ENVIRONMENTAL PERMIT VARIATION APPLICATION DOCKLANDS CAMPUS

Non-Technical Summary

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1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Telehouse International Corporation of Europe Limited (Telehouse) to prepare an Environmental Permit (EP) variation application for the Telehouse South (TS) data centre (EP reference EPR/EP3507SL), located at Blackwall Way, Poplar, London, E14 2EH.

The EP variation addresses the following:

- Consolidation of the currently separately permitted Docklands data centre (now referred to as Telehouse North (TN)) (EP reference EPR/SP3237JU)), located on Coriander Avenue, London, with the TS EP. The combined TN and TS data centres will be referred to as the Docklands Campus.
- TS is undergoing extensive refurbishment, including the replacement of diesel-fired standby generators (SBGs); this EP variation application includes details of the planned changes.
- Since issue of the TN EP, a number of SBGs, which were included as 'future SBGs' in the EP, have been installed, as agreed with the EA in accordance with the EP pre-operational condition. At the request of the EA, this EP variation includes details of all the SBGs currently in place at TN.

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 Variation Application

2.1 Environmental Permit Type

This variation application seeks to consolidate the TN data centre EP onto the TS data centre EP, as well as detail the proposed changes at TS. The EP variation addresses the following:

Telehouse North

The current EP for TN permits a total of 145MWth for 27 SBGs. At the time of the original EP application 19 of the 27 SBGs were in place, the aggregated total thermal rated input being 93.6MWth, with the option to increase to 145MWth if future expansion was required. Since issue of the EP an additional 8 SBGs have been installed:

- 3 SBGs in West Building were installed in September 2018; and
- 2 SBGs in North 2 Building were installed in December 2021.

The additional SBGs installed in West Building and N2 Building were approved in accordance with the EP pre-operational condition.

Currently, there are a total of 24 SBGs operating at TN, totalling 125.61MWth; these leaves 19.78MWth for future expansion capacity.

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The TS EP currently permits operation of the following:

- 10 SBGs (4 x 6.4MWth and 6 x 6.3MWth); and
- 3 natural gas-fired heating boilers each with a thermal rated input of 1.172MWth.

The aggregated total combustion capacity for which is 66.916MWth.

The data centre is undergoing significant refurbishment, which will include the removal and replacement of all 10 permitted SBGs, removal of the 3 natural gas-fired heating boilers, and also removal of the 2 bulk diesel storage tanks serving the SBGs. The 10 proposed new SBGs will each be 8.816MWth; each SBG will be fitted with Selective Catalytic Reduction (SCR) abatement to reduce emissions of nitrous oxides (NO_x) to air. Additionally, the existing horizontal SBG stacks will be changed to vertical stacks.

Due to the close proximity of these data centres, the technical connections, and management of the data centres, the SBG thermal rated input for the TN and TS has been aggregated. In accordance with the Environmental Permitting (England and Wales) Regulations 2016 (as amended) (the EP Regulations):

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

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

The EP Regulations clarify that:

"…where two or more appliances with an aggregate 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 regulated activities will consist of:

- TN data centre: 145.0MWth; and
- TS data centre: 88.16MWth.

Based on the changes, the total rated thermal input (under standby power operating conditions) of the Docklands Campus will be approximately 233.16MWth.

In addition to the SBGs, the storage of fuel oil (diesel) and AdBlue (which will serve the SCR abatement systems at TS only), in storage tanks is undertaken, which is considered to be a 'directly associated activity'.

2.2 Variation Application Contents

The EP variation application comprises the following elements:

- Application forms (Parts A, C2, C3 and F1)
- Non-technical Summary
- Site Condition Report
- Best Available Techniques and Operating Techniques
- Environmental Risk Assessment
- Air Emissions Risk Assessment
- Noise Impact Assessment.

The following drawings accompany this EP variation application:

- Drawing 001 – Site Location
- Drawing 002 – Site Layout and Emission Points
- Drawings 003 and 004 – Site Setting.

2.3 Operating Techniques

There are no significant changes to the permitted activities at TN as a result of the installation of the SBGs in West and N2 buildings. The changes at TS as a result of the planned refurbishment, including the proposed SBGs, SCR abatement systems and associated diesel 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, August 2022;
- Risk assessments for your environmental permit guidance, August 2022;
- Best Available Techniques: environmental permits, February 2016;
- Data Centre FAQ, Draft Version 21.0 to TechUK for Discussion 15/11/22; and
- Specified generator: comply with permit conditions, July 2019.

