MCP Environmental Permit (Application)
BAE Systems (Operations) Limited, Warton Aerodrome, Preston PR4 1AX

Non-Technical Summary (NTS)

024-1981 | May 2025 | Revision 00

S01 – Introduction

Introduction

This document has been prepared by BAE SYSTEMS (Operations) Limited ("BAE Systems") and its environmental consultant Earth & Marine Environmental Consultants Ltd ("EAME") in support of a permit application as required under Regulation 12 of the *Environmental Permitting (England and Wales) Regulations 2016* (as amended) concerning current activities undertaken at BAE Systems (Operations) Limited, Warton Aerodrome, Preston PR4 1AX).

This application is for a Medium Combustion Plant (MCP) Simple Bespoke (Low Risk) environmental permit in relation to operations and activities undertaken at the site (**Figure 1**).

The document represents the Non-technical Summary report submitted as part of the application package to the Environment Agency (EA) (EAME Project Ref. 024-1981).

BAE Systems

BAE Systems provides some of the world's most advanced, technology-led defence, aerospace and security solutions. They employ a skilled workforce of 107,000 people in around 40 countries.

Additional information can be obtained from: https://www.baesystems.com/en-uk/home and the Companies House Report (**Annexe B**).

The Installation

The installation is composed of a single boiler house within which are located three Babcock Robey Lintherm natural gas-fired boilers (each 5.3 MWth) (**Photo 01** and **Photo 02**). There is no secondary fuelling option.

Permit Application

A pre-application screening report was submitted to the EA (**Annexe C**). It states:

The nature and heritage conservation sites and other features identified in the table below indicate you need to progress to stage 2 and use the Simple Calculation of Atmospheric Impact Limits (SCAIL) combustion tool to do an air emission risk assessment. This is as one or more of the MCP(s) are operating inside the minimum screening distances to habitats, and you are not eligible for a low risk simple bespoke based on distance alone.

As the individual MCPs (5 – 10 MWth each) are operating within the minimum screening distances of special scientific interest (SSSI) or marine conservation zone (MCZ) (1,500 metres) and special area of conservation (SAC), special protection area (SPA) or Ramsar wetland (1,500 metres they have been subject to a Stage 2 Simple Calculation of Atmospheric Impact Limits (SCAIL) combustion tool assessment.

The results of the SCAIL assessment are outlined in **Annexe D**.

