



Duranta Teesside Limited Permit Variation Application

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Non-Technical Summary



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Duranta Teesside Limited



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TABLE OF CONTENTS

1. NON-TECHNICAL SUMMARY	1
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1. NON-TECHNICAL SUMMARY

1.1. Introduction

- 1.1.1. This non-technical summary outlines the intended operations at the Duranta Teesside AD Facility Located at Forty Foot Road, Middlesbrough, TS2 1HG, NGR NZ 48840 21016 following expansion of existing activities at the site to increase processing capacity in line with current permitted waste tonnages.
- 1.1.2. The site currently operates under permit reference EPR/ YP3236RW and is permitted to operate an Anaerobic Digestion Biogas Installation and directly associated activities according to a bespoke Environmental Permit. The pending expansion of current operations at the site will mean that the permit will need to be subject to variation.
- 1.1.3. The summary of intended operations following determination of the variation application is as follows.

1.2. Non-Technical Summary

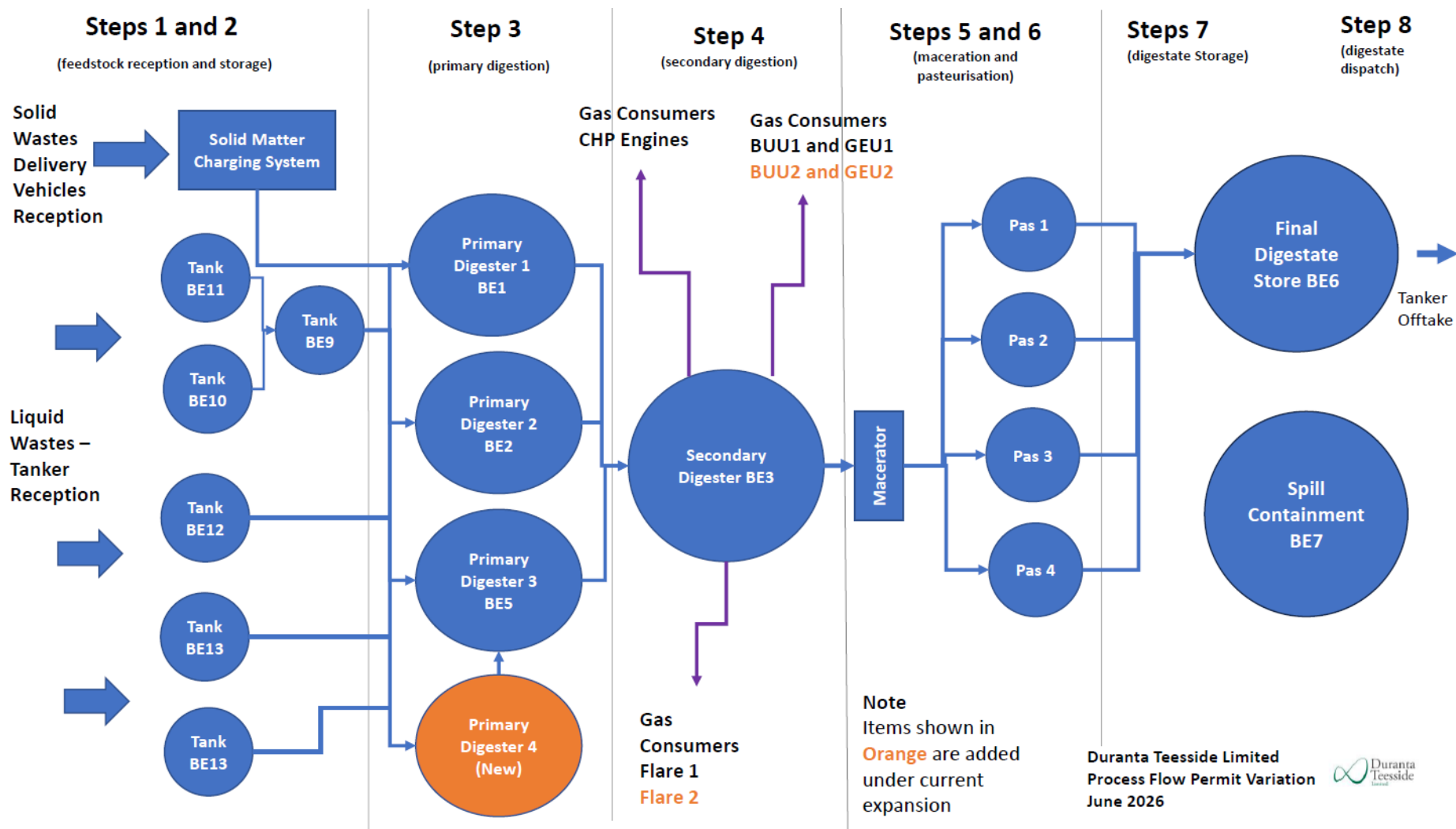
- 1.2.1. The Teesside Anaerobic Digestion (AD) Power Plant is located on an industrial estate in a loop of the river Tees in Middlesbrough, Cleveland, at Forty Foot Road, Middlesbrough, TS2 1HG, NGR NZ 48840 21016. The plant is designed to treat up to 157,000tonnes of food waste, agricultural wastes and green wastes per year. The site operates according to permit reference YP3236RW.
- 1.2.2. Waste received at the site is processed in a continuous, two step wet mesophilic AD process, which is largely controlled by an automated Supervisory Control and Data Acquisition (SCADA) system. A series of in vessel and inline monitoring devices interact with the SCADA system which provides an interface for continuous monitoring of process conditions at the site, and automated 24-hour process control responses.
- 1.2.3. Wastes received at the site are mixed to create a suitable pumpable blend to be fed into the four primary digester/fermenter tanks (F1-4), F4 being a new 7200m³ total capacity/ 6709m³ working capacity digester/fermenter that has been added to the site under recent site expansion. Digestate from all four primary digesters/fermenters is then passed into the 4820m³ post fermenter. Digestate is passed from the post fermenter to the pasteurisation system via a 12mm macerator before being heated in the pasteurisation system in accordance with Animal By-Products Regulations (ABPR) Requirements.
- 1.2.4. Pasteurised whole digestate is then passed to an 8068m³ digestate storage tanks for interim storage pending use on agricultural land as and end of waste PAS110 certified biofertiliser.
- 1.2.5. In the eventuality of a breach of primary containment vessels at the site, provision for secondary containment has been made via a bespoke spill containment and collection system with sufficient capacity to contain/store spills achieved by provision of a dedicated emergency spill containment tank.

