wardell-armstrong.com

ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

R100 LTD

APPLICATION TO VARY PERMIT EPR/GP3439QK

NON-TECHNICAL SUMMARY

NOVEMBER 2022

wardell armstrong

Wardell Armstrong
Sir Henry Doulton House, Forge Lane, Etruria, Stoke-on-Trent, ST1 5BD, United Kingdom
Telephone: +44 (0)1782 276 700 www.wardell-armstrong.com

DATE ISSUED:	**NOVEMBER 2022**
JOB NUMBER:	**ST19734**
REPORT NUMBER:	**RPT 001**
VERSION:	**V1.0**
STATUS:	**FINAL**

R100 LTD

ERROR! NOT A VALID BOOKMARK SELF-REFERENCE.

NON-TECHNICAL SUMMARY

NOVEMBER 2022

PREPARED BY:

Alison Cook Technical Director

APPROVED BY:

Luke Prazsky Service Director - Waste Resource Management

CONTENTS

1 INTRODUCTION

1.1.1 R100 Ltd have commissioned Wardell Armstrong to prepare an application to vary the permit for their site at Spaldington Airfield, permit number EPR/GP3439QK.

1.1.2 The site is located in East Yorkshire at the following address, Spaldington Airfield, Spaldington, Howden DN14 7NG. The permit was issued on 21st October 2019. The business has developed since then and as a result a number of variations need to be made to the permit. The changes would be considered to constitute a normal variation.

1.1.3 The site operates as an anaerobic digestion facility, generating biomethane (gas) for the National Grid and a PAS 110 compliant digestate, which is sold to local farmers for use as a soil improver.

1.1.4 The site is in mainly agricultural area, largely surrounded by fields, though there are other waste sites to the west and a wind farm to the east.

1.1.5 Section 2 describes the changes to be made to the permit, Section 3 gives an outline of the documents included in the application and section 4 summarises the environmental protection measures that will be in place.

1.1.6 It should be noted that at the current time there is an outstanding variation application to vary the permit boundary in order to include the digestate lagoon and a new pipeline delivering product to the lagoon. That application was submitted to the Environment Agency on 13th July 2022.

2 CHANGES TO THE SITE ACTIVITIES

2.1 Changes to the Activities

2.1.1 The main energy recovery route from the site is now to produce biomethane and send gas to the National Grid. The CHP will be used to provide power to the plant itself. Previously the intention was to power the CHP using raw biogas but now it is intended to use natural gas, ensuring lower emissions.

2.1.2 Natural gas will be sourced from upgraded gas produced on site, after the gas to grid unit. Gas may be stored in a liquid natural gas (LNG) tank.

2.1.3 To help manage energy a 1MW battery unit is to be installed to store electricity, allowing production and use to be balanced.

2.1.4 As a back-up a 700kW diesel generator will be provided. The generator will operate for less than 500 hours a year, being used to top up the battery when the CHP is down for maintenance.

2.1.5 Finally, a new waste activity is to be included in the permit. This will allow separation of the pre-treated food wastes using centrifugal force, to recover oils. The oils will be extracted prior to the pasteurisation process.

2.1.6 The oils will be sent on for recycling by a third party, for example they may be used to generate biofuel. The remaining food waste will continue on through the anaerobic digestion process.

2.2 Changes to the Permit

2.2.1 In order to allow these changes to take place a number of changes will be needed to the permit conditions as outlined below.

2.2.2 In Table S1.1, activity AR4 will need to be varied to reflect the change in fuel for the two CHP engines from biogas to natural gas. The wording should also be updated to reflect the fact that the auxiliary boilers are dual fuel boilers and may operate using either biogas or natural gas.

2.2.3 In Table S1.1, activity AR5 may need to be varied to reflect storage of additional raw materials, i.e. LNG.

2.2.4 In Table S1.1, a new directly associated activity (DAA) will need to be included, for the back-up generator.

2.2.5 In Table S1.1, a new waste activity will be required for the physical treatment of waste to recover bio-oil for recycling. The storage of the recovered oil appears to be adequately covered by the existing AR9 waste activity.

2.2.6 The battery unit is a fully sealed unit within an enclosed container. There is no potential for any emissions from the battery unit and therefore it does not constitute a DAA (which must have an impact on emissions) and does not need to be permitted. However, it is included here to provide a full description of the site.

2.2.7 In Table S3.1 the parameters and monitoring frequency for CHP engine 1 and CHP engine 2 will need to be revised to reflect the change in fuel. As natural gas is a much cleaner fuel it should only be necessary to monitor oxides of nitrogen (NO_X). The replacement engines will comply with requirements of the medium combustion plant directive in terms of emissions to air.

