



Environmental Permit Variation Application

Non-Technical Summary

Telehouse International Corporation of Europe Limited

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Basis of Report

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1.0 Introduction

SLR Consulting Ltd (SLR) has been instructed by Telehouse International Corporation of Europe Limited (TIE) to prepare an environmental permit (EP) variation application for the TIE owned Docklands Data Centre Campus (the Campus) (EP reference EPR/EP3507SL V0002).

The Campus currently includes Telehouse North (TN) located on Coriander Avenue, London E14 2AA, and Telehouse South (TS) located on Blackwall Way, Poplar, London, E14 2EH. TIE intends to develop Telehouse West 2 (TW2), a new data centre which will extend the existing TN campus.

Electricity for operation of the Campus is provided from connections to the local electricity transmission network; however, given the nature of data centres and their requirement to have an available energy supply at all times, the Campus also incorporates a number of emergency standby generators (SBGs).

TW2 will incorporate 13 new SBGs (which will be installed in phases). The EP will therefore be varied to incorporate a total of 44 SBGs at the Campus, as summarised below:

- TN:
 - Existing (comprising East, West, North and North2 data centre units): 27 SBGs with a total thermal rated input of 145 MWth; and
 - Proposed (TW2): 13 SBGs with a total thermal rated input of 97.6 MWth.
- TS (existing): 4 SBGs with a total thermal rated input of 35 MWth.

The total thermal rated input of the Campus, with the inclusion of TW2 will increase from 180 MWth to 277.6 MWth.

The SBGs will provide power to the data centre in the event of an emergency situation such as a brown-out or black-out of the local electricity transmission network where there are fluctuations or loss of the electrical power provided by the network. During such an event, there is the potential for a delay between fault detection and initial operation of the SBGs; on-site battery arrays will provide a temporary uninterruptible power supply in order to cover such delays and the potential for a loss/reduction in the power supply to on-site equipment.

The SBGs, in accordance with the manufacturer requirements, will be subject to planned maintenance and testing. There are currently no agreements in place for the elective generation of electricity for commercial export to the electricity grid.

The proposed TW2 SBGs will be fuelled with hydrogenated vegetable oil (HVO) or diesel. For the purpose of this EP variation application, the air emissions risk assessment has been based on the use of diesel fuel. These SBGs will have selective catalytic reduction (SCR) abatement to reduce emissions of oxides of nitrogen (NO_x) to air. The SGB's at the remaining SBG's at TN and the SBGs at TS have been trailing the use of HVO as a fuel and therefore this EP variation application also seeks to include HVO as a permitted fuel for the whole Docklands campus.

Therefore, the SBGs are considered to be an 'installation' as defined in Paragraph 1, Part 1, Schedule 1 of the EP regulations as "a stationary technical unit (STU) where one or more activities are carried on." The 'activities' that are proposed are defined in Chapter 1, Schedule 1 of the EP regulations, under Section 1.1. (Combustion Activities). Fuel storage for the SBGs and the SCR abatement systems are considered to be directly associated activities (DAAs) of the 'combustion' STU for the data centre. In addition, surface water drainage from the service yard area where the SBGs and fuel storage are located is also considered as a DAA.



This non-technical summary (NTS) provides a summary of what is being applied for, along with a summary of the activities that will be undertaken at the data centres as a result of the proposed changes, and an explanation of key technical standards and control measures that will be implemented.

2.0 Environmental Permit Application

2.1 Regulated Activities

TN will be expanded to include the proposed TW2 data centre. TW2 will introduce 13 new SBGs (Cummins C3750 D5e), each being 7.506 MWth (97.6 MWth in total). These TW2 SBGs will be installed in phases; Phase 1 will involve the installation of 6 SBGs.

No changes are proposed at TS. The rated thermal input for TS will therefore remain at 35 MWth.

Based on the existing and additional SBGs as summarised above, the aggregated total installed combustion capacity at TN will be 242.6 MWth.

A summary of all the SBGs which will be in place at TN is provided in Table 2.1

Table 2-1 TN SBGs

Building	Type/Model of Diesel Engine	SBG Thermal Rated Input (MWth)	Number Currently Installed
North	MTU 16V4000	4.32	4
	MTU 16V4000	4.28	2
North 2	MTU 20V4000 G63L	5.96	4
	MTU 20V4000G34F(E0)	6.805	2 (installed 2021)
	MTU 20V4000 G34F	6.805	2 (installed 2024)
East	MTU 16V396	4.56	2
	MTU 16V4000	4.28	3
West	MTU 20V4000 G23E	6.16	4
	MTU 20V4000G23	5.37	3 (installed 2018)
TW2	Cummins C3750 D5e	7.506	13 (estimated installation & commissioning of 6 SBGs Phase 1 in 2027)

2.2 Regulated Activities

The regulated activities at the Campus will consist of:

- TN - 40 SGBs with a total of 242.6 MWth; and



- TS - 4 SBGs with a total of 35 MWth.

