

Redhill Data Centre – Environmental Risk Assessment

Digital Realty (UK) Limited (EPR/MP3834JU/A001)



www.eco-act.com

Company registered in England. No 557 5619

Carbon Clear Limited trading as EcoAct, an Eviden Business.

Registered Office: Second Floor, Mid City Place, 71 High Holborn, London, WC1V 6EA

Copyright and Non-Disclosure Notice

The contents and layout of this report are subject to copyright owned by © EcoAct, an Eviden Business 2023. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report.

The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of EcoAct. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third-Party Disclaimer set out below.

Third-Party Disclaimer

Any disclosure of this report to a third-party is subject to this disclaimer. The report was prepared by EcoAct at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third-party who is able to access it by any means. EcoAct excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

Contents

Introduction	4
Environmental Risk Assessment.....	5

Introduction

The Digital Realty Redhill Data Centre site (Unit 2 and 3) has back up emergency generators installed with an aggregated thermal rated input of >50MWth and therefore is subject to regulation under the environmental permitting regulations. Part of the permit application process includes conducting a risk assessment to identify and assess potential risks associated with the installation. This document describes the potential risks, the possible pathways for pollutant migration and the receptors which may ultimately be affected by the identified risks. The assessment also includes details of possible mitigation and control measures for the identified risks.

Environmental Risk Assessment

Hazard	Receptors	Pathway	Probability of exposure	Consequence/potential impact	Risk management techniques	Overall Risk
Emissions to air from on-site generators – nitrogen oxides, sulphur dioxides, carbon monoxide, particulates, and fumes.	Site employees, residents from adjacent housing and surrounding commercial and industrial workers	Airborne	Likely – typically where atmospheric conditions such as low wind speed caused by high pressure allows concentrations of pollutants to increase.	Exhaust emissions contribute to atmospheric pollution and a reduction in air quality, which can exacerbate respiratory conditions in humans and impact local wildlife receptors.	<p>Generators are inspected weekly and only operated when being tested every month or in the event of an emergency.</p> <p>Generators are serviced as per the service plan which includes a review of fuel and oil quality. Any fuel/oil found to be sub-standard will either be polished or otherwise treated as necessary.</p> <p>Fuel is sampled annually, if test results show elevated sulphur levels, contamination, or low combustibility,</p>	Low/Medium - management control measures in place.



Environmental Risk Assessment

					remedial action will be taken. All generator engines are off when not in use.	
Emissions to land and water - leaks from the storage of hydrocarbon fuels stored on-site in fuel tanks and drums.	Site employees, local residents and commercial residents, underlying soils, groundwater, nearby water bodies and local sewerage system.	Through the drainage network, surface run off, vertical leaching through the soils and dermal contact.	Unlikely	Potential contamination of underlying soils, local sewerage system, groundwater, nearby water bodies and local fauna and flora. Damage to human health through ingestion.	The site is covered in good quality hardstanding and is raised above ground level, therefore reducing the likelihood of any potential leaks contaminating the underlying soils. Diesel is stored in above ground tanks which are internally bunded. Tanks are checked as part of plant rounds and fuel levels are reported monthly. Although there is limited underground pipework in Unit 3, leak detection alarms and fill point alarms have been installed within the diesel tanks. The alarms are	Low – management control measures in place.



Environmental Risk Assessment

					<p>linked to the BMS system.</p> <p>The interceptor is cleaned on an annual basis.</p> <p>Each set of generators are housed in acoustic containers, so any potential leaking is contained.</p> <p>Spill prevention kits are available in the plant areas. Staff have been fully trained in spill response and the use of personal protective equipment (PPE).</p>	
<p>Emissions to land and water - spills or leaks of hydrocarbon fuels from fuel delivery.</p>	<p>Site employees, local residential and commercial residents, underlying soils, groundwater, nearby water bodies and local sewerage system.</p>	<p>Through the drainage network, surface run off, vertical leaching through the soils and dermal contact.</p>	<p>Unlikely</p>	<p>Potential contamination of underlying soils, local sewerage system, groundwater, nearby water bodies and local fauna and flora.</p> <p>Damage to human health through ingestion.</p>	<p>Fuel delivery vendors are aware of Digital's standard operating procedures (SOP) and follow the agreed process.</p> <p>Emergency Response Plan and Pollution Prevention Response Plan have been communicated to all staff.</p>	<p>Low – management control measures are in place.</p>



