

PERMIT APPLICATION SUPPORTING DOCUMENT

Crompton Road, Ilkeston, Derbyshire

Stanton Energy Limited

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1 Introduction

1.1 Overview

1.1.1 This document contains supporting information which accompanies the Environmental Permit application being submitted for a facility located at Crompton Road, Ilkeston, Derbyshire. This application has been completed on behalf of Stanton Energy Ltd by Oaktree Environmental Ltd.

1.2 Proposed Activities

1.2.1 The proposed process will be classed as an ‘installation’ under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) (“the regulations”). The activities being applied for are summarised in the table below.

Installation Name	Schedule 1 References	Description of the Activity	Activity Capacity
Stanton Energy Ltd	Section 5.4 Part A(1)(a)(i)	Biological treatment of waste via Anaerobic Digestion	83,000 tonnes

1.3 Guidance Documents

1.3.1 The following guidance documents have been consulted for the purpose of completing this supporting document:

- Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council
- Environmental Permitting Regulations: Guidance for Applicants H5, Site Condition Report – Guidance and Templates, EA, April, 2013;

- Permitting Risk Assessment Guidance on government website (<https://www.gov.uk/government/collections/risk-assessments-for-specific-activities-environmental-permits>);
- <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>; and,
- <https://www.gov.uk/guidance/adapting-to-climate-change-risk-assessment-for-your-environmental-permit>.

2 Raw Materials

- 2.1 The table overleaf outlines the raw materials that will be used along with expected quantities and any relevant hazard codes. Justification for raw materials and resources used has also been provided in the table. The site operator will use appropriate measures to ensure that raw materials and resources are used efficiently and records will be maintained of raw material and resource use.
- 2.2 Manufacturer's guidelines will be followed when using specific fuels and consideration will be given to environmental impacts when purchasing new plant and equipment for the site. Any compounds utilised as described above will be used as recommended by specialist suppliers. Any quantities of materials used will be the minimum necessary to undertake the required process. A review of raw and auxiliary materials used on site will be carried out at least every four years to assess whether any alternative materials can be used which would result in improved environmental performance. The reviews will ensure raw materials and resources used are appropriate, are used efficiently and any options for reduction in use identified, if applicable.

2.3 The table below details the raw materials to be used on site.

Raw Material	Nature	Approximate Annual Throughput	Storage Details	Potential Hazards/Environmental Impact	Alternatives	Justification for Raw Material Used
Liquefied Petroleum Gas (propane)	Liquid	590,700 litres/annum	Stored within purpose designed specialist storage tanks	Flammable liquid. Irritant to skin and eyes. Toxic to nervous system. Repeated or prolonged exposure to substance can produce damage to target organs	Butane, Natural Gas, oil, solid fuels such as biomass	Relatively clean fuel source in comparison to other liquid and solid fuels. Propane chosen over butane given the lower boiling point and therefore more suitable for use in colder conditions, ensuring that fuel supply is always available for the process
Water	Liquid	5,000 litres/annum	Integrated within the AD plant	N/A – non-hazardous	No suitable alternative	Minimal amounts of water will be used in office and welfare facilities and for dust suppression on site, if required. Water is required as part of the biological process.

Raw Material	Nature	Approximate Annual Throughput	Storage Details	Potential Hazards/Environmental Impact	Alternatives	Justification for Raw Material Used
Ferric Chloride	Liquid	1,000 litres/annum	Integrated within purpose designed specialist digester tank	A corrosive chemical. Harmful or fatal if swallowed. Harmful if inhaled. Eye or skin contact may cause irritation. Contact with liquid or vapor form of this chemical may cause severe injury or death.	No suitable alternative	Required as part of the biological process to remove sulphur and abate emissions of organic compounds and odour from the plant.
Lubricant Oil	Liquid	100 litres/annum	Stored in sealed tanks	Irritant to skin and eyes. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended oil mist exposure limit.	No suitable alternative	Required as part of the preventative maintenance of the plant.

Raw Material	Nature	Approximate Annual Throughput	Storage Details	Potential Hazards/Environmental Impact	Alternatives	Justification for Raw Material Used
Activated Carbon	Solid / Filter	8 – 10m ³ /annum	Integrated within purpose designed specialist digester tank	Flammable solid. Irritant to eyes. May cause respiratory irritation.	No suitable alternative	Required as part of the biological process to remove organics and abate emissions of organic compounds and odour.
Trace element enzymes	Liquid	52 Kg/annum	Integrated within the AD plant	May be harmful if swallowed or inhaled. May cause eye irritation in susceptible persons.	No suitable alternative	Required as part of the biological process to improve the efficiency of the digestion process.

2.4 The Technical Provider will provide a full list of other consumables/resources.

3 Wastes

3.1 Stanton Energy Limited will accept the following waste feedstock at the site. EC Directive 2006/12/EC consolidated and replaced directive 75/442/EC but maintained the duty on member states to encourage the hierarchy approach to managing waste whereby the most desirable option is to prevent/minimise waste. The site operator is committed to following the above requirements at Stanton Energy AD Facility.

