SITE CONDITION AND BASELINE REPORT

Didcot North Data Centre Campus

794-DES-ARC-30974
IED Baseline and Site Condition Report
V1
R2
29 September 2025

rpsgroup.com

Quality Management

Version	Revision	Authored by	Reviewed by	Approved by	Date
1	0	Joanna Bruce	Jennifer Stringer	N/A	02 June 2025
1	1	Joanna Bruce	Sarah Gillie	N/A	16 July 2025
2	0	Joanna Bruce	Jennifer Stringer	Jennifer Stringer	28 July 2025
3	0	Joanna Bruce	Sarah Gillie	N/A	17 September 2025
3	1	Joanna Bruce	Jennifer Stringer	Jennifer Stringer	24 September 2025

Approval for issue

Jennifer Stringer	Technical Director		30 September 2025

File Name

250928 R 794-DES-ARC-30974 Site Condition and Baseline Report V2 R0.docx

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1 INTRODUCTION

1.1 Background

1.1.1 This report supports an application for an Environmental Permit for Didcot Data Campus emergency back-up generating facility situated at former Didcot A Power Station in Didcot, Oxfordshire. The proposed permit boundary is shown on Drawing 2.

1.1.2 The proposed facility will be regulated as an installation activity under Schedule 1, Part 2, Section 1.1 A (1) of the Environmental Permitting (England and Wales) Regulations 2016 (as amended). To support the application for the permit, there is a requirement to provide a Site Condition and Baseline Report (SCBR).

1.1.3 This report has been prepared in accordance with the European Commission Guidance[1] concerning baseline reports required under the IED and also the Environment Agency's H5 Horizontal Guidance[2].

1.1.4 The IED, Article 22, paragraphs 2 to 4, contains provisions for the definitive cessation of activities involving the use, production or release of Relevant Hazardous Substances (RHS) in order to prevent and tackle potential soil and groundwater contamination from such substances. A key tool in this respect is the establishment of a 'baseline report' where an activity involves the use, production or release of RHS and having regard to the possibility of soil and groundwater contamination. The report will form the basis for a comparison with the state of contamination upon definitive cessation of activities. Where information produced pursuant to other national or union law reflects the state at the time the report is drawn up, that information may be included in, or attached to, the baseline report.

1.1.5 RPS has prepared this report based on information and data available at the time of preparation of the report.

1.2 Key Objectives

1.2.1 The key objectives of this report are to:

- Establish the environmental setting of the site and determine its environmental sensitivity;
- Identify activities that are currently undertaken at the site, including the identification of Relevant Hazardous Substances and preventative measures implemented to protect land and groundwater;
- Establish the extent of historical contamination in the soil and groundwater in areas where current and/or future processes may include similar potentially contaminating substances;
- To identify the Site Conditions at the site prior to operation of the permitted facility (baseline condition) such that they may be used as a point of reference to determine whether the site has been contaminated during the site's permitted operation in line with IED and Environmental Permitting Regulations requirements; and

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32010L0075&from=EN

[2] Environment Agency, H5 Guidance for Applicants, Environmental Permitting Regulations, Site Condition Report – Guidance and Templates, May 2013

- To provide conclusions on whether land quality has been impacted from historical activities.

1.2.2 With respect to the IED eight stage process, a summary of each stage is outlined below along with where it is addressed within this report:

- Stage 1 - Identify hazardous substances used, produced or released at the installation. This is addressed within Section 3 of this report;
- Stage 2 - Identify relevant hazardous substances used, produced or released at the installation from the list of hazardous substances identified in Stage 1. This is addressed within Section 4 of this report;
- Stage 3 – Undertake an assessment of site-specific pollution possibility for relevant hazardous substances. This is addressed within Section 5 of this report;
- Stage 4 – Evaluation of Site History and potential for relevant hazardous substances to be present in soils and groundwater. This is addressed within Section 6 of this report;
- Stage 5 – Evaluation of Environmental Setting to determine the fate of potential emissions of relevant hazardous substances This is addressed within Section 7 of this report;
- Stage 6 – Site Characterisation that synthesises findings of Stage 5 and 6 on the basis of a Conceptual Site Model. This is addressed within Section 8 of this report;
- Stage 7 – Site Investigation (including sampling strategy). This is addressed within Section 9 of this report; and
- Stage 8 – Production of Baseline Report. This is addressed within Section 10 of this report.

1.3 Description of Permitted Activities

1.3.1 The data centre will operate to provide emergency back-up electricity to the data centre should there be a break in supply from the grid. No electricity will be exported to the grid from the installation. The combined net thermal input of the facility is approximately 925 $MW_{th.}$

1.3.2 The generators will be individually containerised within the compound. The fuel type will be either diesel or Hydrotreated Vegetable Oil (HVO), subject to availability. The selected fuel will be stored on site and it is anticipated that each data centre generator compound will be served by a main top-up tank holding approximately 40,000 litres. In addition, each main generator will include fuel belly tanks of 19,300 L capacity. Belly tanks for the house generators will hold 5,600 L of fuel and those for the CIWB generators and substation generator will hold 1,300 L of fuel.

1.3.3 All tanks will comply with the Oil Storage Regulations[3] and CIRIA 736 requirements.

1.3.4 A detailed description of the facility is provided in the main permit application document.

[3] SI 2001/2954. The Control of Pollution (Oil Storage) (England) Regulations 2001

2 APPLICATION SITE CONDITION REPORT

2.1 Application Phase

2.1.1 This SCR, is prepared in accordance with the Environment Agency Horizontal Guidance Note H5 and provides references to the various chapters of this report, where available information on the known current condition of the operational area is provided.