S02 – Site and Installation Location

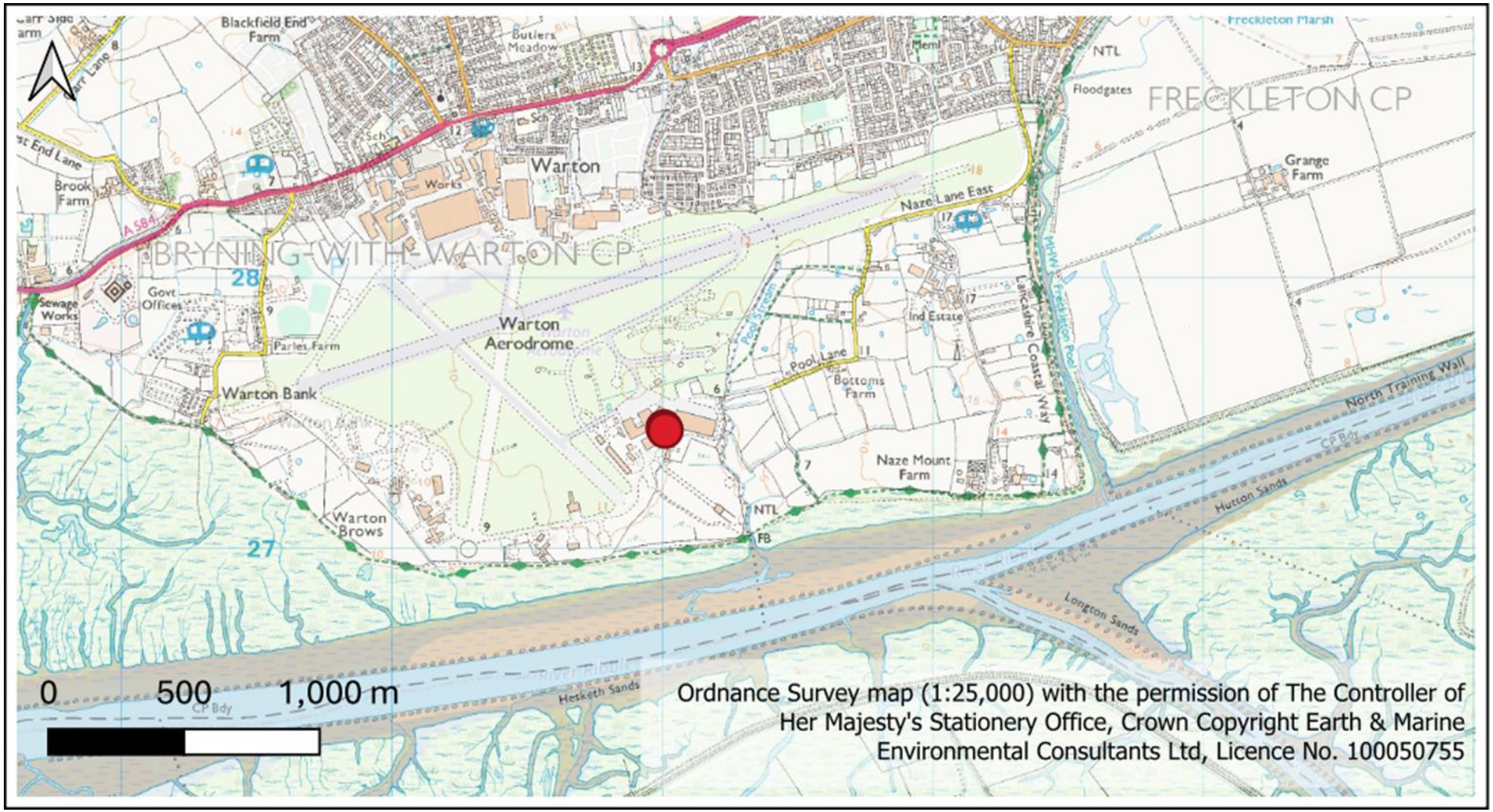

Figure 1: *Installation location*

AQMA

The installation is not located within a local authority-defined Air Quality Management Area (AQMA).

Air Quality Background Concentrations

Background data for 2024 (the last available full year) have been obtained from the Defra UK Air website (Fylde, 2024, NO_2). The mean for the 176 data points was 5.72 µg/m^3 NO_2.

Habitats and Specific Receptors

Sites of Special Scientific Interest (SSSI), Marine Conservation Zones (MCZs), Special Area of Conservation (SAC) and Special Protection Area (SPA)/Ramsar wetlands were identified surrounding the installation (**Figure 2**).