2.2.8 In Table S3.1 new emission points will need to be permitted, relating to the back-up generator and the vents on the oil separator and bio-oil tank.

2.2.9 Table S3.2 and S4.1 may need to be updated to remove references to VOCs from gas engines due to the change in fuel from biogas to natural gas.

2.2.10 There are no changes to the permit boundary but Schedule 7 may need to be updated to reflect the revised site layout and emission points.

3 THE VARIATION APPLICATION

3.1.1 The variation application includes the following documents:

- The completed application forms;
- This non-technical summary;
- Revised site lay out plan showing the location of the new equipment and emission point[s];
- Addendum to the Operating Techniques, describing the operation and management of the new equipment;
- An Environmental Risk Assessment identifying any additional risks posed by the changes;
- A Habitats Risk Assessment showing that the new activities will not impact the nearby protected habitats.

3.1.2 For completeness a revised Odour Management Plan (OMP) is included in the application. The only change to the OMP is to include point source emissions from the oil separation activity and the way in which they are controlled. In all other respects the site will continue to comply with the existing Odour Management Plan.

4 ENVIRONMENTAL IMPACT

4.1.1 The site is operated to provide a high level of protection to the environment.

4.1.2 Before installation the LNG tank and its location will be subject to assessment to ensure that any potential fire risk is managed and controlled.

4.1.3 The bio-oil and diesel tanks will be of appropriate construction and will be within a bund holding a minimum of 110% of the capacity of the tank with appropriate containment around the loading points.

4.1.4 There will be written procedures for filling of tanks protecting against spills and over filling.

4.1.5 Natural gas is a cleaner fuel than biogas, this change in fuel for the CHP will reduce potential emissions of sulphur dioxide and volatile organic compounds.

4.1.6 All CHP units will operate in accordance with the Medium Combustion Plant Directive, controlling emissions to air.

4.1.7 The oil treatment is an enclosed process and the equipment will be within a bunded area so that any leaks will be fully contained.

4.1.8 The enclosed bio-oil treatment and storage vessels will have carbon filters at the breathing vents to ensure that odorous compounds are captured, minimising emissions of odour.

4.1.9 Overall there should be no increased risk to the environment as a result of these variations.

wardell-armstrong.com

STOKE-ON-TRENT
Sir Henry Doulton House
Forge Lane
Etruria
Stoke-on-Trent
ST1 5BD
Tel: +44 (0)1782 276 700

BIRMINGHAM
Two Devon Way
Longbridge Technology Park
Longbridge
Birmingham
B31 2TS
Tel: +44 (0)121 580 0909

BOLTON
41-50 Futura Park
Aspinall Way
Middlebrook
Bolton
BL6 6SU
Tel: +44 (0)1204 227 227

BRISTOL
Temple Studios
Temple Gate
Redcliffe
Bristol
BS1 6QA
Tel: +44 (0)117 203 4477

BURY ST EDMUNDS
Armstrong House
Lamdin Road
Bury St Edmunds
Suffolk
IP32 6NU
Tel: +44 (0)1284 765 210

CARDIFF
Tudor House
16 Cathedral Road
Cardiff
CF11 9LJ
Tel: +44 (0)292 072 9191

CARLISLE
Marconi Road
Burgh Road Industrial Estate
Carlisle
Cumbria
CA2 7NA
Tel: +44 (0)1228 550 575

EDINBURGH
Great Michael House
14 Links Place
Edinburgh
EH6 7EZ
Tel: +44 (0)131 555 3311

GLASGOW
24 St Vincent Place
Glasgow
G1 2EU
Tel: +44 (0)141 428 4499

LEEDS
36 Park Row
Leeds
LS1 5JL
Tel: +44 (0)113 831 5533

LONDON
Third Floor
46 Chancery Lane
London
WC2A 1JE
Tel: +44 (0)207 242 3243

NEWCASTLE UPON TYNE
City Quadrant
11 Waterloo Square
Newcastle upon Tyne
NE1 4DP
Tel: +44 (0)191 232 0943

TRURO
Baldhu House
Wheal Jane Earth Science Park
Baldhu
Truro
TR3 6EH
Tel: +44 (0)187 256 0738

International office:

ALMATY
29/6 Satpaev Avenue
Hyatt Regency Hotel
Office Tower
Almaty
Kazakhstan
050040
Tel: +7(727) 334 1310

wardell armstrong