

### Attachment 7.1.3.1 – Emissions Compliance Report

This section includes an assessment of the proposed emissions in terms of compliance with current Emission Limit Values (ELVs) and statutory instruments.

The following instruments have been used to assess the compliance of all potential emissions:

- Emissions to Air – Medium Combustion Plant (MCP) directive European Union (EU) 2015/2193 on the limitation of emissions of certain pollutants into the air from medium combustion plants;
- Emissions to Sewer – There are no existing ELVs for the facility; as such, consideration has been given to the sectorial Best Available Techniques – Associated Emission Levels (BAT-AELs);
- Emissions to Stormwater – Consideration of Surface Water Regulations (S.I. 272 of 2009 and S.I. 386 of 2015);
- Noise Emissions – Environmental Protection Agency (EPA) publication *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) 2016*.

#### 1.0 DISCHARGE TO AIR

Attachment 7.4.1 outlines the nature of the proposed major emissions including the relevant parameters. The only major emission points are the 2 no. boiler stacks (locations shown on Drawing 004).

The major emission steam boilers have a designed NO<sub>x</sub> emission value of 200 mg/Nm<sup>3</sup> which complies with the more stringent ELV for boilers fuelled by gaseous fuels other than natural gas (i.e. Liquid Petroleum Gas (LPG)) in operation after December 2018. As the total thermal input of the boilers is between 1-20MWth, monitoring of the emissions will be undertaken every three years in accordance with Schedule 3 of the MCP.

The emergency diesel generator will also be monitored in accordance with the directive. In accordance with Regulation 13 of the directive, the hours of use for the generators will be under the threshold limit and as such the emission limit values do not apply. Periodic monitoring will be undertaken in accordance with the regulations.

#### 2.0 DISCHARGE TO SEWER

All foul sanitary and low strength waste water will be discharged from the site (via Sewer Emission Point SE-1) to the local council sewer which drains to the Sligo County Council Waste Water Treatment Plant (WWTP). Waste water includes domestic effluent from welfare facilities such as toilets, showers and canteen facilities, reject water from water purification systems, boilers and cooling towers blowdown and wastewater (low strength wastewater) from non-product contact

equipment. Low strength wastewater will be subject to flow balancing, temperature control and pH neutralisation prior to being combined with the foul sanitary effluent for final discharge. The discharge location, SE-1, is shown on Drawing 006.

Attachment 7.3.1 outlines the nature of the proposed discharge including the relevant parameters. These values have been discussed with Irish Water and are adequate to ensure no detrimental impact on the Sligo WWTP. Monitoring of these parameters will be undertaken by a composite grab sampler or continuous flow monitor (temperature, flow and pH) as outlined in the attachment.

The relevant sectorial BAT instruments include the EU Decision BAT Conclusions for common wastewater and waste gas treatment / management systems in the chemical sector (2016) and the EU Reference Document on BAT for the Manufacture of Organic Fine Chemicals (2006). Both documents provide ELV's for discharges from a biological waste water treatment plant to a waterbody. As the wastewater from the facility will be treated offsite in an Irish Water Wastewater Treatment Plant (i.e. Sligo WWTP), these limit values have been addressed in Attachment 7.3.2 Equivalent Level of Protection.

### 3.0 DISCHARGE TO SURFACE WATER (STORMWATER EMISSIONS)

Surface water from the buildings and yards is collected via a series of points across the facility. These then discharge via a series of hydrocarbon interceptors to an offsite drainage ditch along the eastern and southern boundaries of the site at 3 no. Emission Points (SW1, SW2, and SW3). The drainage ditch eventually discharges into the Shannon River. The locations of these discharge points are shown on Drawing 008 Version 2.

In accordance with BAT, clean stormwater will be kept separate from wastewater and there will be no inherent risk of cross-contamination.

