Permit Variation
Supporting Statement & Non-Technical Summary
EPR/PP3227SH/A001
Battlefield Plastics Recycling Faci

Veolia ES (UK) Ltd

November 2024

Table of Contents

1. Non-technical summary

1.1. Introduction

This application is for a new waste activity environmental permit to be held by Veolia ES (UK) Limited 'Veolia' referenced EPR/PP3227SH in Battlefield, Shrewsbury

The facility will accept waste plastics primarily from other Material Recycling Facilities for further processing such as separation into different plastic types, washing, shredding, de-labelling for further processing elsewhere in order to recover the plastics.

Initially the above is phase 1 of the development with further enhancements to be added with the ultimate intention to produce food grade reusable plastic products.

The activity will be <768t/day and up to 200,000t/annum for recovery.

The location of the site is shown on drawing VES_TD_SHRPETNEW_200_006

The site is located at:

Veolia PET Facility
Battlefield Way
Shrewsbury
SY1 3EQ

The site consists of a repurposed existing building previously used as an industrial activity for the manufacture and distribution of aircraft and automotive body parts.

1.2. Permit Application

This application consists of an application for a new bespoke waste activity permit for the physical treatment of non-hazardous wastes and directly associated activities.

1.3. Process Description

The following section provides a detailed overview of the process carried out at the facility. A schematic overview is provided in section 1.4.

- **Waste arrival and inspection**

  Post consumer plastic waste streams arrive at the facility from across the UK. Bales arrive on site primarily in curtain sided vehicles consisting of plastic bottles (or other suitable plastics) compacted together and bound with metal ties. Waste inputs will be

minimally contaminated plastics for, example 95% HDPE (consisting mainly of HDPE bottles with labels and bottle tops), or other suitable plastics. Waste arrives at the site minimally contaminated but could contain, residual liquids, paper and film labels, metal (e.g. from drink cans or food tins), and other debris.

On arrival at site all loads are weighed. A traceable record of all incoming weights is maintained for monitoring purposes.

All material entering the facility then undergoes a visual inspection prior to offloading from the vehicle inside the building and is subject to a sample bale analysis. Any failure to meet the input specification results in further testing. Loads which cannot meet the specification will be rejected. In order to ensure feedstock quality remains sufficient to produce a high specification pellet, samples of each load are taken in order to quantify the contents for different types of plastics, such as PET and nHDPE.

- **Storage**

The input storage bays are capable of storing up to 2986 bales of waste. Inputs comprise plastic waste bales awaiting processing, outputs are primarily cleaned pelletised plastics and flakes for further processing elsewhere for recovery. Plastic wastes typically remain on the input days for around 5 days with a maximum 2 week storage time. This minimises the potential for odour generation.

- **Material separation**

The bales are loaded from storage into a breaker for separation to allow subsequent sorting and cleaning activities to take place. Less frequently, the facility accepts loose plastic feedstock which can be fed directly into the breaker via a loader. Some plastic can become dislodged from bales while they are stored, this is collected and fed into the process in the same way.

- **Metal separation - stage 1**

Following separation, the material is conveyed under a magnet which removes any ferrous metals from the plastic.

- **Manual contraries removal**

Block coloured plastics unsuitable for further processing (i.e. with no clear component such as detergent bottles) and non-food grade plastics are separated by manual picking of the waste which then passes through a metal separator to remove any remaining coarse metal contamination.

- **Granulation**

  The plastics including any associated labels and lids (attached or loose) then go through a size reduction process where they are granulated into <10mm flakes.

- **Dry Drying**

  The flakes are then passed through a 'dry dryer' which is a centrifugal mechanical cleaner which allows residual moisture and dirt to be dislodged from the flakes.

- **Density separation - stage 1**

  Any light items and loose labels are then removed from the flake stream in a density separation system using a counter current airflow. Differences in the particle shape and density cause the lighter material to be lifted by the air stream, leaving the heavier density material to discharge from the bottom under the action of gravity.

- **Metal separation - stage 2**

  A further metal removal stage then follows to segregate any remaining metal fraction released during the previous stages.

- **Hot caustic wash**

  The flakes are then thoroughly washed in a turbulent caustic solution hot wash bath. This process removes printing inks, dissolves any remaining glue, cleans residue from bottle contents and kills microbes on the flake surface. Heat for this process is provided by a steam generator / boiler.

- **Friction washing**

  The flakes are then passed through two friction washers where they are mechanically agitated using a rotating drums which detach and remove further physical contaminants and foreign matter and also continue to clean the flake surface of liquids such as residual bottle contents.

- **Sink / float separation**

  The flake stream passes through a sink / float which separates waste material by specific gravity. For example a HDPE flake stream floats and any remaining heavy components (SG > 1.0) sinks and can be collected separately.

- **Wet drying**

Process flow is then through a 'wet dryer' which is another centrifugal mechanical cleaner which removes water from the cleaned flake.

- **Density separation - stage 2**

The material then enters a second stage density separation system to remove further light fraction that has been liberated by the preceding steps.

