Ellgia Scunthorpe
Permit Variation Application reference ELL/018

Point Source Emissions

1 General

1.1 Point source emissions

1.1.1 Emissions to air

Other than fugitive emissions which are dealt with in ELL/017, the only emissions to air are generated by a single 999kW Ariterm Biomass Boiler installed in 2017 and currently subject to a Part B permit, regulated by North Lincolnshire Council.

The boiler is fired with BSL certified woodchip and is therefore not currently subject to the Environmental Permitting Regulations. A detailed emissions assessment was carried out as part of the Part B application and is included as requested in the Pre-application advice, se ELL/013.

Air emissions from small biomass boilers are not likely to pose a significant risk to the environment or human health providing certain conditions are met. It is considered that a quantitative assessment of air emissions is not required where:

- the fuel is derived from virgin timber, miscanthus or straw;
- the biomass boiler installation meets the technical criteria to be eligible for the Renewable Heat Incentive;
- the aggregate boiler net rated thermal input is less than or equal to 4 MWth, and no individual boiler has a net thermal input greater than 1 MWth;
- the stack height is a minimum of 5 metres above the ground (where there are buildings within 25 metres the stack height must be greater than 1 metre above the roof level of buildings within 25 metres (including the building housing the biomass boilers); and
- there are no sensitive receptors within 50 metres of the emission points.

This is in line with the following guidance: https://www.gov.uk/guidance/intensive-farming-risk-assessment- for-your-environmental-permit#air-emissions-biomass-boilers. Although this application is for a site and not an intensive farming installation, the principles contained in the guidance are considered to be transferrable to this site.

We consider that the biomass boiler meets the criteria above because

- it is fuelled by grade A woodchip from BSL accredited suppliers
- it has been issued with a Renewable Heat Incentive certificate.
- It is rated thermal input is 999kW net
- the height of the boiler stacks is 10 metres above the ground and more than 1 metre above the roof level of the biomass boiler building, which is the only building within 25 metres of the emission points
- there are no sensitive receptors for the purposes of this air quality risk assessment.

The air emissions impact assessment (ELL/013) carried out as part of the existing Part B permit application shows that impacts from the boiler will not be significant, the boiler is therefore not likely to pose a significant risk to the environment or human health and no further assessment of emissions is required at this stage.

On the basis of the above audit results together with the controls in place at the installation, the consultation responses received and the Emission Limit Values (ELVs) set in the permit; we are satisfied that the point source emissions to air arising from the installation will not have a significant adverse impact upon amenity or public health.

1.1.2 Emissions monitoring

The Part B Permit requires biannual emissions monitoring, the emission requirements and methods and frequency of monitoring are as follows:

Ref	Substance	Emissions limits /provisions	Type of Monitoring	Monitoring Frequency
1.	Carbon Monoxide	250mg/m^3	Manual Extractive Testing	Bi-Annually
2.	Total Particulate Matter	60mg/m^3	Manual Extractive testing	Bi-Annually
3.	Oxides of Nitrogen	400mg/m^3	Demonstrable upon commissioning and after any subsequent substantial change to the installation	
4.	Organic Compounds	20mg/m^3	Manual Extractive Testing	Annual

Sampling shall be representative.

1.2 Emissions to sewer, surface water and groundwater

There are minimal discharges of water from the processes operated on site. Emissions are generated only from rainfall.

The site is not connected to the public sewer network. All water discharge is via full retention separators, this in conjunction with good housekeeping measures, including daily road and yard sweeping, ensures that water emissions to ground and watercourse are very unlikely to be contaminated.

Water from full retention separators drain to a site drainage pond and from there to Frodingham Ponds via 450mm culvert. The site drainage pond can be isolated from the watercourse by penstock valve, see ELL/006c.

There are no relevant hazardous substances released to groundwater from the installation. The EMS and risk assessment identify any further potential risk to groundwater and how these are prevented.

The site drainage scheme has been in operation for many years and there is no evidence of any ground water contamination. Extensive ground and water investigations undertaken for planning consent showed no signs of water contamination including in the main site drainage pond.

2 Emissions and Parameters

2.1 Emissions to Air

Emissions point reference and location	Source	Parameter	Limit (incl. unit)	Monitoring frequency	Monitoring standard ormethod
1	Biomass boiler	Carbon Monoxide	250mg/m^3	Biannual	Manual Extractive Testing
		Total Particulate Matter	60mg/m^3	Biannual	Manual Extractive testing
		Oxides of Nitrogen	400mg/m^3	Demonstrable upon commissioning and after any subsequent substantial change to the installation	
		Organic Compounds	20mg/m^3	Annual	Manual Extractive Testing

2.2 Assessment of Biomass Boiler Sampling Emissions Point

The biomass boiler was installed in 2017 and is currently covered by a Part B permit. The sampling location has been assessed by accredited laboratory (Socotec / ESG) who conduct biannual emissions tests.

Criteria	Assessment
Has the sampling location been designed to meet BS EN 15259 clause 6.2 and 6.3	Yes
Are the sample ports large enough for monitoring equipment and positioned in accordance with section 6 and appendix A of BS EN 15259	Yes
Is access adjacent to the ports large enough to provide sufficient working area, support, and clearance for a sample team to work safely with their equipment throughout the duration of the test	Yes
Are the sample location(s) at least 5 HD from the stack exit	Yes
Are the sample location(s) at least 2 HD upstream from any bend or obstruction?	Yes
Are the sample location(s) at least 5 HD downstream from any bend or obstruction	Yes
Does the sample plane have a constant cross-sectional area	Yes
If horizontal, is the duct square or rectangular (unless it is less than or equal to 0.35 m in diameter)	Yes

2.3 Emissions to Water

Emissions point reference and location	Source	Parameter	Limit (incl.unit)	Monitoring frequency	Monitoring standard or method
2	Full Retention Interceptor Uncontaminated roof and surface water run-off	No parameters set	No limit set	Not Specified	The freshwater Environmental Quality Standards (EQS) and The Water Supply (Water Quality) r egulations 2018 (TWSR),
3					
4					
5					

3 Emissions Points