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Alton Advanced Energy Recovery Facility

Veolia ES Hampshire Ltd

Non-technical Summary

ENGINEERING CONSULTING

Document approval

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1 Introduction

Veolia ES Hampshire Limited (Veolia) is applying for an Environmental Permit (EP) for the Alton Advanced Energy Recovery Facility (the 'Facility') to incinerate incoming residual waste fuel. The Facility will be located at land adjacent to the A31 dual carriageway, approximately 2km to the east of the town of Alton in Hampshire, England.

An EP (Ref: EPR/VP3290ER) was previously granted by the EA for the operation of a Materials Recycling Facility (MRF) and Waste Transfer Station (WTS) at the site. Therefore, this application is submitted as a substantial variation to the existing EP. Further details on the type of application are presented within section 1.2 of the supporting information.

1.1 The Applicant

The Facility is being developed by Veolia, one of the UK's leading waste management companies. Veolia provide environmental solutions and a comprehensive range of waste, water and energy management services.

Veolia's core business in the UK is in the provision of integrated waste management and environmental services to local communities and industry, designed to increase recycling, composting and recovery rates and to significantly reduce reliance on landfill.

Veolia currently operate ten operational Energy Recovery Facilities (ERF's) which recover energy from residual waste streams and are one of the largest operators of ERF's within the UK.

Veolia is registered in England (Company Number: 02817856) and has a registered address of 210 Pentonville Road, London, United Kingdom, N1 9JY.

1.2 The site

The Facility will be located at land adjacent to the A31 dual carriageway, approximately 2km to the east of the town of Alton in Hampshire, England. The Facility will be located at an approximate National Grid Reference of SU 74824 41648, with the nearest postcode listed as GU34 4JD.

The site is bounded to the north by a slip road of the A31, and to the south by a railway line. Access to the site will be via the private access slip road off the A31.

The Installation Boundary surrounding the site covers an area of approximately 2.9 hectares, with the site currently occupied by the existing Veolia Materials Recycling Facility (MRF) and Waste Transfer Station (WTS).

The village of Holybourne lies between Alton and the site, approximately 600m at its closest point to the site. An oil terminal is located immediately to the west of the site. The River Wey is located approximately 130m to the south of the site. Agricultural fields lie to the north of the A31, to the east of the site and to the south of the railway line.

A site location plan and Installation Boundary drawing are presented in Appendix A of the Supporting Information.

1.3 The activities

The Facility will consist of a combination of Schedule 1 'Installation Activities' (as defined in the Environmental Permitting Regulations) and Directly Associated Activities (DAAs).

Table 1-1: Scheduled and directly associated activities

Type of Activity	Schedule 1 Activity	Description of Activity
Installation	Section 5.1 Part A(1) (b)	Line 1 – The incineration of non-hazardous waste in a waste incineration plant with a nominal design capacity of 20 tonnes per line per hour
Installation	Section 5.1 Part A(1) (b)	Line 2 – The incineration of non-hazardous waste in a waste incineration plant with a nominal design capacity of 20 tonnes per line per hour
Directly associated activities		
Directly Associated Activities		Waste reception, storage and handling facilities
Directly Associated Activities		Combustion and energy recovery processes including the export of electricity to the local electricity grid and the potential to export heat
Directly Associated Activities		Flue gas treatment
Directly Associated Activities		Residue storage and handling facilities
Directly Associated Activities		Standby electrical generation to provide electrical power to the plant in the event of an interruption in the supply.

The Facility will be a twin-stream design and will include the following key components: waste reception; waste storage; water, fuel oil and air supply systems; furnaces; boilers; steam turbine/generator set; facilities for the treatment of exhaust gases; on-site facilities for treatment or storage of residues and waste water; flues with associated stacks; and devices and systems for controlling combustion operations and recording and monitoring conditions.

The Facility will process approximately 330,000 tonnes per annum (at the design capacity of 20 tonnes per line per hour, with a design NCV of 9.5 MJ/kg and an availability of approximately 8,250 hours). However, allowing for the full range of NCVs the Facility is designed to process, the Facility will be capable of processing up to approximately 350,400 tonnes per annum of waste, assuming the Facility processed the design NCV waste for 8,760 hours per annum.

