



## Waste4Generation Corby Pre-Acceptance Procedures 2022

### *Introduction*

The pre-acceptance procedures for Waste4Generation are critical to protect all aspects of our business and to ensure EA compliance. In regard to our business, it is now split into several sections which all require their own pre-acceptance for different reasons.

- Incoming Waste – Feedstock
- Incoming Waste – AD Plant Feed
- Incoming Waste – Trials (Nano Bubbles etc)
- Incoming Waste – Hazardous
- Incoming Waste – Non-standard wastes

Any wastes that are to be brought into site is subjected to full characterisation prior to acceptance. Due to the various business sectors, the analysis undertaken does vary for where the waste stream is destined (Please see below).

Spreadsheets and hard copies to be kept of all potential sources of waste (including products) and are to be checked by competent personnel. Only competent personnel can grant pre-acceptance. Our facility keeps up to date with applicable legislation and our pre-acceptance procedures take into account the following legislation:

- EA AD Technical Guidance (WM3)
- EA Permitting Regulations (Bespoke Permit)
- Biological Waste Treatment – Appropriate Measures for Permitted Activities (Sept 2022)
- Animal By-Products Regulations (ABPR) & Animal Health Requirements

The above legislations require both an initial stage and a screening stage based on the analysis of representative samples. Due to the nature of our facility, and how it uniquely can discharge to sewer within consented limits enables us to trial waste streams on a full-scale digestibility & feasibility undertaking.

As part of the 'Biological Waste Treatment: Appropriate Measures for Permitted Facilities', Waste4Generation confirm that we will:

1. Wastes accepted into site is capable of biological treatment and be fully recovered and suitable for their intended end use.



## Waste4Generation Corby Pre-Acceptance Procedures 2022

- This applies for all wastes/products intended for treatment at the high-rate AD plant and those wastes/products destined for blending into high quality feedstock for offsite recovery.
  - Digestibility studies completed on feedstocks and biomass functionality testing also available in-house.
  - Where applicable, undertaking external BMP testing available, where we are looking to bring this in-house in the coming months.
2. A waste is only suitable for biological treatment if your treatment process is designed to:
- Treat the types of wastes included on your environmental permit – **Complies**
  - Manage variability in feedstock and optimise process conditions – **Complies**
  - Make sure there is sufficient capacity to treat waste within the retention time of the process – **Complies**
  - Must implement waste pre-acceptance and acceptance procedures for all new waste streams so that you know enough about a waste (including its composition, characteristics and predicted age) before it arrives at your facility. Need to do this to assess and confirm the waste is technically and legally suitable for the facility – **Complies**
  - Must document your waste pre-acceptance and acceptance procedures in your management system – **Complies**
  - Must assess waste on initial acceptance and periodically to ensure constancy – **Complies**
  - Must obtain representative test data and undertaken upstream auditing
3. As a business, we continue to progress, minimising risk to the environment & local receptors, take appropriate measures so that we do not affect local environment or human health & preventing any risk of breach to environmental quality standard. We do this by incorporating the following into our operations:
- Improving our efficiency and pushing towards higher levels of management via accreditation.
  - Being aware of our local receptors and minimising any risks to them. Potentially odorous wastes are considered alongside additional management parameters before they are granted pre-acceptance status. As a site, these are not accepted unless these can be treated and managed sufficiently as not to pose an environmental risk, whether these wastes be for the AD plant, feedstock or our continued R&D.



## Waste4Generation Corby Pre-Acceptance Procedures 2022

- As we do not produce a digestate which is spread to land, the environmental quality standard regarding digestate does not apply to this site, however in the preparation of feedstock, this would apply to our clients, and so we provide transparency on our processing and treatments to ensure quality standards are maintained.