The thermal rated input in total will be 277.6 MWth (44 SBGs).

2.2.1 Schedule 1 Activities

Combustion activities that require an EP are defined in Part 2, Schedule 1 of the EPR:

- Section 1.1 Part A(1)(a) burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.

The EPR clarify that:

“...where two or more appliances with an aggregated rated thermal input of 50 or more megawatts are operated on the same site by the same operator, those appliances must be treated as a single appliance with a rated thermal input of 50 or more megawatts.”

The SBG provision includes for a level of redundancy to the SBG system such that, even in a worst-case blackout scenario, only the required number of SBGs would start up to deliver the required electrical IT load for the data centre; the number of operational SBGs at the time of a blackout would be dependent on the extent of the blackout. However, it is noted that, without specific physical controls preventing operation of an SBG, the thermal input of all SBGs is required for determining the capacity of the site.

This EP variation application relates to the proposed addition of 13 SBGs at TW2 to the existing permitted Section 1.1 Part A(1)(a) combustion activity.

2.2.2 Directly Associated Activities (DAA)

Schedule 1, Part 1 Regulation 2(1) of the EP Regulations provides that a DAA is an operation that, in relation to any other activity:

- has a technical connection with the activity;
- is carried out on the same site as the activity; and
- could have an effect on pollution.

As stated in A2.19 of RGN 2, a DAA must “serve” a STU. Therefore, a DAA will normally be something that would not be in place if the STU was not present on-site. A2.22 continues that there are four types of technical connection with a STU including “...input activities concerned with the storage and treatment of inputs into the stationary technical unit.”

A2.11 of RGN-2 states:

“Storage facilities may be technically connected. [...] Stores at the same location are normally technically connected, and as their operation can give rise to pollution, either locally or at the Activity, they are likely to be DAAs.”

In addition to the above, it must also be clear how a DAA may affect emissions from the data centre. Incorrect storage of a raw material/fuel, or the discharge of contaminated surface water could cause off-site releases of these substances.

Therefore, at TW2 the SCR abatement systems, the storage of fuel and AdBlue (for the SCR abatement systems) and surface water drainage from the permitted Installation area are considered to be DAAs of the ‘combustion’ STU for the data centre.

2.3 Application Contents

The EP variation application comprises the following elements:

- Application forms (Parts A, C2, C2.5, C3 and F1) and associated appendices.



- Non-Technical Summary.
- Site Condition Report.
- Best Available Techniques and Operating Techniques.
- Environmental Risk Assessment.
- Air Emissions Risk Assessment.
- Air Quality Management Plan.
- Noise Risk Assessment.
- Supporting Drawings.

2.4 Operating Techniques

The proposed SBGs, SCR abatement systems and associated fuel and AdBlue storage will be designed and operated in accordance with the relevant sections of the following guidance:

- Develop a management system: environmental permits guidance, April 2023;
- Risk assessments for your environmental permit guidance, December 2025;
- Emergency backup diesel engines on installations: best available techniques (BAT), 23 August 2023;
- Best Available Techniques: environmental permits, January 2026;
- Data Centre FAQ, Draft Version 21.0 to TechUK for Discussion 15/11/22; and
- Specified generator: comply with permit conditions, December 2022.

2.4.1 Management Systems

The data storage services at the data centre site will be managed in accordance with the following standards, or suitable equivalent standards:

- ISO/IEC 27001:2013 that specifies the requirements for establishing, implementing, maintaining and continually improving an information security management system.
- ISO9001:2015 that specifies the requirements for establishing, implementing, monitoring, managing and improving quality throughout the organisation.

In addition, an environmental management system will be in place. The EMS will place particular importance on:

- Reducing risks to the environment to a level that is as low as reasonably practicable using best available techniques;
- Integrating EMS responsibilities within line management;
- A commitment to personnel environmental awareness and competence;
- The ongoing monitoring and review of environmental performance; and
- A commitment to working to achieve continuous improvement in environmental performance.

A summary of the proposed EMS is detailed in the site's Best Available Techniques and Operating Techniques (BATOT) document (SLR reference: 410.066261.00001 BATOT) submitted with the EP application.



