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VDC LHR11 LIMITED

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Environmental Permit Application: Environmental Risk Assessment

LHR-11/12, Chandos Road, Park Royal, London

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LHR-11/12, Chandos Road, Park Royal, London

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Prepared by **Lavinia Allen**
Checked by **Aakanksha Sinha**
Approved by **Richard Wood**
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Ramboll
1 Broad Gate
The Headrow
Leeds
LS1 8EQ
United Kingdom

T +44 113 245 7552
<https://uk.ramboll.com>

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Ramboll UK Limited
Registered in England & Wales
Company No: 03659970
Registered office:
240 Blackfriars Road
London
SE1 8NW

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1. Introduction

This document supports the application submitted by VDC LHR11 Limited (“Vantage”) to the Environment Agency (“EA”) under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) (the “Regulations”) for a Part A(1) Environmental Permit (application reference EA/EPR/EP3508PS/A001) associated with the operation of combustion plant at the data centre operated by Vantage located at Chandos Park Industrial Estate, Chandos Road, Park Royal, London, NW10 6NF (“the site” or “the Facility”).

The application relates to the proposed operation of combustion plant at the site, comprising emergency generators with an aggregated net rated thermal input capacity of >50MWth.

The application process for bespoke permits requires that an Environmental Risk Assessment (ERA) is completed in accordance with the Environment Agency’s guidance¹.

In accordance with the Environment Agency’s guidance, this ERA is structured as follows:

- Identification and consideration of risks at the Installation and sources of the risks;
- Identification of receptors (people, animals, property and anything else that could be affected by the hazard) at risk from the Installation;
- Identification of possible pathways from the sources of the risks to receptors;
- Assessment of the risks relevant to the specific activities carried out at the Installation and consideration of which risks can be screened out as negligible; and
- Description of measures to control identified risks.

2. Risk Assessment Methodology

2.1 Overview

This risk assessment has been developed in accordance with the Environment Agency guidance² for the preparation of risk assessments. The Environment Agency guidance promotes the following process:

- Identify and consider risks for the Installation, and the sources of the risks;
- Identify the receptors (people, animals, property and anything else that could be affected by the hazard) at risk from the Installation;
- Identify the possible pathways from the sources of the risks to the receptors;
- Assess risks relevant to the activity at the Installation and check they’re acceptable and can be screened out;
- State what measures are applied to control risks if they’re too high; and
- Submit the risk assessment as part of the environmental permit application.

The risk assessment should identify whether any of the following risks could occur and what the environmental impact could be:

¹ <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit> Environment Agency Website. Accessed on 01/08/2019

² <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit> Environment Agency Website. Accessed on 01/08/2019.

- any emission to air or discharge, for example sewage or trade effluent to surface or groundwater;
- accidents;
- odour;
- noise and vibration;
- uncontrolled or unintended ('fugitive') emissions, for which risks include dust, litter, pests, and pollutants that shouldn't be in the discharge; and
- visible emissions (e.g. smoke or visible plumes).

2.2 Risk Assessment Layout

A qualitative assessment for generic risks identified at the Installation is provided in Section 4, and quantitative assessments derived from specific operations and release points are provided in Section 5.

For the qualitative assessment, each actual or possible hazard is identified, and the assessment is then tabulated taking into account the following criteria:

- the hazard - for example dust, litter, type of visible emission;
- the receptors - people, animals, property and anything else that could be affected by the hazard;
- the pathways - how the hazard can get to a receptor;
- what measures will be taken to reduce risks;
- probability of exposure, for example whether a risk is unlikely or highly likely;
- consequences - what harm could be caused; and
- what the overall risk is, based on what the information presented in the table - for example 'low if management techniques applied'.

For the quantitative assessment, it is possible to 'screen out' potential risks from emissions to air, discharges to water or deposition onto land by carrying out quantitative tests to check whether they're within acceptable limits or environmental standards. If they are, the risk to the environment is considered to be insignificant and no further assessment is required.

2.3 Assessing Likelihood and Consequence

Within the risk assessment, each hypothesised relationship between contaminants, pathways and receptors is assessed to determine the likelihood of the receptor being exposed to pollution and the consequences of exposure using the rankings listed in the tables below.

Table 1: Likelihood Rankings

Very Low	Low	Medium	High
Exposure to pollution is considered to be <i>highly unlikely</i> .	Exposure is considered to be <i>unlikely</i> .	Exposure is considered to be <i>likely</i> .	Exposure is considered to be <i>highly likely</i> to occur.