2.2 Site Condition Report Summary

1.0 Site Details	
Name of the applicant	Amazon Data Services UK Limited
Activity address	Land at the former Didcot A Power Station, Didcot, Oxfordshire, OX11 7BF
National grid reference	SU 51443 91794
Site area (ha)	2.1 Ha
Document reference and dates for Site Condition Report at permit application and surrender	2507016 R 794-DES-ARC-30974 IED Baseline and SCR V2 R1
Document references for site plans (including location and boundaries):	Drawing 1 – Site Location Plan Drawing 2 – Site Boundary Plan

2.0 Condition of the land at permit issue	
Environmental setting including: • Topography • Geology • Hydrogeology • Hydrology • Environmental Consents, Licences, Authorisations, Permits and Designations	Details of the environmental setting are provided in *Section 7* of this SCR and Baseline Report.
Pollution history including: • Location, nature of incidents or direct discharges that may have affected soil or groundwater • Historical land uses and associated contaminants	Pollution history details are provided in *Section 6 & 8* of this SCR and Baseline Report.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	Any details regarding historical contamination at the site are provided in *Section 6 & 8* of this SCR and Baseline Report.
Baseline soil and groundwater reference data	Details regarding baseline soil and groundwater reference data at the site are provided in *Sections 6 & 9* of this SCR and Baseline Report.
Supporting information	Appendix A – Groundsure Report

3.0 Permitted activities	
Permitted activities	Details regarding permitted activities on the proposed site are provided in *Section 1* of this SCR.
Non-permitted activities undertaken	N/A
Document references for: • plan showing activity layout; and • environmental risk assessment.	250702 R 794-DES-ARC-30974 JB Didcot ERA V1 R0 Drawing 2 Site Layout Plan Including Installation Boundary

3 STAGE 1 – IDENTIFY WHICH HAZARDOUS SUBSTANCES ARE USED, PRODUCED OR RELEASED AT THE INSTALLATION AND PRODUCE A LIST OF THESE SUBSTANCES

3.1.1 The IED Baseline Report relates to contamination risk associated with "hazardous substances" used, produced and/or released by the proposed AWS installation. Hazardous substances are defined as substances or mixtures defined in Article 3 of Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on Classification, Labelling and Packaging of substances and mixtures (the "CLP Regulations"). The determination of whether a substance is a hazardous substance is largely determined using the substance CAS Number and European Chemicals Agency (ECHA) database[4].

3.1.2 Hazardous substances have been identified in the following materials on site:

- Diesel
- HVO
- Lubricating oil;
- Greases;
- Ethylene glycol;
- Corrosion inhibitor; and

3.1.3 Diesel has been identified as a hazardous substance as it is a flammable substance and toxic to the environment due to the harmful hydrocarbons that can penetrate soil and groundwater.

3.1.4 HVO has been identified as a hazardous substance as it is a flammable substance.

3.1.5 Lubricating oil can mobilise in soils and water and if released into the environment can be toxic to aquatic life. Waste lubricating oil is removed off site as it is produced, however it contains similar hazardous properties to fresh lubricating oil and is therefore considered to be a hazardous substance.

3.1.6 Greases formed from oils used for small-scale maintenance share hazardous properties similar to lubricating oils and have therefore also been identified as hazardous substances.

3.1.7 Ethylene glycol and corrosion inhibitor contain hazardous properties that are considered to be toxic to aquatic life could cause contamination of soil and groundwater if spilled.

3.1.8 Table 3-1 provides details of materials, expected usage or volumes produced and storage.

[4] https://echa.europa.eu/

Table 3-1: Chemical Inventory

Raw Material	Nature	CAS Number	Expected usage (approximate)	Storage
Diesel *	Liquid fuel oil, complex combination of hydrocarbons produced by the distillation of crude oil H226 Flammable liquid and vapour. H227 Combustible liquid. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H332 Harmful if inhaled. H351 Suspected of causing cancer. H373 May cause damage to organs or organ systems through prolonged or repeated exposure. H401 Toxic to aquatic life. H411 Toxic to aquatic life	68334-30-5	880 m^3 (based on usage for testing scenarios, 1,2,and 3 as well as a single 72 emergency outage. Therefore usage will be expected to be lower)	Total = 2,428 m^3 Main Generator – 122 x 19.3 m^3 House Generator – 4 x 5.6 m^3 CIWB – 2 x 1.3 m^3 Substation – 1 x 0.5 m^3 (1.3 m^3 capacity) Unloading stations 4 x 40 m^3
HVO*	H226 Flammable liquid and vapour. H304 May be fatal if swallowed and enters airways.	N/A	880 m^3 (based on usage for testing scenarios, 1,2,and 3 as well as a single 72 emergency outage. Therefore usage will be expected to be lower)	Total = 2,428 m^3 Main Generator – 122 x 19.3 m^3 House Generator – 4 x 5.6 m^3 CIWB – 2 x 1.3 m^3 Substation – 1 x 0.5 m^3 (1.3 m^3 capacity) Unloading stations 4 x 40 m^3
Lubricating oil	Refined hydrocarbon with additives H304 May be fatal if swallowed and enters airways H401 Toxic to aquatic life.	Various	Low usage, limited to top up.	No routine storage on site, brought onto site on an as needed basis. Onsite storage limited to system inventory.
Waste	H304 May be fatal if	Various	Low generation.	Removed off site as

Raw Material	Nature	CAS Number	Expected usage (approximate)	Storage
Lubricating Oil	swallowed and enters airways H401 Toxic to aquatic life.			produced
Greases	H304 May be fatal if swallowed and enters airways H401 Toxic to aquatic life	Various	Low generation.	Removed off site as produced
Ethylene glycol	Liquid coolant mono-constituent substance H302 – Harmful if swallowed H373 – May cause damage to organs through prolonged or repeated exposure.	107-21-1	Very low usage, limited to top-up.	Used as an additive to coolant water there will be no routine storage on site. This substance will be present diluted within the closed loop cooling system for the engines.
Corrosion Inhibitor	Refined hydrocarbon with additives H319 – causes serious eye irritation H411 – Toxic to aquatic life with long lasting effects.	Various	Low, dependant on usage.	No storage, present only within the CCCW system

.* Note either diesel or HVO will be selected as a fuel.

