Anaerobic Digestion Project 2015 - 2018

Report for External Publication – Supporting Information February 2019

Introduction

The National Anaerobic Digestion (AD) Project Team carried out a total of 144 on-site audits of regulated, unregulated and exempt AD plants across England between 2015 and 2018. The intent of the audits was to identify sites at greatest risk to both the environment and people using a series of score-weighted questions.

An AD EMS Tool was created to undertake a desktop assessment of 147 AD sites across England during early 2015. Operators of AD plants issued with varying permit type included those within the waste-water treatment works (WWTW), agricultural and municipal/commercial sectors.

The initial desktop screening exercise identified a proportion of sites at risk of failure with the potential for an environmental incident.

The majority of sites were audited during years 1 and 2 (110) of the project term. Approximately one third more (34) were audited during year 3.

Data gathered throughout the project has been analysed and is presented in a 2-page infographic report that provides the findings of key operational criteria we expect an operator of an AD plant to have in place:

- A comprehensive written management system
- Technically competent management (where legally required)
- Defined responsibilities and clear training records
- Clear inspection and maintenance schedules and records
- Adequate management of grits and sediments
- Appropriate secondary containment and construction quality assurance (CQA)
- Suitable gas utilisation and good process control knowledge

Furthermore we expect all operators of AD plants to follow the highest level of health & safety practices.

Summary Findings Report

The following information should be taken into consideration when reviewing the 2-page summary report:

Audit Summary

1. AD plants operating within the WWTW sector includes all sites with an environmental permit to treat waste in an AD plant and sites requiring only a permit to store biogas and/or utilise the biogas in a combustion engine (‘A29’ facilities).
2. Sites within the municipal/commercial or industrial sectors are any plants other than those within the WWTW or agricultural sectors. E.g. all commercial food waste plants.
3. AD plants within the agricultural sector includes all those accepting agricultural waste feedstock’s and crop/crop-residue only feedstock’s.
4. The small number of AD plants sitting within the sector listed as ‘other’ includes those operating on other permitted industry sites, e.g. food & drink.
5. Only 3 sites received a repeat audit during the 3 year period. These were included due to the limited effect on the overall figures.
6. Every effort was taken to ensure consistency in our audit approach during the project duration. Officer and Operator understanding of the audit questions did develop throughout the three year period, for example, our expectations for an operator to demonstrate CQA of tankage and the increase in industry awareness in this regard. An improving picture over time would therefore be expected, resulting in a positive picture in several data sets.

7. Data is presented for all sites unless 'permitted sites' is specified.
8. Every effort has been taken to quality assure the data however we accept that errors may occur due to the large number of questions within the AD EMS Tool and potential for human error during inputting.

Permits & Management Systems

1. For ease of understanding, permit types have been grouped into 4 main categories: Bespoke Installation, Bespoke Waste Facility, Standard Rules Installation & Standard Rules Waste Facility.
2. AD plants not subject to regulation, illegal plants or those operating under an exemption from the requirement of a permit were also audited and are presented under those categories.
3. An Environmental Management System (EMS) is a comprehensive, systematic documented framework put into place to assist an operator in the management of all aspects of an AD plant, in order to carry out operations that minimise potential harm to the environment. An EMS can contain a significant number of documents, all of which may or may not have been viewed in detail at every AD plant audited.
4. Minimal changes were made to the AD EMS Audit Tool during the three year audit period. Where additional questions were included in year 3 (Written Schemes of Examination), data from these questions is not presented.

Technical Competence, Responsibilities & Training

1. 1 % of permitted sites were recorded as not requiring technically competent management.

Health & Safety

1. Where operators were unable to provide evidence of a DSEAR plan and lightning strike risk assessment or there was uncertainty in this regard when audited, data is presented as 'no'. Where there was no answer data in relation to lightning strike risk assessments, this has been included as 'no' data.

Inspection & Maintenance

1. A high proportion (83%) of operators were able to demonstrate they had a program of inspection and maintenance in place, written in accordance with manufacturers recommendations. The figure presented does not report on the compliance with that program.
2. As noted on the summary report, agricultural AD plants operated with a standard rules permit are reported as not inspecting tanks every 5 years. This may be because a large number of agricultural plants have been constructed within the last 5 years. Conversely the WWT industry is more established and reported to be the worst-performing sector with regard tank inspection frequency.

Management of Grits & Sediments

1. No additional comments

Secondary Containment & Construction Quality Assurance (CQA)

1. The depth to which CQA validation was audited is likely to have improved over the project period, particularly during year 3 when more focus was given to this aspect.
2. Sites at risk of impacting on critical infrastructure if a major incident were to occur is based only on location of the AD plants and not on the likelihood as a result of other answers provided.

Gas Utilisation & Third Party

1. The 14 sites with no emergency flare includes one site where no answer was provided.