2.3.1 Management Systems

The data centres are both managed in accordance with the following standards:

- ISO/IEC 27001:2013 that specifies the requirements for establishing, implementing, maintaining and continually improving an information security management system; and
- ISO 14001:2015 that specifies the requirements for an environmental management system (EMS) to enable an organisation to develop and implement a policy and objectives which take into account legal requirements and other requirements to which the organisation subscribes, and information about significant environmental aspects.

The EMS places 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 Operating Techniques document (SLR reference: 410.11808.00001 BATOT) submitted with the variation application.

In addition, the refurbishment of TS will align with the requirements of the following standards:

- TIA-568 Telecommunication Industry Association Commercial Building Wiring; and
- R1000S002 Standard Specification for the Electrical Engineering Services (Rev. S012. Red Engineering Site Condition Report.

A Site Condition Report (SCR) (SLR Ref: 410.064698.00001 SCR) has been prepared in accordance with the Environment Agency's H5 Guidance Note[1]. The objective of the SCR is to record and describe the condition of the land at the site at the time of the EP application. The SCR provides a point of reference and baseline environmental data so that when the EP is surrendered it can be demonstrated that there has been no deterioration in the condition of the land as a result of the proposed operations and ensures that the condition of the land is in a 'satisfactory state' on surrender of the EP.

Sections 1 to 3 of the EA's SCR template have been completed, the information having been obtained from the previous TN SCR and the original TS SCR, which comprises the following:

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

Section 4 of the SCR template has been completed to incorporate the changes associated with the EP variation application.

Sections 6 and 7 of the SCR includes the previously documented spill of diesel at TN, which occurred during a diesel delivery in December 2020, and the subsequent remedial actions taken.

Sections 4 to 7 of the SCR template will continue to be maintained during the life of the EP.

Sections 8 to 10 will be completed and submitted in support of the application to surrender the EP.

[1] https://www.gov.uk/government/publications/environmental-permitting-h5-site-condition-report

2.4 Environmental Risk Assessment

An Environmental Risk Assessment (ERA) (SLR reference: 410.064698.00001 ERA) has been undertaken in accordance with the Environment Agency (EA) *Risk assessments for your environmental permit*[2] and is included with the EP variation application. 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 operations at the data centres. 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 from TN and TS data centres 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.

2.5 Air Emissions Risk Assessment

A detailed air emissions risk assessment (SLR Ref: 410.064698.00001 AERA) has been undertaken to investigate the potential impacts of combustion emissions from the SBGs at TN and TS on air quality, by comparison to the UK Air Quality Standards and EA regulatory benchmarks (e.g. Environmental Assessment Levels) in line with the prevailing guidance. Emissions from the sites will vary dependent upon the operational scenario of the SBGs (e.g. full emergency load or 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).

The AERA has concluded that:

- Planned maintenance and testing will not result in an adverse impacts on air quality; and
- Operation of TN and TS SBGs under an emergency (brown- or black-out) scenario (hypothetical 26 hours) will result in impacts on a number of human receptors and ecological designated sites. Whilst there are predicted impacts on air quality in the event of a prolonged emergency outage, the risk of such an outage is considered to be low.

Telehouse will develop a combined Air Quality Emergency Action Plan (AQEAP) for TN and TS; this will be incorporated into Telehouse's EMS. The AQEAP details the management actions to be taken in the event of an emergency outage of the national electricity transmission system that could result in the prolonged usage of the SBGs which could potentially result in adverse impacts on local air quality.

The AQEAP, once approved by the EA will be provided to the Local Authority.

2.6 Key Technical Standards

TN and TS data centres have been designed to provide maximum reliability of the electrical power supply to the systems on-site that are critical for continuous operation of the sites as data centres.

The operational techniques that are/will be in place to manage the activities at the TN and TS data centre can be summarised as follows:

- The SGBs will be operated for emergency back-up purposes (other than for planned maintenance and testing) 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.