2 Details of the Facility

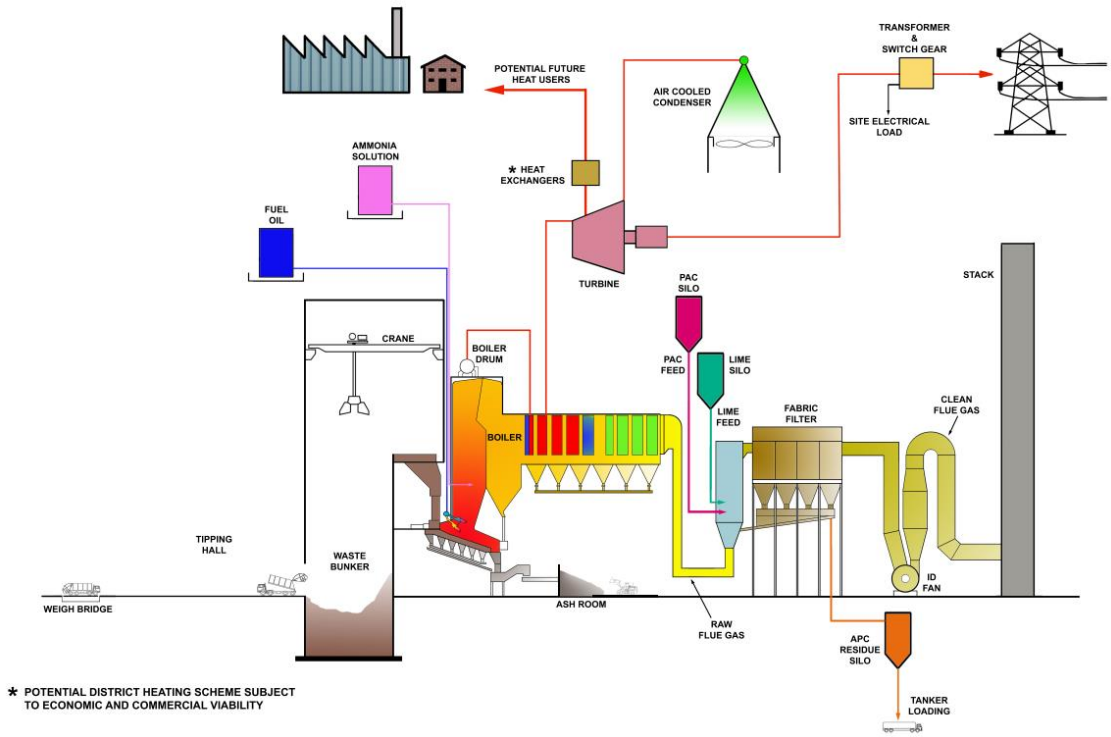
2.1 The process

The Facility will include the following processes:

1. Incoming waste will be delivered to the Facility and unloaded into the waste bunker.
2. Incoming waste will be transferred from the waste bunker into the feed hopper for the respective waste incineration line.
3. Emissions of nitrous oxides will be controlled by the injection of ammonia solution into the combustion chamber.
4. Hot gases from the combustion of waste will be passed through a boiler to raise steam. There will be 2 boilers – one per waste incineration line. The steam will then pass to a steam turbine to generate electricity for export to the local electricity grid. The Facility will also have the potential to export heat to local heat users.
5. The combustion gases will be cleaned in a flue gas treatment plant. This will include the injection of carbon, primarily to control dioxin emissions, the injection of lime to control acid gas emissions, and the use of a fabric filter to remove dust.
6. The cleaned exhaust gases will be released to atmosphere via a stack of 80 m. There will be two stacks – one per incineration line.

An indicative process diagram for the waste incineration process is presented below.

Figure 1: Indicative Schematic of the Waste Incineration Process



2.2 Raw materials and feedstocks

The Facility will utilise a number of different chemicals and raw materials within the different power plant processes. The chemicals and raw materials used at the site will include, but not be limited to, the following:

- hydrated lime $Ca(OH)_2$;
- activated carbon;
- ammonia solution;
- mains water;
- non-hazardous mixed waste;
- auxiliary fuel; and
- water treatment chemicals.

These will be supplied to standard specifications offered by different suppliers. All chemicals will be handled in accordance with COSHH Regulations as part of the quality assurance procedures and full product data sheets will be available.

Periodic reviews of all materials used will be made in the light of new products and developments. Any significant change of material, where it may have an impact on the environment, will not be made without firstly assessing the impact and seeking approval from the Environment Agency (EA).

The Operator will maintain a detailed inventory of raw materials used and will have procedures for the regular review of developments in raw materials used.