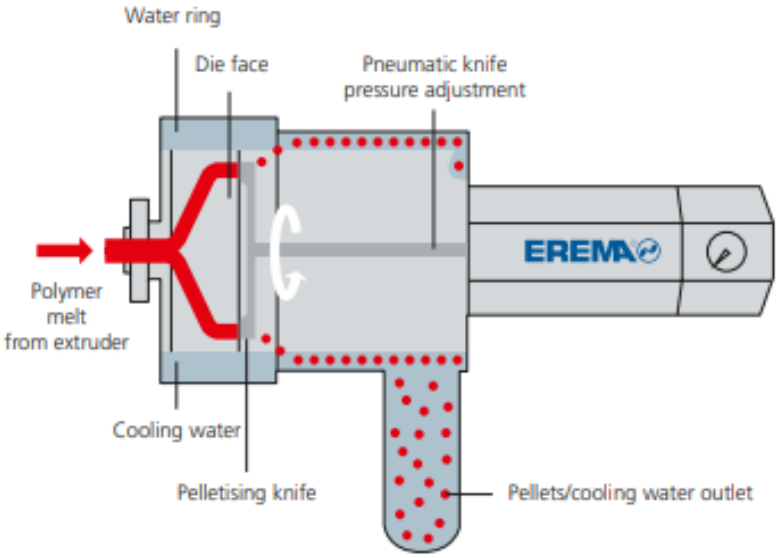
- **Optical colour sorting**

An infrared sorting device then separates the clear fraction (e.g. the body of a bottle) from mainly white, blue, green and red bottle tops and seals.

- **Extrusion and pelletisation**

The clear flake is then subjected to a combination of high temperature, vacuum and long residence times to remove small amounts of volatile contaminants that may have migrated into the surface of the material. The flake is heated gradually through a sequence of steps to a temperature at which it can be extruded and pelletised. Any gases from inside the flake are effectively boiled out, using high temperatures and low pressures. The gases will condense and dissolve into the water on the Erema process. The melt which comes out through boreholes on the heated die face is cut off by rotating knives as it exits and centrifugal force pushes the pellets produced outwards in a rotating water ring. This cools the pellets and transports them via a discharge channel to the downstream pellet water separation screen. Testing carried out in 2016 at a similar Veolia facility showed the vapour which exits the conditioning process is less than 0.015kg/hr VOC, as carbon. The pellets are then cooled and dried A schematic of the pelletiser is shown in figure 1.

Figure 1 - pelletiser



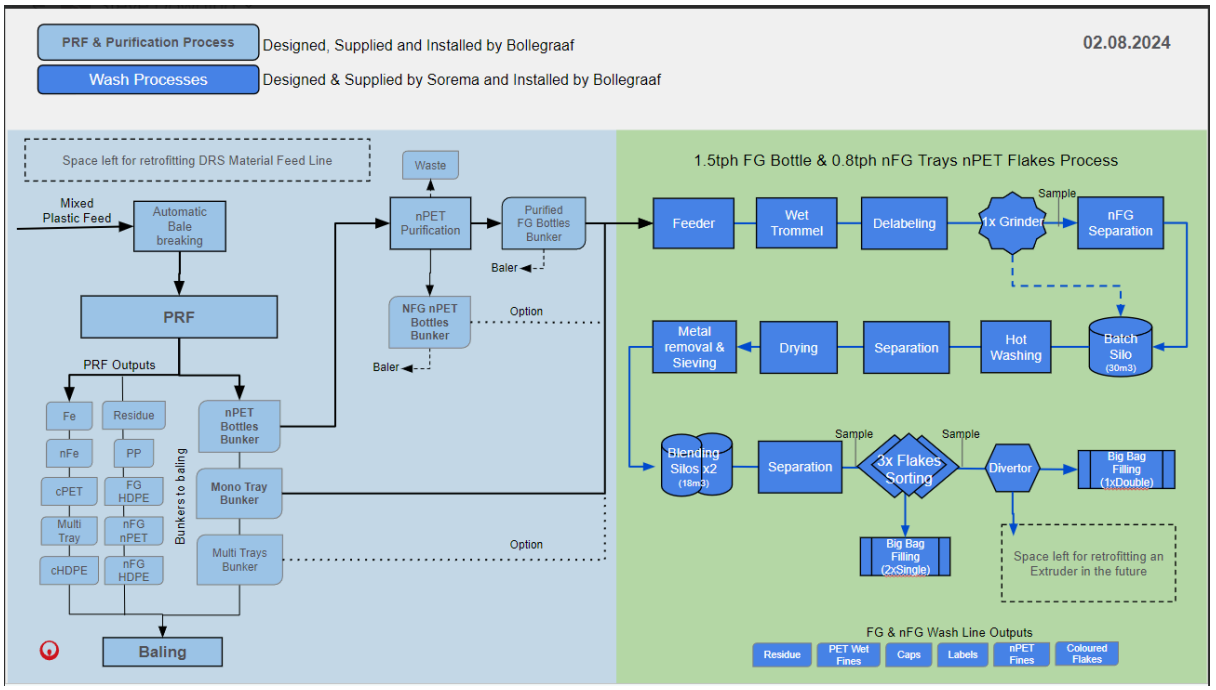
- **QA / QC checks**

  The recycled material undergoes rigorous quality checks to ensure it meets the end product specification..