An extension to this bespoke containment system is proposed to include sufficient secondary containment provision for the additional digester.

- 1.2.6. Biogas produced in the fermenters/digesters is collected and stored in gas membrane storage roofs in the head space of the fermenters/digesters. Biogas produced at the site is used to fuel four onsite combined heat and power engines (CHP's) with aggregated output capacity of 5.1Mwe or is upgraded to produce biomethane.
- 1.2.7. Electricity produced by the engines is exported to the national grid network and used to power operations at the site.
- 1.2.8. Heat produced by operation of the engines is recovered for heating of tanks at the site. Exhaust emissions from the engines are released to atmosphere via a 28m stack.
- 1.2.9. Biogas intended for upgrading is processed in one of the two onsite biogas upgrading facilities, where it is processed through a series of compressors and filtration units to separate the various components of the raw biogas and produce a final biomethane product. The upgraded biomethane is dosed with propane and gas odorant before being injected into the national gas grid network via one of the two onsite grid entry units. Carbon dioxide removed from the biogas during upgrading in the two onsite upgrading units is released to atmosphere. One of these two upgrading units and one of these two grid entry units has been added to site operations as part of the current process of site expansion.
- 1.2.10. The site is equipped with two emergency flare units that can be used to burn biogas or upgraded biomethane in a controlled manner should the usual gas consumers or grid connection not be available/operational. One of these flares has been added to operations to provide sufficient capacity to manage all gas produced at the site in response to the current site expansion works. There is also an emergency generator at the site to allow provision of emergency power for maintenance of key functions during power outage.
- 1.2.11. Release points of potentially odorous gas streams from tanks and vessels are collected and abated via a range of existing biofiltration and carbon filtration units at the site. The measures for management of odours at the site are specified in an odour management plan that is included in the operator's Environmental Management System (EMS).
- 1.2.12. Surface water arising from concrete surfaces at the site is collected in a holding tank system and tested to verify that the water is uncontaminated. Uncontaminated water is released on a test and release batch basis via a gravity release to the public surface water sewer system, which in turn drains to the River Tees. A new and additional surface water attenuation tank has been added to the site infrastructure to collect surface water accumulating in the new development area. This tank will discharge collected water into the existing surface water collection and retention system and be subject to existing agreed controls.

- 1.2.13. The whole site is operated in accordance with an EMS that is designed to ensure that appropriate measures are implemented at the site during ongoing operations. Technical competence requirements are achieved through certification in accordance with the Energy and Utility Skills Council (EU Skills)/Environmental Services Association (ESA) Competence Management System (CMS).
- 1.2.14. The closest ecological receptors are the Cleveland Coast SSSI/SPA/RAMSAR and Tees and Hartlepool Foreshore and Wetlands SSSI at from 558m from the site, Linthorpe Cemetery Local Nature Reserve at 1.8km from the site, and Teesaurus Park Wildlife Site at 0.6km.
- 1.2.15. Other changes made as part of this variation application are;
- Removal of emissions point A12 from the permit as emissions are no longer released from this point but are now diverted into the sealed gas line system and do not vent to atmosphere.
 - Addition of three new EWC's to the site permit to maximise wastes that can be processed at a PAS110 certified site, and in accordance with the recently updated list of wastes published in the ADRF.
 - Change in the required minimum frequency of tank internal inspection for tanks 600m³ volume and over from every 3 years to every 5 years (permit reference EPR/YP3236RW, Table S3.3 process monitoring requirements, page 30).
- 1.2.16. A process flow showing the site operations is shown in Figure 1 below and also submitted with this application as document reference **CB2255-04c Process Flow**. Aspects of site operations that are subject to expansion under this current variation are shown in **Orange**.

Figure 1 – Process Flow (CB2255-04c)



1.3. Tank Internal Inspection Frequency

- 1.3.1. As part of this application the operator is requesting that the frequency of internal tank inspections at the site be extended to every five years rather than every three years as currently required under the existing permit.
- 1.3.2. The rationale and evidence to support this position has been presented to the EA local officers over a series of reports, CAR responses and email communications. The conclusion of this process has been that it would be proportionate and reasonable to extend the frequency to every five years. Further consultation on this matter has been carried out during the enhanced preapplication process that was carried out prior to submission of this application and confirmation received that the local EA officers have no objection to the change being made on the basis of the evidence and measures provided.
- 1.3.3. The communication streams and documentation relating to these discussions and in support of this request is now submitted as part of this application as **appendix 1** to this document.