[2] https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit

- The planned maintenance and testing regime for the SGBs will be scheduled so that the impact on air quality as a result of the diesel combustion emissions is minimised.
- The SGBs will not be operated on an 'elective' basis as an alternative source of electricity, or for Triad avoidance.
- With regard to engine selection, considering that the requirement for the SGBs is to provide emergency/standby power for the data centres, diesel engines have been determined as a best available technique (BAT).
- Emergency operations are taken to include unplanned hours required to come off grid to make emergency repair of electrical infrastructure associated only within the data centre. Telehouse will notify the EA in accordance with the requirements as stated in the EP.
- The scheduled maintenance and testing regime for each SBG at TN and TS is, overall, below the 50-hour testing regime for SBGs which are used purely for a stand-by emergency role, as stated in the EA Data centre FAQ, with the exception of the SBGs in N2 Building which only slightly exceed the 50 hours.

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In addition to the above, the operational techniques that will be in place to manage the activities at the TS data centre can be summarised as follows (note that the additional 5 SBGs installed at TN were approved by the EA via the EP Pre-operational condition, which included an assessment of BAT, and therefore BAT for these SBGs has not been considered in this EP variation application):

- The 10 new replacement SBGs will be installed with SCR abatement to minimise NO_x emissions to air.
- Each new SBG at TS will have a dedicated stack to aid the dispersion of the engine flue. The stacks will be vertical with a release height of 20m above ground level and will terminate at the level of the roof parapet.
- The 10 new replacement SBGs will be housed within proprietary steel container units located on the roof of the South Support Building (SBB). Beneath the floor of the container unit for each SBG will be a belly tank, this being integral to the SBG container unit; this belly tank will automatically supply diesel to the SBG.

  The belly tanks will be designed to British Standard BS799 Part 5 1987 (Oil Burning Equipment. Specification for Oil Storage Tanks), which stipulates a requirement for 110% containment. The belly tanks are therefore considered to comply with the Oil Storage Regulations.
- The diesel belly tanks will have the following protection measures:
  - Tank level gauge.
  - High and low level alarms connected to the building management system (BMS).
  - A pressure delivery over-fill prevention valve.
  - Leak detection alarms connected to the BMS.
  - The SBGs have pressure relief valves to prevent over pressurisation of diesel supplied from the belly tanks.
  - To minimise the risk of corrosion all pipework is either painted or constructed of corrosion resistant material.
- The belly tanks will be filled from refuelling vehicles (the fuel being delivered by a Telehouse appointed fuel supplier). Fuel will be delivered directly to the belly tanks via the new diesel fill point located at ground level of the SSB.

- The fuel deliveries will be fully supervised by Telehouse. Fuel delivery tankers will be required to park in a dedicated tanker refuelling area. Once the vehicle is in position, and prior to fuel dispatch, the isolation valve on the oil interceptor serving drainage in this area will be closed via the BMS.
- AdBlue (which serves the SCR abatement systems) will be stored in two 17,000l bulk storage tanks, which will be located on level 1 of the SSB. Adjacent to each tank will be a tank pump to enable the refilling of these bulk tanks from tanker deliveries via a new delivery point located at ground level of the SSB.

  Each bulk storage tank will be of stainless steel construction; the tanks will be double skinned and provided with a bund which provides 110% containment.

  Each bulk tank will be fitted with level sensors, a tank level gauge and high/low level alarms. There will be a senor in the AdBlue bund which will alarm on the detection of excessive liquid in the bund.
- The AdBlue tanks will be subject to regular preventative maintenance to minimise the risk of leaks.
- Fuel and AdBlue deliveries will be managed in accordance with delivery procedures, which will be developed and integrated into the Telehouse EMS.
- Tertiary containment will be provided by the roof level of the SSB where the generators will be located, and by the contoured hardstanding of the area where the road tanker refuelling area and refuelling point will be located, additionally raised kerbing will be present along the site perimeter.
- Any unplanned release of diesel would be prevented from percolating into the ground by the hardstanding; should such a release enter the local on-site surface water drainage system it would be captured by the alarmed oil interceptor which will have an automatic shut off device that will activate on detection of diesel in the interceptor (this alarm will be connected to the BMS). In such an event, spillage procedures would be implemented.
- Any minor spillages of diesel will be cleaned up using propriety spill kits, the oil contaminated materials will be stored in suitable bunded containers in a waste storage area on the site prior to off-site disposal by an operator approved waste contractor. Any major spillages/leaks of fuel oil will be transferred to suitable containers/directly to road tanker for off-site treatment/disposal by a suitably licensed waste contractor. The management of spills will be undertaken in accordance with the site's spill procedure.
- A preventative maintenance system, which will define regular checks required for the SBG belly tanks and associated fuel infrastructure and the AdBlue tanks, will be in place. Preventative and Predictive Maintenance (PPM) will be managed and completed by Telehouse's appointed facility management contractor. The facility will be manned 24 hours a day by facilities management personnel.
- Surface water runoff from the SSB roof where the SBGs will be located, will drain to the on-site surface water drainage system. The roof drainage will be directed to the surface water drainage system, via a newly installed full retention Class 1 forecourt petrol interceptor designed with a holding capacity of 7,600 litres (this being the capacity of a single chamber of a diesel delivery tanker) and Vortex separator, prior to discharge into the River Thames via the existing outfall, which is subject to a Port of London Authority consent. This interceptor will have high level silt and oil alarms. During tanker offloading operations for diesel and AdBlue, the interceptor will be isolated via an isolation valve; closure of this valve will be an automated process via the site's BMS.
- The dedicated loading area for the bulk delivery of diesel and AdBlue, which will be concrete surfaced with raised kerbing around the perimeter, will be cambered so that any runoff will drain towards a central drainage channel. This drainage channel will direct the runoff to the surface water drainage system, via the interceptor as outlined above.