Table 2: Consequence Rankings

Very Low	Low	Medium	High
No impact or imperceptible	Low level impact easily and quickly	Moderate impact which will not be	High impact requiring significant

Very Low	Low	Medium	High
impact on the receptor.	mitigated or may not require any intervention to rectify any impact.	rectified without some mitigation / intervention.	intervention / mitigation and may have caused irreparable damage to the receptor.

2.4 Assessment of Risk

Following the determination of the likelihood and consequence rankings for the hypothesised relationships developed using the source-pathway-receptor concept, the matrix in the table below is used to determine the overall risk of the pollution exposure occurring.

Table 3: Risk Matrix

		Likelihood			
		Very Low	Low	Medium	High
Consequences	High	Low	Medium	High	High
	Medium	Low	Medium	Medium	High
	Low	Low	Low	Medium	Medium
	Very Low	Very Low	Low	Low	Low

3. Identification of Risks

As part of the application, the Client is required to identify the environmental risks (sources of potential contamination) which could occur during the operation of the Facility, including any risks which may arise from accidents. The EA online guidance³ stipulates that the Client, as the operator of the site, must consider the following potential risks:

- any discharge (e.g. sewage or trade effluent to surface water or groundwater);
- accidents;
- odour;
- noise and vibration;
- uncontrolled and unintended ('fugitive') emissions (for which risks include dust, litter, pests; and pollutants that shouldn't be in the discharge); and
- visible emissions (e.g. smoke or visible plumes).

In considering the risk, the Client can determine that a potential risk is not considered to be significant in terms of its potential impact on the environment; however, a justification must be provided for any risk which is 'screened out'.

Based on the guidance summarised above, the potential environmental risks at the Facility have been identified and have been determined as either applicable or not applicable based on the potential environmental impact arising from the risk. A summary of these risks is presented in the table below which also provides justifications where risks are considered to be insignificant. The risks which have been identified as significant have been included in the risk assessment in Section 5 of this report.

³ <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit#risks-from-your-site> Environment Agency Website. Accessed on 15/02/2024.

Environmental Risk	Applicability	Justification
Controlled discharges to surface waters	Not Applicable	There are to be no controlled discharges to surface waters from the combustion activities at the Installation, therefore this risk has not been considered for further assessment.
Controlled discharges to Groundwater	Not Applicable	There are to be no controlled discharges to groundwater from the Installation. This risk has not been discounted from further assessment.
Accidents	Applicable	<p>Equipment Failure: The failure of equipment may result in an incident occurring which could potentially impact on the environment (e.g., storage tanks, drainage systems etc.).</p> <p>Materials Handling: Fuels are stored on-site in bulk storage tanks, which are filled from road tankers. There is the potential for accidents (e.g., spills, leaks etc.) to occur during the filling of bulk storage tanks, which may result in contaminated run-off.</p> <p>Vandalism: The Facility is located in an urban area and may be targeted for vandalism and theft.</p> <p>Operator Error: Delivery and transfer of fuels.</p> <p>Flooding: The site is not situated in a location with an increased risk of surface water flooding.</p> <p>Fire: Emissions to air or contaminated runoff.</p>
Odour	Not Applicable	There are no odour emissions from the Installation. This risk has not been considered for further assessment.
Noise & Vibration	Applicable	The operation of generators has the potential to generate noise and vibration.
Visual Impact	Not Applicable	<p>The Installation is positioned within an urban area of mixed commercial, industrial and residential use.</p> <p>Visible emissions from the regulated activity are limited to flue gases emitted during the operation and testing of the generators. Given the irregular short-term duration of generator operations. These emissions are not considered to be significant in terms of visual impact. Based on this, visual impact has not been included for further assessment.</p>
Fugitive Emissions to Air and Water	Not Applicable	Fugitive emissions to air and water are not anticipated to arise at the Installation and therefore fugitive emissions to air and water have been excluded from further assessment.
Controlled Releases to Air	Applicable	Air emissions associated with the regulated activity comprise flue gases arising from the operation of the electricity generators.

4. Potential Pollution Pathways

4.1 Identification of Pollution Pathways

The potential pollution pathways between the sources identified in Section 2 (excluding those which have been screened out) and the receptors identified in Section 3 are summarised in the table below.