### *Characterisation of Waste Stream – All Waste Streams & Products*

To suitably characterise a waste stream, we will conduct the following assessments as part of our pre-acceptance. This is to be fully completed before the waste arrives at our facility:

1. Name of Waste
2. Destination in Our Site – Determination if this is to be used in our AD plant, to create feedstock, for R&D trials etc.
3. EWC Code & WM3 Classification – Determination if this can be accepted into our waste under our permit & if the waste stream is correctly classified under WM3.
4. Waste Producer (including Organisation, Name, Address & Contact Details) – Obtained in writing and updated where required.
5. Source & Nature of the Waste – Point of Production / Process that gives rise to the waste
6. Description of the waste – Including physical form
7. Full characteristics of the waste – Including variability, composition must be based on representative samples
8. Description of any hazardous properties – Including potential risks to process safety, occupational safety & the environment
9. Odour Potential – Risks, frequency & how we could manage if accepted
10. Type of packaging and risks of contamination – Should not apply to our site, however we need to understand any sources of contamination in incoming loads (where from source or tankers)
11. Estimate of Quantity per load & annually – Description of frequency also
12. Potential for self-heating, self-reactivity or reactivity to moisture or air
13. Age of the waste

Additionally, the nutrient balance must be considered for optimum digestibility. This is key for Waste4Generation due to its application to our feedstock grades. We also closely track



## Waste4Generation Corby Pre-Acceptance Procedures 2022

nitrogen/ammonium as this is a listed parameter on our trade effluent consent. We must also conduct a review of any potential toxic elements which may inhibit digestion.

In collecting the pre-acceptance information, it is important to try and deal directly with the producer and ideally visit the site where possible. Where this is not the case, it is critical to gain as much knowledge and information on the process and characterisation as possible.

All pre-acceptance records are to be kept for at least 3 years (computerised where possible), following receipt of the waste. If the incoming enquiry does not lead to the receipt of the waste, the record does not require to be kept.

Annual re-assessment of the information on pre-acceptance forms. Re-assessment should also occur if:

- The waste changes
- Process giving rise to the waste changes
- Waste received does not conform to the pre-acceptance information

### *Odour Potential*

A waste's potential odour and emissions impact (both intensity & description) must be considered prior to acceptance in regard to:

- Mercaptans, ammonia or other volatile organic compounds (VOCs)
- Low molecular weight amines, for example, decaying fish or meat
- Other high-nitrogen and odorous materials or chemicals, for example from highly decomposed food waste or poultry manure

Odorous waste can only be accepted with special handling and storage abatement in regard to appropriate measures. Treatment of odorous waste is detailed within our odour management plan.

Technical staff & operations are to approve the pre-acceptance, sales staff are only required to pass on the enquiries for assessment. This provides a clear definition of roles within the business and allows for the acceptance assessment to be completed by competent personnel.

Final technical checks to ensure the following:



## Waste4Generation Corby Pre-Acceptance Procedures 2022

- Only accept wastes that are suitable and permitted for the site
- Avoid over accumulating waste
- Have enough storage and treatment capacity

Our acceptance & rejection procedure details the parameters for assessment and recording required for when the wastes come in, which includes visual, physical and chemical parameters. We also record the criteria for non-conformance and rejection.

In addition to our permit conditions, our facility is to comply with other regulatory requirements, such as Animal By-Product Regulations, where required. Until approval is granted from Animal Health, no animal by-products are permitted on site.

Our customers are to be advised that they must avoid contaminating waste, because it can cause difficulties and inhibit the biological process. Hauliers are also to be advised that their tankers should be free of debris and contamination. Occurrences of contamination need to be reported to both the customer and the haulier and monitored.

For wastes that are due to arrive in multiple containers, such as IBCs, the below standard industry rule establishes how many IBCs out of a potential collection should be sampled at pre-acceptance as the square root of (N) + 1.

For example:  $N = 28$  containers  $+1 = \sqrt{28} = 5.29$  You would need to take 5 samples.