3.1.9 Stack emissions are not considered to be hazardous in relation to ground or groundwater.

3.1.10 Fuel (diesel or HVO) will be stored on site and it is anticipated that each data centre generator compound will be served by a main top-up tank and each generator will have a belly tank. The capacity of these storage tanks is included in Table 3-1 above. In the event that the cooling circuit requires a top-up, the engine Maintenance Contractor will be responsible for overseeing this and notifying the Operator of any spillage incident and actions taken in accordance with the incident reporting system.

3.1.11 No process waters are produced at the installation. Only rainwater run-off from containers, roofs, hardstanding, refuelling and handling areas and paved areas will be discharged from the site. Surface water run-off from the facility (roofs, roads, hard standing, etc.) water will discharge to the surface water drainage system and attenuation basins on the wider data centre site before release into Moor Ditch. Oil interceptors are in place and run-off from each of the generator compounds will pass via these interceptors prior to entering the wider Data Centre drainage system. Drainage plans are provided as Drawing 3 and Drawing 4.

3.1.12 Maintenance procedures are in place for the interceptor to ensure that it remains in good working order to prevent any leakage having an adverse environmental impact.

3.1.13 Small amounts of rainwater may enter the generator stacks. This water will be discharged in the foul water system for the wider data centre site.

3.1.14 As only uncontaminated rainwater will be discharged from the site. This discharge is not considered to be a hazardous substance.

4 STAGE 2 – IDENTIFYING THE RELEVANT HAZARDOUS SUBSTANCES

4.1.1 Stage 1 identified a number of hazardous substances that are stored and used on site as part of site operations. Stage 2 requires a review of the listed substances to determine which are relevant hazardous substances (RHS). Each of the substances identified within Stage 1 is reviewed below, considering their chemical and physical properties and how they are stored and used on site, to determine the potential pollution risk of each hazardous substance.

4.1.2 RHS in relation to IED are defined as:

Those substances or mixtures defined within Article 3 of Regulations (EC) No1272/2008, which, as a result of their hazardousness, mobility, persistence and biodegradability (as well as other characteristics), are capable of contaminating soil or groundwater and are used, produced and/or released by the installation.

4.2 Diesel and HVO

4.2.1 Either diesel or HVO will be selected as a fuel type for the emergency back-up engines as part of the site operations.

4.2.2 Should diesel be selected as the fuel, it is capable of contaminating soil and groundwater should it be released into the environment. The oil-based substance is toxic to the water environment and although it is biodegradable in particular conditions, larger volumes are likely to be relatively persistent in the environment. Diesel is stored in sufficiently large quantities to be considered a RHS for the purposes of this assessment.

4.2.3 HVO is composed of paraffinic hydrocarbon and is derived from the same feedstock used to produce biodiesel. While HVO is readily biodegradable under certain conditions, if released in large quantities it is likely to persist in soil and groundwater environments due to the insolubility of the hydrocarbons which could cause localised contamination. Although it generally exhibits lower toxicity compared to diesel, it is considered to be a RHS for the purposes of this assessment.

4.3 Lubricating Oil (fresh and waste)

4.3.1 Oils and greases used for small scale maintenance do have to potential to cause harm to the environment. Oils will mobilise in soils and water and are toxic to aquatic life. Therefore they will be considered as RHS because of the risks of soil or water contamination. Waste lubricating oil will also be considered a RHS due to its hazardous properties similar to lubricating oil.

4.4 Greases

4.4.1 Greases formed from oils used for small scale maintenance do have to potential to cause harm to the environment. Greases are more viscous than oils and may be less mobile in soils and water. Maintenance greases will not be considered RHS due to the low solubility and mobility.

4.5 Ethylene Glycol

4.5.1 Ethylene glycol is considered to be toxic to aquatic life and if spilled ethylene glycol can leach into soil and groundwater and cause contamination. It is therefore considered to be a RHS for the purpose of this assessment.

4.6 Corrosion Inhibitor

4.6.1 Corrosion Inhibitor is considered to be toxic to aquatic life and if spilled if spilled can leach into soil and groundwater and cause contamination. It is therefore considered to be a RHS for the purpose of this assessment.