Source	Potential Pathway	Receptor
<p>Accidents: equipment failure; materials handling; vandalism; operator error; fire; and, flooding.</p>	Over Installation surfaces; through Installation drainage systems; and through the air.	Surface water; groundwater; ground; atmosphere, and humans including: workers/ visitors present at the Installation; workers / occupants / visitors on adjacent premises; local residents; intermittent presence on pedestrian routes / roadways surrounding the Installation.
<p>Noise and Vibration: arising from the operation of the combustion plant present at the Installation (i.e., generators) and from traffic movements.</p>	Transmitted through the air and through ground vibration.	Humans including: workers/ visitors present at the Installation; workers / occupants / visitors on adjacent premises; local residents; intermittent presence on pedestrian routes / roadways surrounding the Installation.
<p>Controlled Releases to Air: from point sources (e.g., generator flues).</p>	Through the air; windblown.	Atmosphere, and humans including: workers/ visitors present at the Installation; workers / occupants / visitors on adjacent premises; local residents; intermittent presence on pedestrian routes / roadways surrounding the Installation.

5. Environmental Risk Assessment

5.1 Accidents

The risk assessment for accidents at the Installation is provided below.

Source-Pathway-Receptor Hypothetical Model				Assessing the Risk		
Source of Pollution	Receptor	Pathway	Risk Management Techniques	Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Accident:</i> Failure in containment of diesel storage tank and associated equipment (valves, pipes etc.).</p>	<p><i>Ground Groundwater Surface Water</i></p>	<p>Over Installation surfaces; and, through Installation drainage systems.</p>	<ul style="list-style-type: none"> Fuel day tanks shall have automatic leak detection, level detectors and a common overflow and drain line connected to an external dump tank shall be provided. The dump tank shall have sufficient capacity to contain the total volume of fuel stored within the generators' belly/day tanks. All storage tanks, including the dump tank, will be provided with secondary containment providing 110% of the capacity of the primary storage container. The below ground bulk storage tanks will be double skinned and will be connected to a central filling station, equipped with spill containment measures. All below ground pipework will be double walled and come complete with leak detection and interstitial monitoring. All above ground pipework and where the pipework is exposed and has potential to be in contact with flames or hazardous products will be single walled and metallic. Pipework between the external bulk storage tanks and generator building fuel pump room shall be contained within a pipe box. The minimum cover to the top of the below ground pipework shall be 600mm below finished pavement level in order to provide 	<p>Very Low</p>	<p>High</p>	<p>Low</p>

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Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Source of Pollution	Receptor	Pathway		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Accident:</i> Spillage during refuelling / fuel polishing (e.g. pipe rupture, tanker rupture, connection fault etc.)</p>	Ground Groundwater	<p>Over Installation surfaces; and, through Installation drainage systems.</p>	<p>protection from external loads. Protection slabs shall be installed to protect underground utilities, including underground storage tanks and the petrol/ oil separator, from high loading vehicles on site.</p> <ul style="list-style-type: none"> • Drainage for the concrete hardstanding is served by a class 1 full retention interceptor which will be routed belowground to the rear of the fill point cabinet where it shall rise above ground and discharge within the intercepted area. • Diesel storage tanks are fitted with high-level alarms, overfill protection devices and bund alarms, which are linked into the building management system. • Spill kits will be present in fuel storage areas to minimise the impacts of any spillage. • Fuel storage tanks shall have access hatches for inspection on a regular basis to identify defects (if any). • All deliveries of fuel will be attended to identify any issues during delivery. • All deliveries of fuel take place in areas of hard standing coated with an impermeable non-slip coating resistant to hydrocarbons. • The external bulk storage tanks will be filled centrally from a security cabinet housing the tank fill points, level gauges and overfill alarms. The security cabinet shall have spillage containment and be fitted with a secure access door. • The fuel delivery area will comprise a hard standing which shall be bound by slot drainage leading to a below ground class 1 full retention interceptor • Spill kits will be provided in refuelling areas. 	<p>Very Low</p>	<p>High</p>	<p>Low</p>
	Surface Water					