Waste Stream	Annex IIA or IIB (Disposal and Recovery Codes) Description	European Waste Catalogue (EWC) Code	Maximum Throughput	Details of How Waste Disposal is Minimised
Manure	R3, R5, R13	02 01 06, 20 02 01	5,000	The process is continuously recovering the waste to minimise disposal
Grass Silage	R3, R5, R13	02 01 03, 02 01 07	10,000	The process is continuously recovering the waste to minimise disposal
Maize Silage	R3, R5, R13	02 01 03, 02 01 07	25,000	The process is continuously recovering the waste to minimise disposal
Green Waste	R3, R5, R13	02 01 03, 02 01 07, 20 02 01	18,000	The process is continuously recovering the waste to minimise disposal
Food Waste	R3, R5, R13	02 03 04, 19 05 02, 20 01 08, 20 01 25	18,000	The process is continuously recovering the waste to minimise disposal
Grease	R3, R5, R13	02 02 99, 19 08 09, 20 01 25	2,000	The process is continuously recovering the waste to minimise disposal

Waste Stream	Annex IIA or IIB (Disposal and Recovery Codes) Description	European Waste Catalogue (EWC) Code	Maximum Throughput	Details of How Waste Disposal is Minimised
Brewery Waste – Waste beer, spent grains & hops	R3, R5, R13	02 07 01, 02 07 02, 02 07 04, 02 07 99	10,000	The process is continuously recovering the waste to minimise disposal
Filtrate from a press process (Castle Environmental)	R3, R5, R13	TBC	15,000	The process is continuously recovering the waste to minimise disposal
Contraband material – Tobacco, Alcohol	R3, R5, R13	02 03 04, 16 10 02	7,500	The process is continuously recovering the waste to minimise disposal
Vegetables	R3, R5, R13	02 01 03, 19 05 02	10,000	The process is continuously recovering the waste to minimise disposal
Dairy	R3, R5, R13	02 05 01, 02 05 02	8,000	The process is continuously recovering the waste to minimise disposal
Bakery	R3, R5, R13	02 06 01, 02 06 03	8,000	The process is continuously recovering the waste to minimise disposal
Kerbside collected food waste	R3, R5, R13	02 03 04, 19 05 02, 20 01 08, 20 01 25	8,000	The process is continuously recovering the waste to minimise disposal

4 Energy Efficiency

- 4.1 All mobile and stationary plant and equipment utilized at the site will be subject to regular maintenance to optimise operating efficiency. A record of fuel consumption will be maintained and will be used to identify any abnormal fuel consumption that requires investigation.
- 4.2 All staff will receive appropriate training for operations at the site which will include maintenance procedures and basic housekeeping (e.g. switching lights and equipment off when not in use).
- 4.3 The site operator has given careful consideration to energy efficiency during the site design stage.
- 4.4 The operator will review and record opportunities to improve energy efficiency at least every four years and take any appropriate action as deemed necessary by the review.
- 4.5 Insulated double membrane roofs are used to reduce the heat losses through the roof with by approximately 50%. Heat recovery of the biogas upgrader (compressor) is integrated. The pasteurizers are heated with the wood fired boiler. This heat will also be used in the after digester. Furthermore, a screw system for feeding the digesters are applied. Screws have a lower electricity consumption compared to a blending system, as a lot of digestate needs to be recirculated.

5 Point Source Emissions to Air, Land, Water and Sewers

5.1 Point Source Emissions to Air

5.1.1 The principal source emissions to air will include the following:

- A1 – Exhaust flue serving biomass boiler;
- A2 – Exhaust flue serving biomass boiler;
- A3 – Safety flare; and,
- A4 – Exhaust from abatement system serving gas upgrade unit

5.1.2 Reference should be made to the site layout plan for details of point source emission locations. Potential emissions associated with A1, A2 and A3 have been modelled to assess impacts. Reference should be made to the model report (ref: 058-003-N) for full details of potential emissions, limits that will apply and potential quantity of emissions.

5.1.3 Although emission limits will apply to the safety flare, it is not anticipated that routine emissions monitoring will be required, given that the flare is expected to be operational for less than 10% of each year

5.1.4 The biomass boilers are a Directly Associated Activity (DAA) to the process and on their own right fall outside the permitting regime, since they are each to be fuelled by virgin timber and have a rated thermal input which is <1MW. As such routine monitoring of air emissions is not expected to be required. However, it is understood that the boilers qualify for Renewable Heat Incentive (RHI) and as such, they are required to comply with RHI emission limits for Nitrogen Oxides (NO_x) and particulate matter. Please refer to the emissions modelling report (ref 058-003-N) for more details on these limits.

5.1.5 Emissions from the gas upgrade unit are expected to comprise approximately 98% carbon dioxide (CO₂), and 2% methane.

5.2 **Point Source Emissions to Sewer**

5.2.1 Reference should be made to the model report (ref: 058 003-M) for full details of potential emissions to sewer.

5.3 **Point Source Emissions to Land and Water**

5.3.1 There will be no point source emissions to land or water.