Table 4-1: Summary of Potential Pollution Risks of Hazardous Substances

Substance	Chemical Characteristics /Risks	Physical State	Solubility	Toxicity	Mobility	Persistence	Soil and Groundwater Pollution Potential	RHS
Diesel	H226 Flammable liquid and vapour. H227 Combustible liquid. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H332 Harmful if inhaled. H351 Suspected of causing cancer. H373 May cause damage to organs or organ systems through prolonged or repeated exposure. H401 Toxic to aquatic life. H411 Toxic to aquatic life with long lasting effects.	Liquid	Not miscible	High – toxic to aquatic life with long lasting effects	Mobility: Slightly soluble. Large volumes could penetrate soil and contaminate groundwater	N/A	Medium - Releases to groundwater will result in a hydrocarbon film floating and spreading on the surface.	Yes
HVO	H226 Flammable liquid and vapour. H304 May be fatal if swallowed and enters airways.	Liquid	Insoluble	Not toxic	Readily absorbed in soil	Rapidly biodegradable	Low	Yes
Lubricating Oil	Lubricating oils - petroleum based: H304 May be fatal if swallowed and enters airways H401 Toxic to aquatic life.	Liquid	Low	Toxic, large volumes will harm aquatic life	High	High	High	Yes

Substance	Chemical Characteristics /Risks	Physical State	Solubility	Toxicity	Mobility	Persistence	Soil and Groundwater Pollution Potential	RHS
	Waste lubricating oil H304 May be fatal if swallowed and enters airways H401 Toxic to aquatic life	Liquid	Low	Toxic, large volumes will harm aquatic life	High	High	High	Yes
	Greases formed from petroleum-based oils H304 May be fatal if swallowed and enters airways H401 Toxic to aquatic life	Viscous Liquid	Low	Not toxic	Low	Low	Low	No
Ethylene Glycol	H302 – Harmful if swallowed H373 – May cause damage to organs through prolonged or repeated exposure.	Liquid	High	High - harmful to aquatic organisms	High – likely to be mobile due to its water solubility	Low – Substance is not considered persistence	Low – low potential to penetrate soil causing soil and ground water contamination.	Yes
Corrosion inhibitor	H319 – causes serious eye irritation H411 – Toxic to aquatic life with long lasting effects.	Liquid	Soluble in water	High – harmful to aquatic life	High	Low – will not bioaccumulate	Low – low potential to penetrate soil causing soil and ground water contamination.	Yes

5 STAGE 3 – ASSESSMENT OF THE SITE SPECIFIC POLLUTION POSSIBILITY

5.1.1 The RHSs identified in Stage 2 are to be considered in Stage 3 in the context of the site itself to determine whether circumstances exist which may result in the release of the substance in sufficient quantities to represent a pollution risk, either as a result of a singular emission or as a result of accumulation from multiple emissions.

5.1.2 Circumstances under which emissions may occur include:

- Planned emissions;
- Accidents and / or incidents; and
- Routine operations.

5.1.3 The only planned emissions at the site are:

- stack emissions, these were discounted at Stage 1 as they are not considered hazardous to soils and groundwater;
- site discharge to the surface water network, this was discounted as a hazardous substance in Stage 1.

5.1.4 The site will have an Environmental Management System (EMS) which outlines the site's procedures in place to minimise the frequency of accidents or incidents occurring and outlines procedures in place to minimise the risk in the event of an accident or incident occurring. These are summarised below:

- All aspects of the site operations have been assessed for significance and an appropriate environmental risk assessment has been carried out;
- Regular inspections of impermeable surfaces, tanks, bunds and pipe work will be carried out and repairs and maintenance undertaken as necessary;
- All plant and equipment will be inspected and maintained in accordance with legal requirements and the manufactures recommendations and maintenance records will be kept by site management;
- Any complaints received about site activities will be recorded and investigated in accordance with complaints log and investigation procedure;
- A mechanism will be in place to fully investigate any environmental incidents and non-conformances in both normal and abnormal conditions and to record any remedial actions that might be taken and how to prevent re-occurrence;
- A site-specific emergency contingency and accident management plan will be in place; and
- All relevant staff will receive environmental training relating to environmental best practice on induction and are required to follow safe working procedure.

5.1.5 Emissions as a result of the RHS used during routine operations are outlined in the sections below.

5.2 Diesel and HVO

5.2.1 Either diesel or HVO will be used as fuel for the generators and the same storage arrangements will apply. The selected fuel will be stored in 4 unloading station tanks each holding approximately 40,000 litres, one serving each of the four data centre building generator compounds.

5.2.2 In addition, each generator will incorporate local storage within the generator belly tanks. The CIWB and substation generators will only have storage within the generator belly tanks. The tanks

will have secondary containment measures capable of holding at least 110% of the volume of the primary containment vessel and containment will be designed and constructed in accordance with CIRIA 736 guidelines[5].

5.2.3 All fuel storage tanks will be subject to daily visual checks for integrity and leaks. All tanks will be fitted with leak detection and high-level alarms to avoid overfilling. All tanks will be stored on an impermeable surface with sealed drainage to form a barrier and cut off the pathway to soil and groundwater. The surface will be regularly inspected as part of the EMS and will be repaired where necessary to maintain the impermeable nature of the site surface.

5.2.4 On this basis the risk to ground and groundwater is low.

5.3 Lubricating Oil (fresh and waste)

5.3.1 Lubricating oil will not be stored on the site, it will be brought onto the site as needed for maintenance purposes and waste lubricating oil will be removed from site as it is produced. On this basis, the risk of pollution to groundwater and soil from lubricating oil is deemed low, however it is considered to be a relative hazardous substance due to its hazardous properties.

5.4 Ethylene Glycol

5.4.1 Ethylene glycol is used as an additive in the closed loop cooling system for the engines. This may need topping up infrequently and in small volumes but will be brought to site on an as needed basis. There will be no onsite storage of ethylene glycol, it will only be present as a dilute solution within the cooling system. The cooling systems for each engine are enclosed within the relevant engine container which will be located on concrete hardstanding. The potential for the substance to enter soil and groundwater is extremely limited.

5.5 Corrosion Inhibitor

5.5.1 Corrosion inhibitor is used as an additive in the closed loop cooling system for the engines. This may need topping up infrequently and in small volumes but will be brought to site on an as needed basis. There will be no onsite storage of ethylene glycol, it will only be present as a dilute solution within the cooling system. The cooling systems for each engine are enclosed within the relevant engine container which will be located on concrete hardstanding. The potential for the substance to enter soil and groundwater is extremely limited.

