

Anaerobic Digester (Positive Aspect)



1. Aspect

The AD Plant is an environmentally positive aspect when functioning correctly, as it will maximise the potential of anaerobic digestion to reduce the carbon footprint of the food supply chain; through COD removal and sustainable power generation. But it does have the potential to cause environmental harm in an emergency situation.

The effluent being utilised by the AD Plant consists of UF Permeate @ 178m³/week and product rinsings @ 100m³/week with respective COD's of 45 000mg/lit and 11 000mg/lit.

This will be treated using bacteria, which in turn will produce an average of 2100KWh of electricity per day; 18.4% will be reused in the AD Plant, 78% will be used on site and the small extra amount will be sold to the Grid,

3240MWh of low grade heat will be created by the CHP plant 51% will be used to maintain the heat of the AD Plant. The final by product will be a liquid sludge which is collected by an approved waste contractor for disposal/storage and locations with approved deployments. The effluent at the end of the process will have a considerable lower COD loading and will be discharged to the sewer to be treated by Wessex water.

Document No	Revision No	Date of issue	Authorised by	Page
BVD ESH 2.14	2 – 22/06/2020	28/07/2017	P.Boult	Page 1 of 1



Issues with The AD Plant can include the potential for odour. This has been monitored and found not to be an issue, but there is the option of installing an odour filter if needed and there is a an odour management plan in place.

The danger of a major spill, there are chemicals and Oil used in the Plant which are on self contained bunds and the site will be bunded to 110% of the largest tank's capacity (1000m³). There is also secondary pipe containment on the pipes transporting the rinsings and permeate from the factory to the digester so this should be minimal risk. The entire site has a drainage catchment which is equipped with two pumps, so should any spillage occur, it will be captured and can be pumped out as special waste.

The change of gas ignition is very low even if the dome ruptured (there are gas PRV's in place) as the methane will rise upwards as it is lighter than air and the flare would have to be in operation for an ignition source to be present.

Overall there will be a carbon footprint reduction of 78% with the use of the AD Plant.

2. Source of Aspect

Effluent entering and leaving the AD Plant and the bacteria in the digester could cause pollution of water courses

Biogas

Odour potential

CHP Plant

3. Impact

In the event of an emergency the sewerage treatment works and ground water could be compromised.

.

4. Comment

Because the operation carries an Environmental Permit there are strict controls in place to prevent any impact on the environment, so this is a predominantly positive aspect except in the case of extreme emergency

5. Operating Procedures

AD Plant

Document No	Revision No	Date of issue	Authorised by	Page
BVD ESH 2.14	2 – 22/06/2020	28/07/2017	P.Boult	Page 2 of 1