### *Pre-Acceptance of Hazardous Waste*

In addition to the above for standard wastes, there are additional pre-acceptance requirements in the 'Appropriate Measures – September 2022' which apply to the treatment of hazardous waste. To meet this standard, we need to technically & legally demonstrate the suitability to our facility. In regard to the Synthomer Still 5 waste stream, considerable research and trials were undertaken to demonstrate digestibility and conversion to a non-hazardous composition prior to the addition of the EWC to our bespoke permit. In regard to hazardous wastes this must follow a risk-based approach considering:

- The source & nature of the waste



## Waste4Generation Corby Pre-Acceptance Procedures 2022

- Hazardous properties
- Potential risks to process safety, occupational safety & the environment
- Knowledge about the previous waste holder

Following a customer query, and before the waste arrives at Waste4Generation Corby, we are to obtain the following (in either writing or electronic form), in addition to the above:

- Any details where the holder of the waste is not the producers, details of the waste holder including organisation name, address and contact details.
- Information on the nature and variability of the waste production process and the waste (in particular variation to any hazardous elements)
- Composition of the waste (based on safety data sheets, where appropriate, or representative samples and robust laboratory analysis)
- Any hazardous properties
- Any persistent organic pollutants (POPs) present
- The potential for self-heating, self-reactivity or reactivity to moisture or air
- Any odour or potential fumes
- It's age, that is when it first became a waste
- Type of packaging

Additionally, must receive confirmation that the waste does not contain a radioactive source. If there is a risk of radioactive contamination, must obtain confirmation that the waste is not radioactive. No radioactive wastes are allowed onsite.

The waste characterisation must include determining if there are properties which pose unacceptable risk to the site or process including:

- Risk of explosion
- Risk of corrosion
- Risk of uncontrolled reactions
- Risk of evolution of gases



## Waste4Generation Corby Pre-Acceptance Procedures 2022

We are to determine the assessment of customer's sample against likelihood of representation and whether additionally sampling is required. There are certain circumstances where a representative sample may not be required, however for Waste4Generation Corby to uphold the highest standards, we will only complete pre-acceptance based upon a representative sample.

If the customer has a number of containers holding the same waste, we can apply 'the square root of (N) + 1' rule to sampling those containers. Producing a composite sample of this waste may be appropriate. If the waste is variable, you will need a sample from each container.

As with standard waste types, we are to fully technically assess the waste's suitability for treatment & storage, to make sure that we can meet permit conditions, as well as meeting any Control of Major Accident Hazards (COMAH) requirements. In addition this includes laboratory scale tests to predict the treatment's performance i.e., for biodegradability.

For hazardous wastes, where possible we can use a material flow analysis to identify the flow and fate of the components in the waste.

We are to keep pre-acceptance records for at least 3 years (in a computerised waste tracking system) following receipt of the waste.

As with standard wastes, if the waste changes or the process giving rise to the waste changes, the information in the pre-acceptance must be re-assessed. This is also to be re-assessed on an annual basis.

Odour criteria must be applied as to whether to accept waste that are already releasing or have the potential to release:

- Mercaptans or other VOCs
- Low molecular weight amines
- Acrylates
- Other similarly highly odorous materials

It is critical to fully characterize the waste, as hazardous wastes can be very complex. With all hazardous wastes, we need to obtain a complete understanding of the waste, it's



## Waste4Generation Corby Pre-Acceptance Procedures 2022

hazardous characteristics and how to safely handle & treat it. This can include select analytical tests, based on knowing the process that generates the waste.

Tests for hazardous liquids may include (any or all of the following may be appropriate):

- Measuring the density of the sample
- Measuring the water content
- Measure the ash content at 550°C
- Testing whether the stream might inhibit biological treatment
- Test for cyanide, and if present, determine the free and complexed cyanide levels
- Test for POPs
- Check the content of volatile and semi volatile substances
- Check the mass balance of liquid waste

Other potential testing includes pH, redox potential, electrical conductivity as well as metals. Testing at our facility is to be shaped around digestibility as well as our discharge consented limits. Analysis should be conducted in line with the phasing of the material, and where required, each phase should be tested separately to gain an accurate result. External testing should be carried out by laboratories that have robust quality assurance procedures and which use recognised test methods. EN ISO 17025 accreditation represents best practice.

On granting pre-acceptance, the acceptance parameters for the waste should be identified (if outside of the standard acceptance testing). For each acceptance parameter, we are to define our acceptable tolerances for each result and at which point do we re-sample, raise a non-conformance or rejection. These can be listed in the comments section in the pre-acceptance document. On acceptance, additional parameters & tolerances can be implemented where required.