The bulk fuel tank in the North Yard will be equipped with a bunded and sunken loading bay with a capacity of 10m<sup>3</sup> which has been sized to contain all stormwater generated in the area and to prevent stormwater and / or any spillage of diesel draining to the porous tarmac area in the North Yard. The bunded loading bay will be equipped with a retention sump which is connected to the new stormwater drainage line. Under normal circumstances the stormwater will be pumped from the sump to a new Class 1 Full Retention Interceptor at point H on Drawing 008 Version 2. Following the interceptor, drainage from this area will connect in to the existing drainage network and will discharge off the site at SW3.

Stormwater draining to the 3 no. existing Emission Points (SW1, SW2, and SW3) passes through 3 no. hydrocarbon interceptors located near to the discharge points. It is proposed that these interceptors, indicated as points A, B and D on Drawing 008 Version 2, will be upgraded to Class 1 By-pass interceptors as there is no bulk storage of oils within the areas drained. These interceptors have been sized based on the size of the size of the drainage area that each interceptor is serving. Further details are in Attachment 4.8.1 Operational Report.

Due to the nature of the run-off from the existing facility (stormwater from buildings and roads only) and the inclusion of hydrocarbon interceptors, the proposed discharge is unlikely to contain more than trace hydrocarbons and metals. Where bulk diesel delivery is proposed for the new facility, the new Class 1 Full Retention interceptor will provide the additional protection required to prevent hydrocarbons entering the stormwater drainage network.

It is therefore anticipated that the surface water quality will not exceed the Environmental Quality Standards as set out in SI 272 of 2009 and SI 386 of 2015 (Surface Water Regulations).

As indicated in Attachment 7.7 of the IE Licence application, AbbVie is not proposing to conduct continuous monitoring at the licenced discharge points. Rather, level alarms will be installed on all new interceptors and weekly inspections of the manholes at Monitoring Points SW1a, SW2a and SW3b will be completed as a minimum. These monitoring locations are shown on Drawing 006 Version 2.

A leak detection probe with an alarm will also be installed on the diesel tank which is double skinned to contain leaks. There will be no external bulk storage of chemicals at the site other than diesel, and all other potentially hazardous substances will be stored in small quantities only in the self-bunded external chemstores or will be fully contained within the production areas.

The high high strength wastewater will also be stored in a 7m<sup>3</sup> stainless steel, sunken bunded sump tank and a 60m<sup>3</sup> stainless steel, bunded bulk tank located beside the main building. Details of the bunds are provided in Attachment 4.8.1 Operational Report. In the event of a spill into the bund, the wastewater would be tested and pumped out into the appropriate tank. Level alarms will be in place on the high high strength wastewater tank and on the bund.

As such it is considered that the network of hydrocarbon interceptors and the use of level alarms will be sufficient to monitor for potential pollution and additional monitoring of the stormwater emissions above and beyond that proposed is not required.

#### 4.0 NOISE EMISSIONS

Reference has been made to the EPA publication *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4) 2016*, as the proposed facility will be licenced by the EPA. This guidance is used to set operational noise limits from activities under the control of the EPA (manufacturing, industrial, waste management etc.). This document sets out a procedure for applying appropriate operational noise limits from this type of facility at the nearest noise sensitive receptors taking account of the background noise environment.

On review of the baseline noise survey results, the noise levels measured were above the criteria for a low background noise area. The following noise criteria

are therefore appropriate for this development at the nearest noise sensitive locations:

Day (07:00 to 19:00hrs)	Evening (19:00 to 23:00hrs)	Night (23:00 to 07:00hrs)
55dB L <sub>Ar</sub> (15mins)	50dB L <sub>Ar</sub> (15mins)	45dB L <sub>Aeq</sub> (15mins)

**Table 1** Proposed Operational Noise Criteria

During the night period, no tonal or impulsive noise from the facility should be clearly audible or measurable at any Noise Sensitive Location (NSL). The applicable noise criteria identified are in line with the typical limit values for noise from licenced sites.

There will be one emergency diesel electricity generator proposed for the site. Section 4.4.1 of NG4 also contains the following comments in relation to emergency plant items:

*“In some instances, licenced sites will have certain items of emergency equipment (e.g. standby generators) that will only operate in urgent situations (e.g. grid power failure). Depending upon the context, it may be deemed permissible for such items of equipment to give rise to exceedances in the noise criteria/limits during limited testing and emergency operation only. If such equipment is in regular use for any purposes other than intermittent testing, it is subject to the standard limit values for the site”.*

It is therefore considered that the proposed noise criterion of 55dB L<sub>Aeq,(15mins)</sub> is appropriate in emergency scenarios for daytime, evening and night-time periods.