- Fluorinated gases (F-gases) are used at the data centre in the refrigeration systems for chiller units, air conditioning units and in fire suppression systems. The chiller and air conditioning units are subject to regular maintenance and leak testing; these requirements are included in the sites PPM. Maintenance and testing will be undertaken by an operator approved external specialist contractor. The operator will maintain an F-gas register for the data centre.
- Significant fugitive emissions, odours and noise are not considered likely with respect to operation of the SBGs at the data centre and measures will be employed to prevent such emissions.
- The noise assessment, which assessed the noise impact of the SBGs at TN and at TS during normal and emergency operations, concluded that the TN site and the TS site, each individually have a low impact in terms of noise emissions.
- The management of energy is an integral part of the EMS, and Telehouse, in line with ISO 50001, has developed an energy policy.
- Training aimed at minimising energy use and developing good housekeeping techniques is a part of the staff training programme. Energy use and its minimisation are managed via the ISO 50001 certified energy MS.
- Operation of the SBGs will not produce significant amounts of waste. Waste oil will be generated as a result of SBG maintenance. Management of waste oil generated as result of servicing will continue to be the same as that stated in the original EP application.
- Whilst TS, and TN, will inherently not produce significant amounts of waste, a waste minimisation audit will be performed periodically throughout the operational lifetime of the data centres in accordance with EP requirements.
- In accordance with the EMS, procedures will be in place for the regular inspection and maintenance of storage areas and associated infrastructure. Any accidents or incidents and the action taken to rectify these, will be recorded.

3.0 Conclusion

The overall conclusion from the studies undertaken as part of the EP variation application is that there is unlikely to be a significant environmental impact as a result of the proposed permitted activities. Telehouse is fully committed to ensuring the highest standards are met and will operate the SBGs and associated diesel and AdBlue storage arrangements at the data centres in accordance with all relevant best available techniques and in a manner consistent with best industry practices.

EUROPEAN OFFICES

AYLESBURY
T: +44 (0)1844 337380

BELFAST
belfast@slrconsulting.com

BIRMINGHAM
T: +44 (0)121 2895610

BONN
T: +49 (0)176 60374618

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 9064280

CARDIFF
T: +44 (0)2920 491010

CHELMSFORD
T: +44 (0)1245 801630

CORK
T: +(021) 240 9000

DUBLIN
T: +353 (0)1 296 4667

EDINBURGH
T: +44 (0)131 335 6830

EXETER
T: +44 (0)1392 490152

FRANKFURT
frankfurt@slrconsulting.com

GLASGOW
glasgow@slrconsulting.com

GRENOBLE
T: +33 (0)6 23 37 14 14

KILKENNYY
kilkenny@slrconsulting.com

LEEDS
T: +44 (0)113 5120293

LONDON
T: +44 (0)203 8056418

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER
T: +44 (0)161 8727564

NETHERLANDS
T: +31 6 28 02 18 80

NEWCASTLE UPON TYNE
T: +44 (0)1844 337380

NOTTINGHAM
T: +44 (0)115 9647280

SHEFFIELD
T: +44 (0)114 2455153

SHREWSBURY
T: +44 (0)1743 239250

SPAIN
T: +34 6 82 04 83 01

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310