5.6 Site Specific Pollution Possibility

5.6.1 All process areas will be situated on a hardstanding, and regular manual inspections will be conducted on the bunds associated with oil storage tanks to ensure their integrity and absence of contamination or leaks.

5.6.2 Bunding for fuel storage tanks will contain 110% of the tank it contains. Bunds will be constructed to appropriate standards and lined with materials that are impervious to the content of the material they hold.

[5] CIRIA Guidance on Containment Systems for the Prevention of Pollution https://www.ciria.org/CIRIA/CIRIA/Item_Detail.aspx?iProductCode=C736F

Table 5-1: Chemical Inventory and Assessment of Actual Pollution Risk

Substance	Nature	Approx. volume	Amount stored on site and management/control measures	Actual Pollution Risk?
Diesel	Liquid	Unloading stations 4 x 40 m^3 Generator belly tanks: Main Generator – 122 x 19.3 m^3 House Generator – 4 x 5.7 m^3 CIWB – 2 x 1.3 m^3 Substation – 1 x 0.5 m^3 (1.3 m^3 capacity)	2,428 m^3 with secondary containment located within a bunded area.	Yes
HVO	Liquid	Unloading stations 4 x 40 m^3 Generator belly tanks: Main Generator – 122 x 19.3 m^3 House Generator – 4 x 5.7 m^3 CIWB – 2 x 1.3 m^3 Substation – 1 x 0.5 m^3 (1.3 m^3 capacity)	2,428 m^3 with secondary containment located within a bunded area.	Yes
Fresh Lubricating Oil	Liquid	Limited to small volumes	No routine storage on site. Brought onto site when required.	Yes
Waste Lubricating Oil	Liquid	Limited to small volumes	No routine storage. Removed off site as produced.	Yes
Corrosion Inhibitor	Liquid	Limited to small volumes diluted in cooling water and contained within a closed loop system	Not stored - fully contained within CCCW system and within the generator containers	No
Ethylene Glycol	Liquid	Limited to small volumes diluted in cooling water and contained within a closed loop system	Not stored - fully contained within CCCW system and within the generator containers	No

6 STAGE 4 – PROVIDE A SITE HISTORY

6.1.1 The purpose of Stage 4 is to determine which of the RHS identified in Stage 3 have the potential to be present on site in the soil and groundwater already as a result of activities undertaken at the site to date and to determine whether they are coincident with potential future emission points.

6.1.2 This section should consider both the history of the site prior to development of the current facility and the operational history of the current facility.

6.2 General Site History

6.2.1 The site covers approximately 2.1 hectares of former Didcot A Power Station which was used for coal storage and cooling towers. The power station itself has been demolished, and the site has been flattened and subject to remediation ready for development. The eastern area of the site boundary is currently occupied by unused grassland.

6.2.2 Historical mapping is available from 1876 and indicates that the site at that time was in agricultural use with Durnell's Farm situated within the central area. The Great Western Railway is present approx. 500 m to the south.

6.2.1 The site is indicated to remain in agricultural use with little change until the 1950 mapping where significant development of the site is indicated. The MoD depot is present over much of the central and northern areas, including numerous buildings, railway lines and areas of open space.

6.2.2 The 1971 mapping indicates the MoD depot is no longer present and Didcot Power Station has been constructed with boiler house, turbine hall, stack, tanks and ancillary structures present within the central area. Cooling towers are present in the north-west area with conduits linking these towers with the power station. An area of surface water drainage retention present in the south-east corner Moor Ditch has been realigned on the southern boundary.

6.2.3 The site layout remains largely unchanged until 2021 where structures associated with the power station largely been demolished, with residual structures present within northern, western and south-eastern areas.

6.3 Previous Ground Investigation

6.3.1 The site has been subject to numerous phases of previous ground investigation related to the original construction of the former power station, decommissioning of the former power station and surrender of the associated environmental permit, and works related to the proposed redevelopment of the site under the current planning permission.

6.3.2 The following ground investigations have been undertaken during the due diligence evaluation of the site and subsequent investigation to inform the geoenvironmental assessment of the site for planning submissions.

- RPS. Phase 1 Desk Study, Former Didcot A Power Station, July 2022.
- Geotechnical Engineering Limited (GEL), Ground Investigation at the Former Didcot A Site. Factual Ground Investigation Report. September 2023.
- Geotechnical Engineering Limited, LHR108 Didcot. Factual Ground Investigation Report. Reference 37865. October 2023.
- Card Geotechnics Limited (CGL), LHR108 Didcot. Water Sampling Factual Report. Reference CG/39749. October 2023
- Geotechnical Engineering Limited, LHR108 Didcot 2024 Ground Investigation. Factual Ground Investigation Report. Reference 38409.
- ARUP, Ground Contamination Interpretative Report and Generic Quantitative Risk Assessment. 27689421-XX-ARP-LQ-REP-001-GQRA-001. February 2025.

6.4 Potential Historic Contaminants

6.4.1 A review of the available information indicates a number of potential sources of historic contamination, principally relating to the former presence of the coal fired power station.

6.4.2 Made Ground is known to be present across the site and includes anthropogenic materials including brick, concrete, ash and clinker. Potential contaminants that may be associated with the presence of Made Ground include metals and asbestos containing material (ACM). The thickness of the Made Ground could be considered as a potential source of ground gas, although the apparent lack of organic / putrescible material within the stratum suggests that there is a low gas generation potential.