There are several items of noise generating equipment proposed for the new development. It has been assumed for this assessment that all plant items will operate 24 hours a day as a worst case. The locations of the new noise sources (for the proposed development) re shown on Drawing 011.

An assessment of all new plant items was undertaken, and a detailed computer-based noise model was prepared using proprietary noise modelling software package, *iNoise V2017 Enterprise* (see Attachment 7.1.3.2). The details and location of all noise emission points and associated noise source data used in the model were provided by Jacobs Engineering. Some assumptions were required in relation to this detail, as set out in Appendix B of the noise model report, as provided with Attachment 7.1.3.2.

Noise prediction calculations were carried out at the three nearest noise sensitive locations (NSL's) surrounding the site in accordance with the EPA's NG4 Guidance. The nature of these locations is provided in the noise model report and details are provided in Table 2 below. Free field noise emission levels were predicted at a height of 4m.

Noise Sensitive Location	Calculation Height	National Grid Reference (ITM)	
		North	East
NSL1	4m	569,655	837,378
NSL2	4m	569,627	837,634
NSL3	4m	569,772	837,732

**Table 2** Coordinates of Noise Sensitive Recievers

The predicted noise levels from new mechanical plant at each NSL are tabulated in Table 3.

Location	New Plant Predicted Level (dB)
NSL 1	32
NSL 2	33
NSL 3	40

**Table 3** Predicted Operational Noise Levels at NSL's for New Mechanical Plant Items

Table 4 presents an assessment of the resultant noise emissions predicted from the site considering the operation of both new and existing plant items. The existing plant noise levels were calculated with due consideration of the EPA NG4 guidance document and review of the noise survey data obtained in April 2018 (see the noise model report in Attachment 7.1.3.2). The measured  $L_{AF90}$  parameter from noise survey was judged to be an appropriate indicator for existing plant noise emissions in this instance. It is noted, that the measured levels encompass all noise sources in the vicinity of the site and that a number of plant items will be decommissioned as part of the development therefore, the approach can be considered to be worst case.

Location	New Plant Predicted Level (dB)	Existing Plant Noise Level (dB)	Total Operational Plant Noise Level (dB)
NSL 1	32	35	37
NSL 2	33	43	43
NSL 3	40	40	43

**Table 4** Predicted Operational Plant Noise Levels at NSL's

Table 5 present the predicted plant noise emission levels at the nearest NSL's and compares the results against the relevant criteria that have been derived for the site.

Receptor	Predicted $L_{Aeq,15\text{minute}}$	Day (07:00 – 19:00hrs)		Evening (19:00 – 23:00hrs)		Night (23:00 – 07:00hrs)	
		Criterion dB $L_{Ar,T}$	Complies?	Criterion dB $L_{Ar,T}$	Complies?	Criterion dB $L_{Aeq,T}$	Complies?
NSL1	37	55	Yes	50	Yes	45	Yes
NSL2	43		Yes		Yes		Yes
NSL3	43		Yes		Yes		Yes

**Table 5** Predicted Operational Noise Levels vs Criteria

For the use of the generator in emergency situations, the NG4 document allows for relaxed noise emission criteria for emergency use equipment. Regardless of this fact, the worst case predicted noise emissions from the operation of the generators are below the normal day, evening and night time noise criteria and any predicted increase in the noise emissions is expected to be not significant.

From this assessment it is anticipated that all operational and emergency noise levels will be within both the relevant emergency operations limit as well as the normal operational limits.

Fixed noise monitoring locations are not proposed in this IE licence application and it is advised that monitoring locations be selected to best represent the NSRs.

A follow up noise survey will be undertaken in 2019 following installation of the new plant to confirm compliance with the relevant limits.