2.5 Site Condition Report

An updated Site Condition Report (SCR) (SLR Ref: 410.066261.00001 SCR) has been prepared in support of the EP application. Sections 1-3 have previously been completed for the other areas of the site, and have been updated to include the areas associated with TW2; these sections comprise the following aspects:

- site details;
- condition of the land at permit issue;
- geology;
- hydrology;
- hydrogeology;
- pollution history;
- evidence of historic contamination; and
- permitted activities.

Sections 4 to 7 will be maintained during the lifetime of the EP, and Sections 8 to 10 will be completed and submitted in support of an application to surrender the EP.

2.6 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) (SLR Reference: 410.066261.00001 ERA) has been prepared in support of the EP application in accordance with the Environment Agency (EA) *Risk assessments for your environmental permit*. The ERA is a simple assessment of the risks to the environment and human health from point source emissions to air, accidents, noise, fugitive emissions and global warming potential that may be associated with the permitted activities at the site. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks.

The ERA has assessed the potential risks based on the balance between the probabilities of exposure and the magnitude of the consequences of those exposures. Overall, with measures in place to manage potential risks, no significant environmental risks have been identified at the site.

2.7 Air Emissions Risk Assessment and Air Quality Management Plan

A detailed air quality risk assessment (SLR Ref. 410.066261.00001_AERA) has been undertaken to investigate the potential for emissions from the SBGs and the potential impact on air quality by comparison to UK Air Quality Standards and EA regulatory benchmarks (e.g. Environmental Assessment Levels) in line with the prevailing guidance. Emissions from the site will vary dependent upon the operational scenario of the engines (e.g. full emergency load, testing).

The SBGs will each operate for less than 500 hours per annum and will therefore not be subject to emissions limit values (ELV) for the substances listed in Annex V of Directive 2010/75/EU on industrial emissions (Industrial Emissions Directive, IED).

Overall, the air emissions risk assessment predicts for:

- Operation of the SBGs for planned maintenance and testing, that significant impacts are considered unlikely on the identified sensitive receptors;



- Operation of the SBGs under an emergency (brown- or black-out) scenario modelled at 26 hours, that overall significant adverse impacts are considered unlikely, with some minor exceptions. However, this assumes the emergency outage is >24 hours, which is considered an unlikely occurrence.

An Air Quality Management Plan (AQMP) has been developed for the Campus; this has been updated to include TW2 and included with this EP variation application. The AQMP details the management actions to be taken in the event of an emergency outage that could result in prolonged usage of the SBGs which could potentially result in adverse impacts on local air quality. The operator will liaise with the Local Authority and the Environment Agency to agree actions to be taken in the event of a prolonged outage situation (>18 hours) and a finalised plan will be incorporated into the site's environmental management system.

2.8 Key Technical Standards

The TW2 data centre has been designed to provide maximum reliability of the electrical power supply to the systems on site that are critical for continuous operation of the site as a data centre. The operational techniques that will be in place to manage the activities at the TW2 data centre can be summarised as follows:

- Other than for planned maintenance and testing, the TW2 SBGs will be operated for emergency back-up purposes which will only commence in the event that electricity is not available from the local transmission network (e.g. brown- or black-out) or if there is an internal failure of power supply.
- The planned maintenance and testing regime for the TW2 SBGs will be scheduled so that the impact on air quality as a result of the fuel combustion emissions is minimised.
- The scheduled maintenance and testing regime for each TW2 SBG will be below 50-hours per year. The SBGs will not be operated on an 'elective' basis.
- With regard to engine selection, as the SBGs are required to provide emergency/standby power for the data centre, diesel engines have been determined as BAT.
- The SBGs will be provided with Selective Catalytic Reduction (SCR) abatement which uses AdBlue (urea) to reduce NO_x concentrations in the exhaust emissions.
- The proposed TW2 SBGs have dedicated stacks to aid the dispersion of the engine flue gases; these stacks will be vertical terminating above the roof parapet at 65m above ground level (agl).
- The SBGs will all be housed at ground level inside the TW2 ten storey data centre building, within dedicated generator rooms (two SBGs per room, plus one SBG in its own room). Each SBG will be served by a day tank (3,750 litre capacity per SBG) located inside the generator rooms. A shallow steel bund will be provided around the SBGs, and the fuel and AdBlue delivery pipework, located in the generator rooms, to allow for the containment of any leaks or spills.
- The proposed SBGs day tanks will be fitted with a level gauge, an automatic shut off valve, a pressure delivery over-fill prevention valve and a high and low level alarm connected to the facility management system (FMS).
- There will be 4 x bulk fuel storage tanks (agl) (each 54,000 litres in capacity). These tanks will be located on the ground floor of the TW2 data centre building. The tanks will be located in one of two dedicated Oil Pump Rooms (2 tanks per room). The tanks will be sized to provide 24 hours supply to the SBGs during a black out event.