6.4.3 Ground investigations confirmed localised areas of hydrocarbon impact in shallow soils from onsite oil infrastructure. Localised areas of hydrocarbon contamination were also recorded in the groundwater. The locations of the hydrocarbon contamination appeared to be in proximity to former fuel infrastructure.

6.4.4 Total petroleum hydrocarbons (TPH) were present on site at various locations, particularly localised in the northern area of the site.

6.4.5 ACM and asbestos were known to be present in the shallow soils, and there was residual PFAS contamination in the drainage system.

6.4.6 The risks of contamination associated with the above have been subject to assessment as a requirement of the conditions attached to the planning permission of the site for re-development to data centre use. In accordance with these conditions, a remediation strategy based on the findings of these risk assessments has been prepared and submitted for LPA approval. The applicant is required to implement the agreed strategy under planning conditions, and this must be to signed off by the LPA via submission and approval of verification report. This process will ensure that all contamination is dealt with satisfactorily prior to re-development of the site. This status will form the baseline conditions for the installation under this environmental permit at the point at which the installation becomes operational.

6.4.7 See Section 9 for more details on historic contaminants identified in the Ground Investigation reports.

7 STAGE 5 – IDENTIFY THE SITE'S ENVIRONMENTAL SETTING

7.1 Site Setting and Sources of Desk Study Information

7.1.1 The following sections detail the environmental setting of the site. The sources of desk study information utilised in order to describe the condition of the installation, and in particular, to determine the potential for substances to be present in, on or under the land associated with present and past uses of the site and its surrounding areas are listed below:

- Publicly available data sets from the EA, DEFRA, Coal Authority and Public Health England;
- Ground investigation information derived from reports listed in Section 6.3.1; and
- Information held by the British Geological Survey relating to geology and hydrogeology.

7.2 Topography

7.2.1 OS mapping indicates that the site is relatively flat.

7.3 Geology

7.3.1 A summary of the geology of the site encountered during previous ground investigations is in Table 7-1 below.

Table 7-1: Site Geology

Strata	Description	Aquifer Classification
Made Ground	Made Ground is known to be present across the majority of the site	None
Summertown-Radley Sand and Gravel Member	Typically described as an orange/ brown clayey sandy gravel or gravelly sand	Secondary A
Head deposits	Typically described as grey sandy gravelly clay	Secondary (undifferentiated)
Wolvercote Sand and Gravel Member	Typically described as orange / grey sand and gravel	Secondary A
Gault Formation	Stiff clays and mudstones	Unproductive strata

Made Ground

7.3.2 Existing ground investigation information suggests that Made ground is present across the site, typically c. 2.5 m thick but locally up to 9 m thick in the areas around the basement structures. The made ground was observed to generally comprise concrete hardstanding over engineering fill and subbase materials.

Alluvium

7.3.3 Superficial alluvium deposits were recorded across the site beneath the Made Ground. Where encountered sand and gravels of the Summertown-Radley member underlie the alluvium.

7.4 Hydrogeology

7.4.1 The Gault Clay bedrock is classified by the Environment Agency as Unproductive Strata. These are formations that are generally regarded as containing insignificant quantities of groundwater.

7.4.2 The Environment Agency classifies the Summertown-Radley Sand and Gravel Members and the Alluvium as Secondary A Aquifers, and are formations that have permeable layers that are capable of supporting water supplies at a local level.

Source Protection Zone

7.4.3 The site is not situated within a Source Protection Zone and therefore it is not considered that the underlying groundwater is a sensitive receptor

7.5 Hydrology

7.5.1 The nearest surface water feature is an unnamed stream located on the eastern and western boundaries of the site.

7.5.2 Moors Ditch is located 900 m to the east of the Site. and flows towards the east and eventually feeds into the River Thames around 3 km to the north-east of the site.

7.5.3 The nearest surface water feature is an unnamed stream located on the eastern and western boundaries of the site. Moor Ditch is located 900 m to the east of the Site.

Flood Risk

7.5.4 The EA's Flood Map for Planning indicates that the site is located within Flood Zone 1, whereby the annual probability of flooding from fluvial or tidal sources is classified as less than 1 in 1,000. The site is considered to be of 'low' risk from surface water flooding.

7.6 Environmental Consents, Licences, Authorisations, Permits and Designations for the Site and Surrounding Areas

Water Discharges and Abstraction Licences

7.6.1 Information from the EA website at the time of writing indicates that there are two active permitted discharge to controlled waters within 500 m of the site in Table 7-2 below

Table 7-2: Summary of Discharge Consents

Operator	Permit Number	Address	Distance from site (m)	Discharge type
Southmead Industrial Park	CTWC.1421	Southmead Industrial Park off northern perimeter Road, Didcot, Oxon	0	Miscellaneous, Surface water
South Oxon Industrial Centre	CTWC.3042	South Oxon Industrial centre northern Distributor Road, Didcot, Oxfordshire	0	Miscellaneous, Surface water
Nurdin & Peacock	CNTM.0564	Basil Hill Road, Didcot, Oxfordshire	226	Trade discharges - Site drainage
Didcot Wastewater Treatment Works	CATM.3651	Foxhall Road, Didcot, Oxfordshire, OX11 7HJ	257	Sewage Discharges - Final/Treated
Buildings T2 And T3	CAWM.0597	Area 200, Milton Park, Abingdon, Oxfordshire, OX14 4TA	495	Sewage Discharges - final/treated

7.6.2 There is one groundwater abstraction license located within 1 km of the site:

Table 7-3: Active Groundwater Abstraction License within 1 km

License Holder	Source	Use	Distance from site (km)
Waste Recycling Group (central) ltd	Area B at Sutton Courtenay Landfill Site, Didcot	Dewatering	0

Landfill Sites

7.6.3 There is one active landfill site within 500 m of the Site:

Location	Operator	Waste Type	Distance from site (km)
Sutton Courtney Landfill	Waste Recycling Group (Central) Ltd	Not specified	0

Waste Treatment or Disposal Sites

7.6.4 Information on the EA website at the time of writing indicates that there are no permitted waste treatment or disposal sites within 1 km of the site.

