

SUMMARY

This application is in respect of the Anaerobic Digestion and Biomethane production at Banglely Quarry, Haddington, East Lothian (Grid Reference NT488 752). The size of the plant combined with the use of waste feed materials means that the Activity falls under the Pollution Prevention and Control (Scotland) Regulations 2012 (Recovery of non-hazardous waste by biological treatment using anaerobic digestion) and as such a Pollution Prevention and Control Permit is required for the facility

The plant is designed to process a variety of feedstocks sourced from the local farming and agricultural markets, together with by-products from the brewing and distilling industries. Planning restrictions mean that household and commercial food wastes (mixed or food bin collections) are not allowed on the site so there are none of the problems associated with the depackaging or handling /transfer of processed food (vermin odour etc)

PROCESS DESCRIPTION (see schematic below)

Once received at the Banglely Quarry Plant, solid materials are unloaded within the process building with liquid materials being pumped directly into the storage tanks. These materials are then mixed /blended within the process building and if necessary recirculated water or effluents are added to give an optimal feed material for the digester. This prepared feedstock is then fed into the digester tanks (these are large, air-tight structures that which give an oxygen-free environment), the material is held in the digester for a requisite period during which time microbe's breakdown the feedstocks to produce a mixture of methane and carbon dioxide (CO₂). This Biogas is then captured and stored in the gas storage unit situated in the dome of the digester. Biogas then passes to the Biogas clean-up plant, where the CO₂ is removed to recover the CO₂ for industrial use. This means once fully operational the overall site is predicted to be carbon negative further reinforcing its carbon reduction credentials. After CO₂ removal the gas that remains is biomethane (CH₄) and this gas is injected into the local national grid. The residual feedstock material that remains after digestion is complete is called digestate. The digestate produced is rich in nutrients can be used to replace synthetic fertilisers, which would otherwise be used to provide nutrients to the soil.

EMISSIONS

Emissions and potential environmental issues have been minimised through the operation and design of the plant

Storage of materials on site is minimised with most feedstock being stored at place of production and delivered to the site "just-in-time"

There are no discharges of process effluent to the environment.

All air from the process buildings is treated via an odour control unit prior to release to atmosphere.

No incineration of feedstocks or waste occurs at the site

SAFETY

As within any site producing biogas safety must be considered and whilst both electronic and manual systems of control will be in place to ensure that emergency situations do not arise. Safety features, in the form of both pressure relief valves (fitted to tanks) and an emergency flare (to allow for safe combustion of gas to be undertaken in an emergency) are provided. The only combustion activities on the site will be the Heat and Power plant providing energy for the site and the emergency flare, these have been designed to meet current regulatory standards; All safety devices will be monitored and subject to routine maintenance checks

Schematic of AD Process.