Environmental Risk Assessment

					Oil interceptor is located in the drainage system. Spill kits have been provided at the diesel fill point.	
Emissions to land and water – chemical storage (small volumes).	Site employees, local residential and commercial residents, underlying soils, groundwater, nearby water bodies and local sewerage system.	Through the drainage network, surface run off, vertical leaching through the soils and dermal contact.	Unlikely	Potential contamination of underlying soils, local sewerage system, groundwater, nearby water bodies and local fauna and flora. Damage to human health through ingestion or dermal contact.	All chemicals used on site require a full COSHH assessment and COSHH sheets are held on site. Chemicals are stored in a bunded and locked cabinets. Toolbox talks given to engineering staff covering all elements of the Safety Data Sheet. Spill training provided for all engineering staff and spill kits are located across the site.	Low – management control measures are in place.
Emissions to water - surface water runoff in the car park areas into the local sewer.	Groundwater system below the underlying River Terrace Deposits (undifferentiated) which is a secondary aquifer and the	Drainage network on-site.	Unlikely	Potential contamination of the local sewerage system.	Surface drains flow through an oil interceptor, which will capture any accidental oil spills from the vehicles in the car park. Interceptor is	Low – management control measures are in place.



Environmental Risk Assessment

	Sandstone bedrock which is a principal aquifer and permeable strata.				inspected on an annual basis.	
Emissions to water - process water: condensate from chillers into the local drainage system.	Groundwater system below the underlying River Terrace Deposits (undifferentiated) which is a secondary aquifer and the Sandstone bedrock which is a principal aquifer and permeable strata.	Drainage network on-site.	Unlikely	Potential contamination of the local sewerage system.	Although there is a risk of sewerage contamination in the secondary and principal aquifer below in the River Terrace Deposits and Sandstone, the surface drains flow through an oil interceptor, which will capture any accidental oil spills from the vehicles in the car park. Interceptor is inspected on an annual basis.	Low – management control measures are in place.
Emissions to land and water – leaking of generator service fluids from maintenance.	Site employees, local residential and commercial residents, underlying soils, groundwater, nearby water bodies and local sewerage system.	Through the drainage network, surface run off, vertical leaching through the soils and dermal contact.	Likely	Potential contamination of underlying soils, local sewerage system, groundwater, nearby water bodies and local fauna and flora.	A detailed method of procedure (MOP)/ risk assessment and method statements (RAMs) are generated for all major works on the generators. The RAMs include risk assessments relating to the management	Low – management control measures are in place.



Environmental Risk Assessment

				<p>Damage to human health through ingestion or dermal contact.</p>	<p>of engine fluids while on site.</p> <p>Large volumes of hazardous fluids will be delivered at the generator compound. Oil interceptors in the car park will contain any potential spills from delivery vehicles.</p> <p>Sub-contractors will only be permitted to work following review of the approved MOP/RAM/s.</p> <p>The work area will be inspected by Digital engineering and security teams, to ensure adherence to the agreed MOP/RAM including chemical management measures.</p> <p>Major fluid and filter change outs are not a regular requirement as the generators do not run outside of monthly checks and</p>	
--	--	--	--	--	--	--



Environmental Risk Assessment

					emergency requirements. Spill kits are provided for sub-contractor during works involving fluid change.	
Emissions to air – F-gas storage - F-gas is held within the DX units & Chillers used to cool the data halls.	Site employees and surrounding atmosphere due to high global warming potential	Airborne – through the leaking of gases. Dermal contact and inhalation.	Likely	Increase in the level of greenhouse gas emissions. Damage to human health through ingestion or dermal contact.	F-Gas register on site. Quarterly service program implemented to ensure chillers are maintained to manufacturer’s recommendations. TM44 inspection done as part of site compliance. The DX units/chillers are inspected as part of the daily plant rounds to ensure they are operating normally. The DX & Chiller units are maintained and repairs by appropriate contractors.	Low – management control measures are in place.



Environmental Risk Assessment

Noise from plant equipment on-site e.g., chillers, fans, transformers, and generators.	Local residential and commercial residents	Sound	Likely	Nuisance and disturbance to local residential and commercial residents by white noise.	No noise restrictions have been imposed on the site. Generators are housed in acoustic containers and the site has an acoustic wall along the southern boundary of the site.	Low – management control measures are in place.
Odour from fuel storage on site.	Site employees and adjacent residential and commercial residents	Airborne	Unlikely	Nuisance to on site staff and local nearby residents.	Bulk fuel is stored in internally banded sealed ASTs and waste oil materials are stored in sealed drums. Neither allows emission of fugitive odours.	Low – management control measures are in place.
Emissions to land – incorrect handling and disposal of hazardous waste – WEEE, UV lights, redundant plant, used spill materials and used oil/filters	Surrounding nature areas Local neighbourhood.	Site management	Likely	Hazardous material could be sent to inappropriate/unsuitable waste treatment facility or landfill which could cause contamination of waste streams Local visual pollution	Hazardous waste stream identified for all potentially hazardous waste produced on site. Appropriate waste bins have been placed on site to store; batteries, WEEE, Lights, used spill materials. Staff have been trained in their use.	Low – management control measures are in place.



