

NON-TECHNICAL SUMMARY

This Part A(1) Environmental Permit application is submitted by GlaxoSmithKline (GSK) for the operation of combustion plant at GSK's pharmaceutical research and development facility located at the David Jack Research Centre, Park Road, Ware, Hertfordshire, SG12 0DP.

The site comprises a number of buildings, which house research and development activities associated with pharmaceutical products. These research and development activities are supported by heat (principally steam) and electrical power generated by combustion plant present at the site comprising:

- **Steam Boilers:** There are three (3) boilers present at the site, which are configured to use both natural gas and light fuel oil (for back-up purposes only) as a fuel. The boilers are operated in constant stand-by mode to provide additional heat as required to supplement the steam generation from the combined heat and power plant (CHP);
- **Electricity Generators:** There are ten (10) electricity generators present across the site, all of these are fuelled by light fuel oil. The generators are not routinely utilised for the generation of electricity and are intended as emergency generation provision in the event of an interruption to the electricity supply to the site from the national grid. Each generator is operational for approximately 20-hours per annum as part of periodical testing and maintenance; and
- **Combined Heat and Power Plant:** There are two (2) CHP plants present on-site, each with a single natural gas-fired engine. Both CHP plants are in continuous operation providing heat and electrical power to the site.

The aggregated net rated thermal input capacity of the above listed items of combustion plant is approximately 62MW. Under Schedule 1, Part 2, Chapter 1, Section 1.1 of the Regulations the burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts requires an environmental permit to operate.

Activities directly associated with the Installation are limited to the storage, handling (e.g. receipt) and distribution of fuel, lubrication oils and boiler treatment chemicals across the site.

Raw materials

The primary raw materials used in the permitted activity are natural gas and water. Light fuel oil is provided as back-up fuel for the main combustion plant and also for the operation of the generators. Water treatment chemicals are also in use for the preparation of boiler feedwater. All materials are provided with suitable containment measures, and delivery procedures are in place to minimise the risk of spillage.

Waste

The permitted activity generates little waste (primarily from maintenance and repair activities), with the majority of material removed from site at the point of generation.

Energy

Natural gas is used in the main boilers and the CHP units, with the associated spark-ignition engines generating enough electricity to support the operations at the David Jack Research Centre, whilst also exporting up to 2GWh a year to the National Grid.

Light fuel oil is provided as a back-up fuel, and comprises less than 1% of the annual energy input for the installation.

The main combustion plant (boilers and CHP) achieve efficiency levels associated with BAT.

Emissions to air

Fifteen emission points to air have been identified, with all emission points having the potential to generate emissions of oxides of nitrogen (NO_x). Emission limits are proposed in line with the Medium Combustion Plant Directive, considered to be applicable to the size of the units present at the installation. The impact of the emissions from these points have been assessed using air dispersion modelling and the Environment Agency's risk assessment methodology. Long-term effects from the main combustion plant (boilers and CHP) have been screened out as below the 70% threshold (when background concentrations are incorporated), whilst short-term impacts are screened as insignificant. The short-term impact of the generators was assessed based upon the proposed operating regime, with a calculated probability of <1% that the short-term National Air Quality Objective would be breached as a consequence of their operation.

Monitoring of the NO_x emissions from the main combustion plant is proposed, in line with the Medium Combustion Plant Directive requirements.

Emissions to Water and Sewer

There are no process emissions to surface water, with discharge to surface water limited to site run-off and controlled through interceptors before entering the River Lea.

Boiler blowdown and bund water is directed to the foul sewer and discharged as part of the overall research and development sewer discharge. No relevant hazardous substances were identified in relation to the discharge to sewer.

Noise

Ambient noise levels are monitored regularly at the boundary of the installation, with no significant variation in noise levels observed between 2015 and 2018. Noise-generating equipment is located within buildings or in acoustically dampened containers. Noise is not considered to be a significant issue at the installation.

Environmental Management Systems

GSK operates the installation in accordance with the requirements of the GSK Internal Control Framework (ICF), which defines the essential elements of the environmental compliance and risk management programmes across the GSK global organisation. This provides the structure for the environmental management system and incorporates the elements required for management of the permitted activities.

Site Condition

A Site Condition Report (SCR) has been prepared which considers the risks presented by the materials stored at the installation, the sensitivity of the receiving environment and the measures in place to mitigate the potential for ground contamination. The primary risk is derived from the storage and use of light fuel oil, and the SCR includes a strategy for assessing this risk further and developing a baseline for the installation.