The bulk fuel tanks will be double skinned. The bulk tanks and oil pumps in these rooms will be located in a concrete bund which will provide 110% containment.

- The proposed bulk tanks will be fitted with a leak detection alarm, high high/high, low low/low level alarms, a tank level gauge which will be located at the tank fill point, and a pressure delivery over-fill prevention valve, all connected to the FMS.
- The fill points for the bulk fuel tanks and AdBlue tanks will be located externally on the wall of the room in which the tanks will be located. These fill points will be located in a lockable cabinet; the cabinet will be provided with a drip tray.
- Bulk fuel and AdBlue deliveries will be fully supervised by the operator. Delivery tankers will be required to park in a dedicated tanker refuelling area. Fuel deliveries will be managed in accordance with a fuel delivery procedure.
- A fuel discharge mains ring (located internal to the TW2 data centre building) will deliver fuel from the bulk tanks to the SBG day tanks. The fuel will be pumped from the bulk tanks to the day tanks by fuel pumps to be located in one of two Oil Pump Rooms. The Oil Pump Rooms will be provided with 110% containment with leak detection connected to the FMS. The fuel delivery pipework will have leak detection connected to the FMS.
- There will be two fuel dump tanks (each with a 7,500 litre capacity), designed for two SBG day tanks to discharge into a single dump tank in an emergency event. These dump tanks will be located inside the TW2 data centre building, each in a dedicated room. The tanks will be of single skin steel construction and located in below ground (3.5m depth) concrete lined chambers. The dump tanks will have leak detection, level gauge and high level alarms all connected to the FMS.
- The emergency fuel dump pipework will be located in a concrete lined floor trench which will have a grid covering which will allow for ease of inspection of the pipeline. Any fuel that requires dumping from the SBGs and/or day tanks will gravity feed back to the bulk fuel dump tanks. The pipework will be provided with leak detection.
- The proposed SBGs will have SCR abatement systems to minimise emissions of NO_x. The SCR abatement system will be located within each generator room, with the system being located on a mezzanine above the SBG/s and will serve the SBGs in that room; there will be a dedicated control panel for each generator room SCR abatement system. The SCR system will comprise AdBlue (35% urea in water solution) which will be fed directly to the SCR dosing system located in the generator rooms. AdBlue will be fed from two bunded above ground bulk AdBlue storage tanks (each with a 10,000 litre capacity) located inside the data centre building on the ground floor (remote from the generator rooms), via an internally located piped delivery system.
- A preventative maintenance system, which defines the required checks for storage tanks and associated infrastructure, will be in place. PPM will be managed and completed by the facilities management personnel and if required, by competent third parties appointed by the operator. The facility will be manned 24 hours a day.
- There will be a dedicated surface water drainage system for surface water runoff from the TW2 site. Surface water runoff from the external areas of the site where the tanker (fuel and AdBlue) loading area and bulk tank fill points will be located, will drain to the on-site surface water drainage system. This drainage will be directed via a newly installed full retention Class 1 forecourt petrol interceptor with an oil alarm, prior to discharge into the off site municipal surface water drainage system in Nutmeg Road.



- Procedures will be developed and included within the site's EMS for the management of surface water runoff at TW2 and for the management and maintenance of the TW2 interceptor; relevant staff will be suitably trained in these procedures.
- Fluorinated gases (F-gases) will be used at the TW2 data centre in the cooled water chillers. Units containing refrigerants will be subject to regular maintenance and leak testing undertaken by an operator approved external specialist contractor. The operator will maintain an F-gas register for the data centre and leak detection and maintenance records will be maintained.
- Significant fugitive emissions, odours and noise are not considered likely with respect to operation of the SBGs at the TW2 data centre.
- A Noise Assessment completed for the proposed data centre concluded that there would likely be no significant noise impact on the near-by noise-sensitive receptors.
- The management of energy will be an integral part of the EMS.
- Operation of the TW2 SBGs will not produce significant amounts of waste. Waste oil will be generated as a result of generator maintenance. Generator maintenance will be undertaken by an appointed third-party specialist who will be responsible for the off-site disposal of this waste.
- In accordance with the EMS, procedures will be in place for the regular inspection and maintenance of storage areas and associated infrastructure at TW2. Any accidents or incidents and the action taken to rectify these, will be recorded.





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