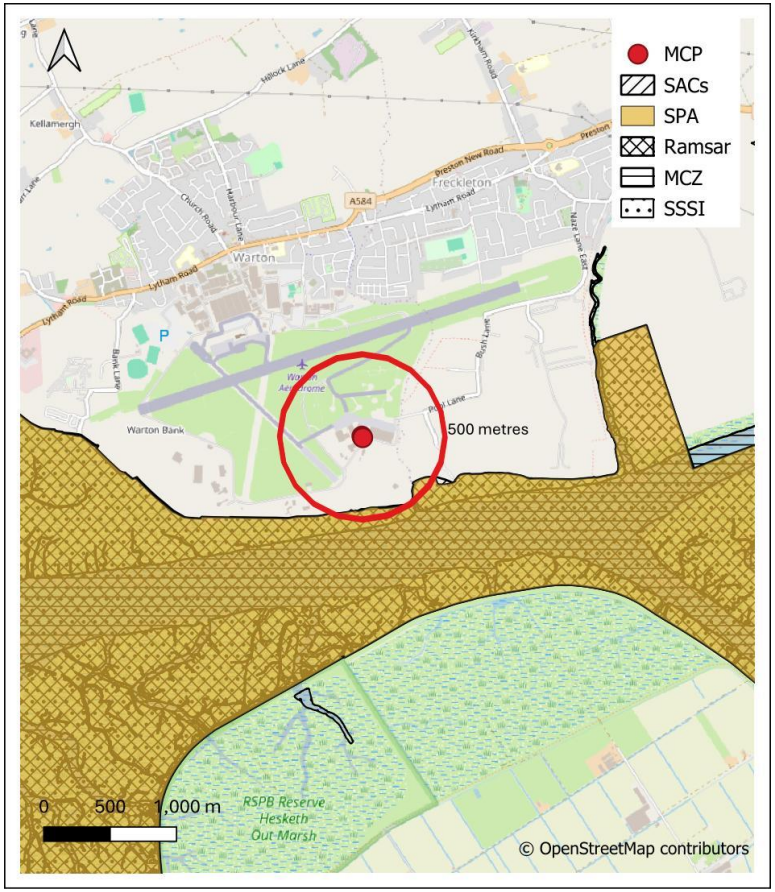

Figure 2: *Surrounding habitat designations*

Photo 01: *External view of boiler house and stacks*

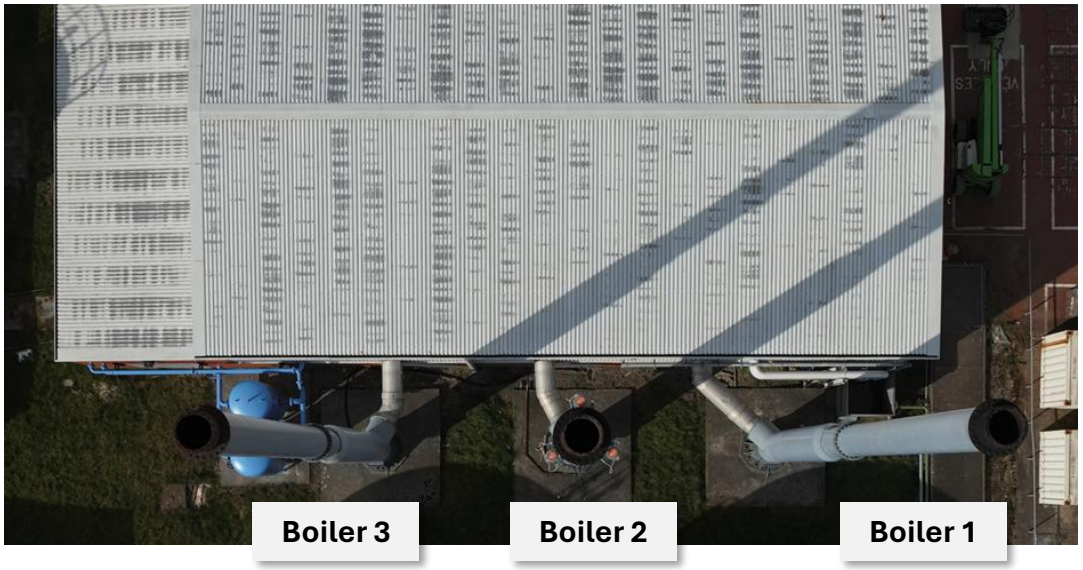

Photo 02: *Vertical external view of boiler house and stacks*

Operational Characteristics

There is no scenario where all three boilers would be operational at the same time due to the lack of on-site demand. In general, one boiler is all that is required to meet on-site demand, with a second boiler operating only during a cold spell.

Therefore, the annual operating hours (per boiler) are approximately:

- W363 HTHW Boiler 1 – 2920 hours (33% load factor)
- W363 HTHW Boiler 2 – 2920 hours (33% load factor)
- W363 HTHW Boiler 3 – 2920 hours (33% load factor)

Each of the three units were installed on 01/09/1988.

The stacks are each 27 metres high (measured from the plinth to the top of the stack) with an internal stack diameter of 0.55 m (at the emission point) (0.7 m external). The stack National Grid References (NGRs) are as follows:

- W363 HTHW Boiler 1 – SD 42005 27448
- W363 HTHW Boiler 2 – SD 42008 27442
- W363 HTHW Boiler 3 – SD 42010 27438

There is no secondary abatement required or fitted to the units.

Monitoring Results

The monitoring of the boilers was undertaken by Cura Terrae OH and Emissions Testing Limited in April 2025, during which Boiler 1 and Boiler 2 were monitored (**Table 1**). Boiler 3 could not be run (monitored) as it was out of action.