Environmental Risk Assessment

					<p>Licensed carriers have been identified for each waste stream all associated licenses and permits have been filed.</p> <p>Processing facilities for each waste stream/type has been identified and all associated licenses and permits have been filed.</p> <p>Consignment notes for each disposal are filed and held on site.</p>	
<p>Generation of litter – incorrect handling and disposal of non-hazardous waste (handling, storage, and disposal) – plastic, paper, cardboard, and food.</p>	<p>Local nature areas.</p> <p>Local neighbourhood.</p>	<p>Site management</p>	<p>Likely</p>	<p>Litter can cause local visual pollution and an increase in vermin and odour</p>	<p>Staff have been educated in identifying different waste streams.</p> <p>Sub-contractors are made aware of our Environmental policy during the site induction.</p> <p>Confidential documents are shredded and disposed of in the general waste bins.</p> <p>Only licenced contractors are used</p>	<p>Low – management control measures are in place.</p>



Environmental Risk Assessment

					<p>to remove waste from site, receipts obtained for all removals.</p> <p>Transfer notes for all disposals are filed and held on site.</p>	
<p>Emissions to air and water under emergency conditions – fire on site.</p>	<p>Site employees, local residential and commercial residents, local nature areas, underlying soils, groundwater, nearby water bodies and local sewerage system.</p>	<p>Airborne, surface run off and via the drainage system.</p>	<p>Likely</p>	<p>Potential for release of hazardous gases to atmosphere during fire.</p> <p>Water used to extinguish equipment may mix with hazardous chemicals and discharge to soil, local sewerage system and underlying groundwater.</p>	<p>Substantial measures have been implemented to prevent a major fire.</p> <p>Detection: A fire detection has been installed in the data halls and plant/switch rooms. This gives an early warning of potential fire or heat within critical space.</p> <p>Suppressions System: Fire suppression systems are in operation on-site.</p> <p>Fuel Safety: Comprehensive maintenance schedule in place for all fire prevention equipment; fire extinguisher, fire</p>	<p>Low – management control measures are in place.</p>



Environmental Risk Assessment

					<p>detection & fire suppressions system.</p> <p>Training on the use of fire equipment completed and fire detection/suppression systems with site team. Fire drills also undertaken on site.</p> <p>In addition, an Emergency Response Plan has been communicated to all staff</p>	
<p>Emissions to air (global warming)– use of electricity to power all plant.</p>	<p>Surrounding environment through emissions of greenhouse gases.</p>	<p>Consumption of electricity.</p>	<p>Likely</p>	<p>Increase in greenhouse gases to the atmosphere contributing to global warming.</p>	<p>Energy efficiency measures are undertaken a site to reduce the electricity consumption on site.</p> <p>Site and the rest of the Digital Realty portfolio have a certified ISO 50001 energy management system which drives energy efficiency at the site.</p> <p>The site holds a Climate Change Agreement and a</p>	<p>Low – management control measures are in place.</p>



Environmental Risk Assessment

					Greenhouse Gas Permit, therefore monitors emissions, and aims to reduce them.	
Emissions to land – potential contamination from historical land use	Site employees, underlying soils, and groundwater.	Leaching through the soils and dermal contact.	Unlikely	The site was undeveloped land until it became a recreation ground in the 1960s with adjacent works to the east and southwest. In 1974, an outbuilding associated with the adjacent engineering works was located in the southwest corner of the site. By 2002, this site was redeveloped into its current layout.	The outbuilding associated with the adjacent engineering works located onsite in 1974, may have had potential pockets of residual contamination . However, residual contamination would have been removed from the site during redevelopment.	Low

Table 1: Environmental Risk Assessment

About EcoAct

EcoAct, an Eviden business, is an international advisory consultancy and project developer that works with clients to help them succeed in their climate ambitions. We work with many large and complex multinational organisations to offer solutions to their sustainability challenges.

We believe that climate change, energy management and sustainability are drivers of corporate performance and we seek to address business or organisational problems and opportunities in an intelligent way.

EcoAct UK

+44 (0) 203 589 9444
ukoffice@eco-act.com

EcoAct North America

+1 917 744 9660
usaoffice@eco-act.com

EcoAct Turkey

+90 (0) 312 437 0592
turkeyoffice@eco-act.com

EcoAct France

+33 (0)1 83 64 08 70
contact@eco-act.com

EcoAct Spain

+34 935 851 122
contacta@eco-act.com

EcoAct Kenya

+254 708 066 725
info@climatepal.com