- **Storage and dispatch of product**

  The finished product is stored in big bags before being dispatched off site for further processing into food grade plastics for re-use in the circular economy.
  Future development (not included in this application) for the site will include production of the food grade end of waste product at Battlefield.

1.4. Process Flow



2. Management System & Technical Competence

2.1. Management system

The Veolia Management System is registered and approved to standards ISO 9001, ISO 45001 and ISO 14001. The operational, monitoring and management procedures implemented at the subject facility, are in accordance with the Veolia Management System and have been audited against the requirements of the standards detailed previously.

The proposed operation will be covered by group level and local procedures which form part of the Company's documented management system. A summary of the Environmental Management System for Battlefield PRF is provided.

2.2. Technical competence

Technical Competence is provided by the Competency Management System - Energy and Utility Skills and is externally accredited by LRQA, certificate attached. Battlefield PRF will operate to the CMS standard from commencement of activities and will be added to the CMS certificate within 6 months of commencement of operations following issue of the

Environmental Permit.

3. Application contact information

Main contact:

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4. Application Contents

App A - Application Form, authorisations, convictions

- Forms A, B2, B4 and F
- Summary of Environmental Management System
- Letter of Authority Oct 21
- Relevant Offences August 2024
- Non-Technical Summary & Supporting Statement
- Veolia ES (UK) Ltd director details

App B - BMS, ERA, CMS

- Competence Management System Certification
- Battlefield PRF - Management System Documents
- Battlefield PRF ERA - PP3227SH

App C - Battlefield PRF Dust Management Plan

App D - Drawings

- VES_TD_SHRPETNEW_200_006_Permit Boundary
- VES_TD_SHRPETNEW_200_004_Key Receptors Plan
- VES_TD_SHRPETNEW_200_005_Fire Protection Plan

App E - Fire Prevention Plan

5. Waste Quantities & Waste Types

The proposed annual limit for acceptance of non-hazardous waste is 200,000t/anum.
The proposed maximum storage capacity of non-hazardous waste is 5011 tonnes which includes both inputs and stored outputs.

The non-Hazardous waste inputs are:

Waste code	Description of waste	Restrictions
02 WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING		
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**	
02 01 04	waste plastics (except packaging)	None
07 WASTES FROM ORGANIC CHEMICAL PROCESSES		
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**	
07 02 13	waste plastic	None
12 WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS		
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**	
12 01 05	plastics shavings and turnings	None
15 WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED		
15 01	**packaging (including separately collected municipal packaging waste)**	
15 01 02	plastic packaging	None
15 01 05	composite packaging	None
15 01 06	mixed packaging	None
16 WASTES NOT OTHERWISE SPECIFIED IN THE LIST		
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14,6 06 and 16 08)**	
16 01 19	plastic	None
17 CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)		

7 02	**wood, glass and plastic**	
17 02 03	plastic	None
19 WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE		
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**	
19 12 04	plastic and rubber	None
20 MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS		
20 01	**separately collected fractions (except 15 01)**	
20 01 39	plastics	None

6. Environmental Risk Assessment

An Environmental Risk Assessment is included at Appendix B

6.1 Noise & Vibration NIA and Management Plan

For this application, Phase 1, all activities will be carried out within an existing building with previous industrial use and no known issues relating to noise and vibration. The prior use of the building was for heavy industrial manufacture and distribution of aviation and automotive body parts so our proposals present a significant reduction in noise/vibration emissions from the site. The need for a noise impact assessment at this stage has therefore been screened out by assessment. Phase 2 of the site development, not included in this application will involve the outside storage of waste, at this stage it is considered a noise impact assessment may be required.

6.2 Boiler Emissions

Hot water will be provided by a 900kW boiler within the building, this does not come within scope of the MCPD/SG permitting requirements.
The unit is low NOX and is serviced monthly to ensure it maintains good combustion.
It is intended that future development of the site will facilitate heat transfer from the nearby Veolia Energy From Waste Facility, at this stage the two sites will become directly associated and therefore need to be incorporated into the same installation.

6.3 Power Provision

The electric supply to the site will be a private wire connection from the nearby Veolia Energy From Waste Facility with a facility for backup power to be supplied by diesel generators hired in on an ad hoc basis, this is expected to be less than 2 weeks every 2 years.

6.4 Habitats Assessment

Habitats and conservation screening has been carried out, there are no habitats and/or protected species which need to be considered in this application.

6.5 Dust Emissions Management Plan

The site is considered to be of extremely low potential for dust emissions due to the type of waste processed, nature of the processing and that all waste is stored and treated within an enclosed building. However a Dust Emissions management Plan is included in the application due to the proximity of sensitive receptors.

6.5 Waste Water

The process will produce waste water from the washing process, the current application makes no provision for treatment or direct discharge of the used washing water, it will be tankered off-site for processing elsewhere.
Future development of the site (not included in this application) will include proposals for on-site treatment of the process water and discharge of the treated water to sewer. At this stage it is anticipated the site will become an installation as the threshold for treatment for disposal of the waste water will be exceeded.