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Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Source of Pollution	Receptor	Pathway		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<i>Accident:</i> Flooding potential to impact drainage system and generators.	<i>Surface Water</i>	Through flood water, over surfaces & through Installation drainage systems discharging to ground via soakaway.	<ul style="list-style-type: none"> The Operator will establish formal refuelling and spill response procedures as part of the environmental management system. Deliveries of fuel are expected to be infrequent since the generators are only to be used for emergency operations. Fuel polishing takes place very infrequently and is a short duration activity – typically complete within a few hours per tank. Drip trays shall be provided underneath the fuel pumps in case of a leakage. Metal and concrete construction of the tanks, connective pipework and containment infrastructure, so that there is minimal risk of water damage leading to spillage in a single flooding event. The Facility is not located in an area of elevated flood risk, so probability of a flood occurrence is very low. 	Very Low	High	Low
<i>Accidents (Fire):</i> Fire and arson attacks	<i>Humans including: workers/ visitors present at the Installation; workers / occupants / visitors on adjacent premises; local residents; intermittent</i>	Over Installation surfaces; through the air; and, through Installation drainage systems.	<ul style="list-style-type: none"> A perimeter fence is present along the site boundary and all access points are secured with gates, which will only open for authorised personnel. CCTV is present covering all external areas of the Installation. A Security team is present at the site on a permanent basis. Regular site surveillance walks are undertaken by the security team. The generator containers and fill points are kept locked. The generator sets are set away from the perimeter fencing. 	Very Low	High	Low

Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Source of Pollution	Receptor	Pathway		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<i>Accidents (Vandalism):</i> Damage / theft of externally located equipment / tanks	presence on pedestrian routes / roadways surrounding the Installation.		<ul style="list-style-type: none"> All generator sets have fire detection systems present within the generator containers, which when triggered activate fuel cut off valves. All above ground pipework and where the pipework is exposed and has potential to be in contact with flames or hazardous products shall be single walled and metallic. Fire detection and sprinkler systems shall be provided throughout the Installation, including the generator building. 			
	<i>Surface Water</i> <i>Atmosphere</i> <i>Ground</i> <i>Groundwater</i>	Over Installation surfaces; through the air; and, through Installation drainage systems.	<ul style="list-style-type: none"> A perimeter fence is present along the site boundary and all access points are secured with gates, which will only open for authorised personnel. CCTV is present covering all external areas of the Installation, which shall be monitored at all times by site security. As part of the security deployment, cameras shall be installed in surrounding areas, including corridors and roadways leading to, or around the Installation to capture and record images of personnel movement. A Security team is present at the site on a permanent basis. Regular site surveillance walks are undertaken by the security team. The generator containers and fill points are kept locked. The generator sets are set away from the perimeter fencing. 	Very Low	Medium	Low

5.2 Noise

There is a potential for noise to arise from the operation of the electricity generators and from the occasional movement of refuelling / maintenance vehicles at the Facility. The risk assessment for individual noise sources is provided below.

Source-Pathway-Receptor Hypothetical Model				Assessing the Risk		
Source of Pollution	Receptor	Pathway	Risk Management Techniques	Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Noise and vibrations:</i> arising from the movement of vehicles, and engine noise / alarms when visiting the Installation.</p>	<p><i>Humans including:</i> workers/ visitors present at the Installation; workers / occupants / visitors on adjacent premises; local residents; intermittent presence on pedestrian routes / roadways surrounding the Installation.</p>	<p>Through the air and ground vibration</p>	<ul style="list-style-type: none"> • Deliveries of fuel are very infrequent, limiting potential for disturbance. • Generators are only used as emergency provision in the event of a failure in the National Grid supply; therefore, the generators do not require regular refuelling. 	Low	Low	Low
			<ul style="list-style-type: none"> • The generators are all contained within dedicated enclosures (within the generator building for LHR11 and inside acoustic enclosures on the gantry for LHR12) designed to provide appropriate noise attenuation. • All generators at the site will be maintained in accordance with manufacturers' specifications to minimise excessive noise from poor performance. • Generators are only used as emergency provision in the event of a failure in the National Grid supply; therefore, the generators will only be run for testing purposes, or in the event of a National Grid power failure. • Noise Impact Assessment undertaken demonstrates that the operation of the generators will not have a significant impact on background daytime and night-time noise levels. 	Low	Low	Low
<p><i>Noise and vibration:</i> arising from the operation of plant (comprising electricity generators)</p>						

5.3 Controlled Releases to Air

The risk assessment for controlled releases to air is presented in the table below.

Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Source of Pollution	Receptor	Pathway		Likelihood of Exposure	Consequence of Exposure	Overall Risk
Controlled Releases to Air: Generator emissions; venting from bulk diesel storage tanks	Humans including: workers/ visitors present at the Installation; workers / occupants / visitors on adjacent premises; local residents; intermittent presence on pedestrian routes / roadways surrounding the Installation. Atmosphere	Through the air	<ul style="list-style-type: none"> Generators run very infrequently (<50 hours a year). Generators do not significantly impact background NOx concentrations. Generators will be maintained under a service agreement, undertaking inspections and carrying out any required maintenance. As far as reasonably practicable, the testing of generators will not be co-incidental. Testing of the generators will not be undertaken (as far as reasonably practicable) during periods of poor air quality. 	Medium	Low	Low

5.4 Climate Change

The risk assessment for potential risks from and to the installation related to climate change are presented in the table below. This has been prepared on the basis of a standard risk assessment example for combustion power sector developed by the EA⁴

Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Climate Change Risk	Anticipated Impact	Affected Receptors		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Summer daily maximum temperature: This may be around 7°C higher compared to average summer temperatures now, with the potential to reach extreme temperatures as high as over 40°C with increasing frequency based on today’s values.</i></p>	<p><i>Increased risk of fire: The higher temperatures could lead to increased resistance of wiring circuits and in generators resulting in an increased risk of fire.</i></p>	<p>Site infrastructure and employees Neighbours Environmental habitats</p>	<ul style="list-style-type: none"> • The primary operation of the generators is expected to be for regular testing. The operator will endeavour to not carry out testing during high temperatures. • The safe operating temperatures for the generators will be reviewed in line with OEM recommendations and operations managed accordingly. • Extended continuous operation of the generators is only expected in the event of loss of mains power, in which event the operations are anticipated to be in the region of 24 hours. The operational temperature will be monitored to ensure the safe operating temperatures are not exceeded. • The generators will undergo regular maintenance to ensure optimum operations. • Only generators for LHR12 will be located externally on a gantry structure, although each generator will be contained within an acoustic enclosure. The operator will ensure that as part of regular maintenance activities, ventilation within the generators, particularly during periods of high temperatures, is monitored and reviewed. 	<p>Low</p>	<p>High</p>	<p>Medium</p>

⁴ Combustion power: examples for your adapting to climate change risk assessment, Environment Agency, Updated 17 May 2023

Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Climate Change Risk	Anticipated Impact	Affected Receptors		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Winter daily maximum temperature: This could be up to 4°C more than the current average with the potential for more extreme temperatures, both warmer and colder than present.</i></p> <p><i>Daily extreme rainfall: Daily rainfall intensity could increase by up to 20% on today's values.</i></p>	<p><i>Decreased efficiency: Increases in temperature may cause a drop in efficiency of the generators, which could result in higher fuel usage.</i></p>		<ul style="list-style-type: none"> The installation will maintain an Accidents and Emergency procedure, which will include the procedure for management of site in the event of a fire. The operator will consider using lagging in the generator cable design in a manner that accounts for high temperature changes between seasons. The regular operation of the generators will comprise testing for short periods of time, which can largely be scheduled during preferable time periods. As such, fuel consumption associated with the generator testing is not expected to be significant. 	Low	Medium	Low
	<p><i>Increased risk of flooding: Critical areas of the site could see flash flooding.</i></p>		<ul style="list-style-type: none"> The installation location and the extent of all operational areas is identified as being within flood zone 1 having a low probability of flooding from rivers and the sea by the EA⁵. The generators are located either inside a building or raised on a gantry structure, with no generators located at or below ground levels. Although the installation will have four bulk fuel tanks located underground, these can only be filled via dedicated above ground fill points. As such, all fuel tanks will be integrally bunded and unlikely to be affected by flood waters. 	Low	Medium	Low
	<p><i>Inundation of bunds with flood water reducing their capacity: Bunded areas</i></p>		<ul style="list-style-type: none"> The site does not have an external fuel or material storage tanks requiring bunding. All fuel tanks (bulk fuel tanks located under ground and belly/ day tanks located adjacent to the generators) have integral bunding and therefore unlikely to be affected by flooding events. 	Low	Medium	Low