7.6.5 A PFAS water treatment system was installed in the car park in the southeast of the site in September 2024 to treat PFAS contamination in the discharge to Moors Ditch. It was installed as a temporary measure before full-scale site remediation and new drainage installation.

Permitted Installations

7.6.6 Information from the EA website at the time of writing showed one permitted installation within 1 km of the site, details of which are provided in Table 7-3.

Table 7-4: Summary of Installation Sites

Licence Holder	Licence Number	Process	Approx. Distance (m) from the site
RWE generation UK plc	Permit Number: TP3638WU Original Permit Number: YP3030LR	Combustion; any fuel =>50 MW Other mineral activities; loading, Unloading, or storing pulverised fuel ash in Bulk prior to further transportation in bulk	100 North

Statutory Designated / Sensitive Receptors within 10 km

7.6.7 The nearest residential properties are located 600 m southeast of the site.

7.6.8 Table 7-4 below lists the statutory designated sites within 10 km of the site and sites of special scientific interest (SSSIs) or local nature sites (including ancient woodland) within 2 km.

Table 7-5: Statutory Designated Sites

Site Name	Designation*	Location (relative to the site)
Ancient Woodland	Ancient Woodland	1.2 km northeast
Culham Brake	SSSI	4.5 km north
Little Wittenham	SAC, SSSI	5.5 km northeasr
Cothill Fen	SAC	10 km northwest

* Special Area of Conservation (SAC)
* Site of Specific Scientific Interest (SSSI)

7.6.9 An assessment of impacts resulting from operation of the facility has been made for the above designated sites.

Mining

7.6.10 A search using the Coal Authority website indicated that, from the information currently available to the Coal Authority, the site is not located on a coal field. The search indicates that a coal mining search report is not recommended for this property.

7.6.11 Based on the above, the risk from coal mining at the site is considered to be low.

COMAH

7.6.12 There is one lower tier COMAH sites recorded within 1 km of the site. The details are provided in Table 7-5 below:

Table 7-6: Summary of COMAH Sites

Operator	Address	COMAH Tier	Activities	Approximate distance from site (m)
Air Products (BR) Ltd	Harrier Park, Hawksworth, Didcot, Oxfordshire, OX11 7PL	Lower	Chemicals manufacture / production and /or disposal - general	650

Radon

7.6.13 The site is in a lower probability radon area, as less than 1% of homes are above the action level and radon protection measures are not considered to be required for the development.

8 STAGE 6 – SITE CHARACTERISATION

8.1.1 An outline conceptual site model (CSM) consists of an appraisal of the source-pathway-receptor ‘contaminant linkages'. All three of the following components must be present to facilitate a potential 'pollutant linkage'.

- Source referring to the source of contamination (Hazard).
- Pathway for the contaminant to move/migrate to receptor(s).
- Receptor (Target) that could be affected by the contaminant(s).

8.1.2 Receptors include human beings, controlled waters and buildings / structures.

8.1.3 As part of the assessment the potential risks to receptors for potential source is given one of the following classifications:

- Low risk - it is considered unlikely that issues within the category will give rise to significant harm to identified receptors
- Moderate risk - it is possible, but not certain that issues within the category will give rise to significant harm to receptors
- High risk - there is a high potential that issues within the category will give rise to significant harm to identified receptors

Potential Pollutant Linkages

8.1.4 Each stage of the potential pollutant linkage sequence has been assessed individually on the basis of information obtained during the review of previous site investigation reports and desk study exercise and are discussed in the following section. Current site use is considered to be the site once the permitted activities have started.

8.2 Potential Contaminant Sources

On Site – Operational Phase

8.2.1 The potential contamination sources from the proposed Installation have been discussed in sections 3-5. The primary hazardous substance associated with the Installation is the storage of diesel fuel. Lubricating oil will not be stored on site however it has been identified as a relative hazardous substance due to its hazardous properties.

8.2.2 Corrosion inhibitor and ethylene glycol have been recognised as a potential source of contamination due to hazardous properties, however they are limited to small volumes and fully contained within the CCCW system and within generator containers.

On Site – Historical (including current)

8.2.3 The site was developed as the MoD Central Ordnance Depot in the 1910’s.

8.2.4 The former use of the land as Didcot Power Station A Power Station which was used for coal storage and cooling towers has the potential to have contaminated the land. The main coal fired power station infrastructure were present over the majority of the central and northwest portion of the site. The central and southwestern portion of the site contained several large fuel storage tanks and rail access The eastern and south eastern part of the site comprised soft landscaped areas, ancillary buildings and work shop, open fields and recreational areas, and lagoons. The open fields in the east are known to have been raised with Pulverised Fuel Ash (PFA). The current PFAS water treatment plant is operating in the south eastern portion of the site. Typical contaminants associated with industrial uses such as power stations include heavy metals, asbestos, PFAS, and hydrocarbons.

Off Site – Operational Phase

8.2.5 The surrounding area is predominantly used for commercial and industrial purposes. Didcot B Power Station is located to the west of the Site. An electrical substation is located to the north of the site.

Off Site – Historical

8.2.6 The surrounding site was developed as the MoD Central Ordnance Depot in the 1910's which covered a large area to the west. The associated infrastructure included barracks buildings, with magazine stores located in the northwest.