## 5.0 PROTECTION OF GROUNDWATER

As part of this assessment, consideration has been given to EU Council Directive 2006/118/EC in relation to the protection of groundwater. The 2006 Directive establishes specific measures as provided for in EU Council Directive 2000/60/EC in order to prevent and control groundwater pollution. The Directive also complements the provisions for preventing or limiting inputs of pollutants into groundwater already contained in Directive 2000/60/EC and aims to prevent the deterioration of the status of all bodies of groundwater<sup>1</sup>.

Under the 2006 Directive, Member States must give consideration to the water quality standards in the Directive as well as establishing threshold values or 'trigger values' which warn of potential breaches of water quality standards but are not water quality standards themselves. The relevant Groundwater Threshold Values (GTVs) for Ireland are outlined in the Environmental Objectives (Groundwater) (Amendment) Regulations 2016 (S.I. No. 366 of 2016). These Regulations give effect to the EU Directive 2014/80/EU of 20 June 2014, which amends Annex II to Directive 2006/118/EC.

<sup>1</sup> Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration

Under the 2006 Directive, the Member States must also establish the chemical status of each groundwater body in accordance with the European Communities Directive 2000/60/EC (commonly known as the Water Framework Directive [WFD]) and must undertake measures to protect groundwater defined as having 'Good Water Status' whilst also moving to achieve 'Good Water Status' in all other groundwater bodies. The Groundwater Body (GWB) regionally underlying the AbbVie facility is the Drumcliff Strandhill GWB (EU Groundwater Body Code: IE\_WE\_0044). Currently, the EPA (2018) on-line mapping classifies the GWB as "under review" meaning it may or may not achieve good status.

The results of the recent groundwater sampling rounds at the AbbVie facility are presented in Section 8 *Stage 7 – Site investigation, Baseline Soil & Water Quality Assessment* of the Baseline Report (Attachment 4.8.3). The results are compared with Drinking Water Parametric Values (PVs) provided in the European Union (Drinking Water) Regulations 2014 (S.I. No. 122 of 2014), as well as the GTVs from the S.I. No. 366 of 2016.

Overall, the groundwater quality is good with no major noticeable contamination across the AbbVie site apart from minor exceedances of some inorganics. Volatile Organic Compounds (VOCs), Semi Volatile Organic Compounds (SVOCs), Polycyclic Aromatic Hydrocarbons (PAHs) and most inorganic parameters were not detected above statutory or guideline levels during groundwater monitoring.

There will be no direct discharges of contaminated water to groundwater or soil environment during the operation of the facility, and an environmental management plan (EMP) will be in place to ensure compliance with licencing requirements. This will include full and adequate containment and management of potential contaminants. Site-specific emergency response measures will be in place and all relevant personnel will be trained accordingly.

In order to minimise any impact on the underlying sunken strata from material spillages, chemical storage tanks will be fully bunded in designated areas with an impervious loading area. Bunding will be to a volume in compliance with EPA standards.

Drainage from around the diesel tank will be contained within the proposed tanker loading bay which will be bunded to prevent stormwater from the loading bay draining to the porous tarmac area in the North Yard. Rather, the stormwater will drain to the designated retention sump which will be equipped with a built-in level switch and an oil detector. The stormwater will then be pumped to a new Class 1 Full Retention Interceptor which will be inspected and properly managed.

All tanks, bunding and transfer pipelines will be tested regularly to confirm integrity as per the site EMP and licencing requirements.

As such, it is considered that other than those parameters that are natural elevated in the local groundwater body, there will be no impact on the quality of the groundwater status of the Drumcliff Strandhill GWB from the site operations.

Based on the existing monitoring results it is anticipated that the site operations will not result in exceedances in the GTVs. The facility is therefore considered to be compliant with the relevant Directives on groundwater protection.

## 6.0 REFERENCES

Environmental Impact Services (2018) Environmental Impact Assessment Report for Internal Works & Change in Activity at AbbVie Ireland, NL B.V., Ballytivnan, Sligo. May 2018.

Annual Environmental Report (2017), D0014-01, Sligo (Sligo Wastewater Treatment Plant).

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