased by more than 1.5 ºC. The temperature of the receiving water downstream of the outfall shall not be artificially increased above 21.5 ºC May to October and 10 ºC November to April.

4.3 Proposed ELV's Under Two Tier Licence

Final proposed emission limit values are presented in Table 3 below:

Emissions to Water: SW1

Name of Receiving Waters: Slaney River

Location: Slaney River North Eastern corner of the site

Table 3

Parameter	Tier 1 - Proposed Emission Limit Values	Tier 2 - Proposed Emission Limit Values
Volume - Maximum in any one day	390m³	528 m³
Volume - Maximum rate per hour	17 m³	22 m³
Temperature	25 ºC (Note 1)	25 ºC (Note 1)
pH	6 – 9	6 – 9
Toxicity	5 TU	5 TU
	Mg/l	**Mg/L**
BOD	20	14.77
Suspended Solids	30	22.15
Total Oxidised Nitrogen (as N)	10	7.38
Ammonia (as N)	10	7.38
Orthophosphate (as P)	2	1.47
Oils, Fats, Grease	10	7.38

Note 1: The ambient temperature of the receiving water shall not be artificially increased by more than 1.5 ºC. The temperature of the receiving water downstream of the outfall shall not be artificially increased above 21.5 ºC May to October and 10 ºC November to April.

5. Conclusion

Both the company and the agency are aware of the importance of proactive environmental management and therefore Slaney foods are hoping to receive the approval of the Agency on this matter. The company is prepared to work proactively with the agency to achieve the desired outcome. This in turn will reduce odour potential through waste water treatment plant processes.