2.3 Emissions

2.3.1 Emissions to air

Emissions from the Facility will be released from the stack. Detailed air dispersion modelling of emissions has been undertaken.

The Waste incineration BREF was published by the European IPPC Bureau on 3 December 2019. The Waste incineration BREF introduces BAT-Associated Emission Limits (BAT-AELs) for all 'new plants', i.e. those which are granted an environmental permit after the Waste incineration BREF is published; this includes the Facility. The emission limits proposed within this application are consistent with the BAT-AEL's stated in the Waste incineration BREF.

2.3.2 Emissions to water and sewer

There will not be any discharges of process effluent to water from the Facility. Where practicable, process effluents will be re-used within the process. Excess amount of process effluent will require discharge; it is currently intended to tanker these off-site for treatment at a suitably licensed waste management facility.

Surface water run-off from buildings, roadways and areas of hardstanding will be discharged, via silt traps and oil interceptors where appropriate, into the site surface water drainage system. The surface water drainage system will discharge into attenuation storage prior to infiltrated discharge via soakaway systems to groundwater. In the case of a fire or a significant spill occurring at the Facility, an isolation valve will prohibit the discharge of contaminated effluent off-site.

Domestic effluents from welfare facilities will be treated in a package treatment plant prior to discharge to a drainage field.

2.4 Monitoring

There will be continuous monitoring of emissions to air of the flue gases from the Facility. The monitoring system will include monitoring of oxygen, carbon monoxide, hydrogen chloride, sulphur dioxide, nitrogen oxides, ammonia, VOCs, and particulates. Other pollutants will be monitored by spot measurements at regular intervals. All continuous emissions measurements will be recorded, and operators will be alerted if emissions to air approach the permitted limits. The results of emissions monitoring will be reported to the EA.

The Facility will utilise modern control systems, which incorporate the latest advances in control and instrumentation technology. These systems will optimise the operation of the Facility.

2.5 Ground conditions

A Site Condition Report has been developed which details the ground conditions within the installation boundary.

All chemicals will be stored in an appropriate manner to ensure appropriate containment and secondary and tertiary abatement measures where appropriate. The potential for accidents, and associated environmental impacts, is therefore limited.

Deliveries of all chemicals will be unloaded and transferred to suitable storage facilities. Areas and facilities for the storage of chemicals and liquid hazardous materials will be situated within secondary containment, such as bunds. Secondary containment facilities will have capacity to contain whichever is the greater of 110% of the tank capacity or 25% of the total volume of materials being stored, in case of failure of the storage systems.

Tanker off-loading of chemicals will take place within areas where the drainage is contained with the appropriate capacity to contain a spill during delivery.

Upon cessation of the operation of the Facility, a site closure plan will be implemented, and any pollution risks will be removed from the site. The ground will be returned to a ‘satisfactory state’.

2.6 Technology selection

The processes have been designed against the background of a detailed assessment of the prevailing environmental conditions at the site location, in order that the objectives of the Industrial Emissions Directive (IED) are met. Best Available Techniques will be employed at the Facility to minimize its impact upon the local environment.

A quantitative BAT Assessment has been completed for the Facility. This has demonstrated that the proposed techniques to be employed at the Facility will represent BAT in accordance with the relevant BAT guidance notes.

The following techniques are proposed to be employed at the Facility:

- SNCR with ammonia solution for the abatement of oxides of nitrogen;
- A moving grate for the combustion of waste;
- A dry system for the abatement of acid gases; and
- Lime to be used as a reagent for the abatement of acid gases.

2.7 Residues

The main solid residue streams arising from the Facility are:

1. Incinerator Bottom Ash (IBA); and
2. Air Pollution Control residues (APCr).

It is currently intended that the IBA from the Facility will be transferred to an off-site IBA processing facility, for reuse as a secondary aggregate or similar.

APCr is classified as hazardous and requires specialist disposal or treatment. It is currently proposed to transfer the APCr to a suitably licensed waste treatment facility for treatment/recovery. If a suitable facility cannot be identified, the APCr may be sent to a suitably licensed hazardous waste disposal facility.

2.8 Management

To ensure effective management of the Facility, Veolia will develop a site-specific documented management system that clearly defines the management structure for the Facility, as well as setting out the roles and responsibilities of all staff. The scope of Veolia's current certification to ISO 14001 is for Veolia's current operations. The scope will be extended to cover the Facility, including the receipt, handling and combustion of waste fuels and transfer of residues off-site.

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