⁵ <https://flood-map-for-planning.service.gov.uk/>

Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Climate Change Risk	Anticipated Impact	Affected Receptors		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Average winter rainfall: Average winter rainfall may increase by over 40% on today's averages.</i></p>	<p><i>could get flooded.</i></p>		<ul style="list-style-type: none"> The surface water run-off from the installation is designed to be discharged via attenuation tanks to the sewer mains (comprising combined sewer) at a controlled flow rate. The system is therefore considered to have sufficient capacity. All site infrastructure will be maintained regularly, including site drainage systems, to ensure that in case of rainfall, the surface water run-off is drained promptly. All electrical systems are located either inside buildings or above ground level to avoid impact of surface water runoff. All operational areas of the installation will comprise concrete flooring with the fuel offloading area consisting of class 1 forecourt containment design to enable the containment of flood waters on site. 	Low	Medium	Low
	<p><i>Increase in capacity of surface water run-off systems: Surface water systems need to be clear and account for increased flows to prevent them being overwhelmed.</i></p>			Low	Medium	Low
	<p><i>Potential for increased site surface water and flooding.</i></p>			Low	Medium	Low
	<p><i>Potential for increased site surface water and flooding.</i></p>		<ul style="list-style-type: none"> The surface water run-off from the installation is designed to be discharged via attenuation tanks to the sewer mains (comprising combined sewer) at a controlled flow rate. The system is therefore considered to have sufficient capacity. All site infrastructure will be maintained regularly, including site drainage systems, to ensure that in case of rainfall, the surface water run-off is drained promptly. All electrical systems are located either inside buildings or above ground level to avoid impact of surface water runoff. All operational areas of the installation will comprise concrete flooring with the fuel offloading area consisting 	Low	Medium	Low
	<p><i>Surface water run off systems need to be clear and account for increased flows to prevent them</i></p>			Low	Medium	Low

Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Climate Change Risk	Anticipated Impact	Affected Receptors		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Sea level rise: Sea level rise which could be as much as 0.6m higher compared to today's level.</i></p> <p><i>Drier summers: Summers could see potentially up to 40% less rain than now.</i></p>	<p><i>being overwhelmed.</i></p> <p><i>Bunded areas could get flooded, reducing their capacity.</i></p> <p><i>Site surface water systems and effluent treatment plant may become overwhelmed and unable to discharge for prolonged periods due to backing up.</i></p>		<p>of class 1 forecourt containment design to enable the containment of flood waters on site.</p> <ul style="list-style-type: none"> The site does not have an external fuel or material storage tanks requiring bunding. All fuel tanks (bulk fuel tanks located under ground and belly/ day tanks located adjacent to the generators) have integral bunding and therefore unlikely to be affected by flooding events. The surface water run-off from the installation is designed to be discharged via attenuation tanks to the sewer mains (comprising combined sewer) at a controlled flow rate. The system is therefore considered to have sufficient capacity. All site infrastructure will be maintained regularly, including site drainage systems, to ensure that in case of rainfall, the surface water run-off is drained promptly. All electrical systems are located either inside buildings or above ground level to avoid impact of surface water runoff. All operational areas of the installation will comprise concrete flooring with the fuel offloading area consisting of class 1 forecourt containment design to enable the containment of flood waters on site. 	Low	Medium	Low
	<p><i>The site may be subject to cooling water restrictions of temperature and volume.</i></p> <p><i>There is likely to be an increased impact on the river due to an</i></p>		<ul style="list-style-type: none"> The installation drainage will not discharge directly to any surface water bodies. The drainage system will drain to the combined sewer system only. 	Low	Medium	Low

Source-Pathway-Receptor Hypothetical Model			Risk Management Techniques	Assessing the Risk		
Climate Change Risk	Anticipated Impact	Affected Receptors		Likelihood of Exposure	Consequence of Exposure	Overall Risk
<p><i>Storms: Storms could see a change in frequency and intensity. The unique combination of increased wind speeds, increased rainfall, and lightning during these events provides the potential for more extreme storm impacts.</i></p>	<p><i>increased temperature and the impact of the emission on lower flows.</i></p> <p><i>Storms and high winds could damage building structures with increased potential for fugitive emissions.</i></p>		<ul style="list-style-type: none"> • The installation will have taller buildings adjacent to and in the vicinity to provide protection from exposure to storm events. • The operator will regularly review the condition of the site infrastructure to ensure that any vulnerable structures are identified and repaired/ reinforced adequately. 	Low	Medium	Low

6. Conclusions

The review of potential environmental impacts at the Installation has identified a range of potential impacts from releases to air, noise generation, accidents as well as impacts from climate change risks at the Installation. The site will apply both physical and procedural measures to reduce the risks from these activities to a level considered to represent BAT for the installation.