Table 1: *Monitoring results (April 2025)*

Boiler	Nitrogen dioxide	Carbon monoxide	Results
W363 HTHW Boiler 1	178 mg/m^3 (200 mg/m^3)	4.3 mg/m^3 (None)	Compliant
W363 HTHW Boiler 2	133 mg/m^3 (200 mg/m^3)	2.5 mg/m^3 (None)	Compliant
W363 HTHW Boiler 3	-	-	-
Notes: BAT-AEL in brackets Boiler 3 was not operational at the time of the monitoring event. Boiler 3 is the same type and size as Boiler 1 and Boiler 2.			

Important: The monitoring was undertaken directly after a cold start and at a 100% simulated load. This is considered the worst case. In general, the load on the units is very low especially the during the summer period.

The results of the monitoring are provided in **Annexe A**.

S06 – Future Compliance Requirements

The likely future operational compliance requirements will include:

- The operator will be required to have a written management system that identifies and minimises risks of pollution, so far as is reasonably practicable, including those risks arising from operations, maintenance, accidents, incidents, non-conformances and those drawn to the attention of the operator because of complaints.
- The emission limit values for the unit are:
- Oxides of nitrogen (NO and NO_2 expressed as NO_2) (mg/Nm^3) – 200 $mgNm^3$
- Carbon monoxide (CO) – No limit
- The first monitoring measurement shall be taken no later than 4 months after the permit is issued. Following the first monitoring measurement, monitoring for the applicable pollutants shall be carried out every 3 years.
- The emissions monitoring shall be carried out following the current EA guidance.
- The operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation for each MCP.
- The operator shall maintain a record of any events of non-compliance and the measures taken to ensure compliance is restored in the shortest possible time.
- The operator shall submit to the Environment Agency within 28 days of undertaking the monitoring using the form made available for the purpose.

Emission Compliance

Stack emissions monitoring was undertaken by Cura Terrae OH and Emissions Testing Limited on 03/04/2025. The results are **compliant** with the MCP Best Available Techniques-Associated Emission Levels (BAT-AELs).

Noise Impact Assessment

A Noise Impact Assessment (NIA) has not been undertaken for the installation as:

- it does not utilise noisy equipment (i.e. all activities are contained within the boiler house);
- the operations do not take place outside (apart from the final emission stacks); and
- there are no sensitive receptors, such as housing near the installation and/or the location is not particularly sensitive to additional noise (i.e. it is a secure operational airfield controlled under Ministry of Defence (MoD) rules).

All standard community reporting procedures remain in operation as applied throughout the BAE Warton site.

Air Quality – Impact Assessment

The results of the SCAIL assessment are provided in **Annexe D** and are summarised below:

Human health impacts

The SCAIL-generated impacts at the closest human health receptor. The nitrogen dioxide (NO_2) process contribution (PC) is 0.15 µg m^{-3}, which is 0.4% of the assessment criteria (40 µg m^{-3}) and therefore **insignificant**.

Ribble Estuary SSSI

The process contribution (PC) of the oxides of nitrogen (NOx) is 0.7% of the critical level of 30 µg m^{-3} and 0.6% of the critical load of 5 kg N ha^{-1} yr^{-1}. As both the predicted impacts are less than 1% of the critical level and critical load, the impacts are **insignificant**.

Ribble & Alt Estuaries Special Protection Area

The process contribution (PC) of the oxides of nitrogen (NOx) is 0.7% of the critical level of 30 µg m^{-3} and therefore **insignificant**.

For nutrient nitrogen deposition at the SPA (which is the same location as the SSSI), the SCAIL assessment selects the critical load to be 2 kg N ha^{-1} yr^{-1}, which results in an impact of 1.5% and therefore higher than the usual threshold for insignificance of 1%. It is, however, considered that the critical load is not the correct value to use as it is for *permanent oligotrophic lakes, ponds and pools* of which there are none in the region of the installation. The guidance states that the lower figure should only be applied to *clear-water sub-Arctic and alpine lakes*. This is not considered appropriate for the Ribble Estuary.

The appropriate critical load for the Ribble & Alt Estuaries SPA would be 10-20 kg N ha^{-1} yr^{-1} at which the the impacts are **insignificant.**

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