Wye Nutrient Management Board 22nd October 2025 – Item 13

Dŵr Cymru Welsh Water Biosolids

Process

Not all Biosolids in the Wye catchment will necessarily come from Dŵr Cymru Welsh Water. Different water companies have differing approaches to how they process sewage sludge.

All sewage sludge produced by Dŵr Cymru Welsh Water is processed in one of four Advance Anaerobic Digestion (AAD) treatment facilities. What makes the anaerobic digestion advanced compared to conventional digestion is that prior to being fed into the anaerobic digester the sludge is treated in a thermal hydrolysis process (THP). To undergo THP all sludges are first thickened, to approximately 22% dry solids (DS) which makes the process more efficient in terms of energy and the time taken to process.

THP itself involves heating the sludge to a temperature of between 140-165°C (under a pressure of 2.6-6 bar) and holding it at the temperature for 20-30 minutes. During the THP treatment the sludge is made more biodegradable by releasing intracellular material and by breaking down large organic compounds into smaller more bioavailable organic compounds. This process also sterilises the sewage sludge, removing all pathogens including *E. coli* and *Salmonella*.

Once the sludge has been through the THP it is cooled and fed to the anaerobic digesters. During anaerobic digestion microorganisms break down the biodegradable matter into two main products, methane and carbon dioxide, the sludge is held in the digester for on average 12-18 days after which it is dewatered, and the resultant product is known as **biosolids**.

The green energy generated by this process is used for generating energy to run our plants and the remainder is returned to the grid.

Spreading

There are measures in place to ensure that they are applied in a way that reflects best practice and does not harm the environment or public health. Biosolids are supplied as a 'cake' that can be spread using a muck spreader. There is no charge for Dŵr Cymru Welsh Water's biosolids and the biosolids team meet regularly with the farmers and landowners to ensure responsible spreading.

Dŵr Cymru Welsh Water Biosolids Team carry out soil sampling, to assess land suitability and offer ongoing support and guidance to ensure efficient utilisation of nutrients. When identifying suitable fields for spreading, the following factors are considered and areas selected or rejected based on findings -

- 50 metres of an identified spring, well or borehole.
- 10 metres of a surface water course
- An Environment Agency or Natural Resources Wales identified Groundwater Source Protection Zone 1
- If the proposed spreading area is within a designated Nitrate Vulnerable Zone
- Do not apply on land with a slope greater than 12° if there is a significant risk of nitrogen getting into surface waters

We operate under the UKAS accredited Biosolids Assurance Scheme, which sets environmentally conservative limits to protect soil and water courses. Dŵr Cymru Welsh Water have been accredited since 2016. This helps to ensure that the biosolids are produced, stored, and spread appropriately and ensure no environmental damage.