8.2.7 The wider site has been associated with Didcot A power station since the 1960's followed by the construction of Didcot B to the west in the 1990s. During operation as a power station there were numerous industrial activities and material storages on site which could have resulted in contamination including large scale coal storage, ash storage and numerous fuel and oil tanks. A number of large cooling towers were present to the south and north west of the site.

Potential Pathways

8.2.8 All areas within the installation boundary are covered by buildings or hardstanding, and therefore the risks from operational activities to ground or groundwater will be mitigated.

8.2.9 There is the potential for vertical migration of any Made Ground contaminants to groundwater through geological deposits.

Potential Receptors

8.2.10 Potential human health receptors include future site users.

8.2.11 The nearest surface water feature is Moors Ditch which is present along the southern site boundary.

8.2.12 Groundwater is potentially present in the superficial deposits secondary A and secondary (undifferentiated) aquifer.

8.2.13 The nearest surface water feature is an unnamed stream located on the eastern and western boundaries of the site. Moors Ditch is located 900 m to the east of the Site. and flows towards the east and eventually feeds into the River Thames around 3 km to the north-east of the site.

Outline Conceptual Site Model

8.2.14 An outline CSM has been developed on the basis of the desk study and previous site investigations. The CSM is used to identify potential sources, pathways and receptors (i.e. potential pollutant linkages) on site post development and is summarised in **Table 8-1** below:

Table 8-1 - Conceptual Site Model

Location	Contaminant Source/Process	Potential Contaminants	Pathway	Receptor	Probability	Risk	Notes
On site	Operational Raw materials associated with generators: - Diesel - HVO - Lubricating Oil	Total Petroleum Hydrocarbons (TPH)	Leaching of mobile contaminants, vertical and lateral migration in permeable strata Site surface water drainage system	Shallow soils Surface waters/ unnamed stream / Moor Ditch	Unlikely	Low	The identified pollution prevention measures will mitigate the potential pathways to shallow soils, aquifers or nearby surface water receptors.
	Historic land use - Didcot Power Station A Power Station	Heavy metals, asbestos, PFAS, and hydrocarbons	Leaching of mobile contaminants, vertical and lateral migration in permeable strata	Shallow soils Surface waters/ unnamed stream / Moor Ditch	Unlikely	Low	The identified pollution prevention measures will mitigate the potential pathways to shallow soils, aquifers or nearby surface water receptors.
Off site	Coal Fired Power Station General industrial works	Heavy metals, asbestos, PFAS, and hydrocarbons	Soil leaching/aqueous migration through soils into surface waters and possible vertical migration through geological deposits Groundwater migration	Human health (site users) Surface waters/ unnamed stream / Moor Ditch	Unlikely	Low	The identified pollution prevention measures will mitigate the potential pathways to shallow soils, aquifers or nearby surface water receptors.
	General industrial works	Heavy metals, asbestos, PFAS, and hydrocarbons	Soil leaching/aqueous migration through soils into surface waters and possible vertical migration through geological deposits Groundwater migration	Human health (site users) Surface waters/ unnamed stream / Moor Ditch	Unlikely	Low	The identified pollution prevention measures will mitigate the potential pathways to shallow soils, aquifers or nearby surface water receptors.

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9 STAGE 7 – SITE INVESTIGATION

9.1.1 The conclusions of Stage 3 are that whilst hazardous substances are present on site, they are effectively managed in accordance with the sites' Environmental Management System and have a low risk of pollution.

9.1.2 A number of ground investigations have been completed at the former Didcot A Power Station Site to inform this report, as outlined in Section 9.2 below. These investigations have also informed a remediation strategy which seeks to the address potential contamination risks from site re-development. This remediation strategy is subject to approval by the local planning authority (LPA) under the site planning permission. Following completion of the approved remedial works a new baseline for site condition will be established. Whilst the conclusions of the Stage 3 indicate the pollution potential of RHSs are low, it is recommended that, post-remedial works, a localised ground investigation is carried out within the installation boundary to baseline the concentrations.

9.2 Summary of Works Undertaken

Phase 1 Desk Study, RPS, July 2022

9.2.1 RPS was commissioned by RWE to undertake a Phase 1 Desk Study of the former site of the Didcot A Power Station site and its ancillary cooling towers.

9.2.2 A number of contamination sources were identified, predominantly in relation to the storage and use of hydrocarbons associated with the operations of the former Didcot A Power Station. The study recognised that PFAS contamination is present in groundwater and site drainage, and identified the requirement for ongoing treatment and monitoring.

9.2.3 Areas of hydrocarbon contamination were identified in soils, particularly in the northern part of the site, and low but widespread levels of asbestos were identified in made ground soils.

Geotechnical Engineering Limited (GEL), Factual Ground Investigation Report. September 2023

9.2.4 A ground investigation instructed by ARUP was undertaken in September 2023 at the Former Didcot A Power Station to inform the due diligence assessment of the site.

9.2.5 The ground investigation targeted areas of potential contamination as well as general coverage of the wider site. Testing for PFAS compounds was introduced to the scope.

9.2.6 The intrusive works were undertaken between 22 May and the 29 June 2023 and groundwater and ground gas monitoring was undertaken between 11 July and 3 August 2023. An additional phase of investigation was undertaken by GEL from 2 to 5 October comprising an additional 5 No. boreholes.

9.2.7 A summary of TPH data in soil samples for boreholes within the Installation boundary (BH-ARP-104, BH-ARP-02, BH-ARP19) is provided in Table 10-1 of this report.

Geotechnical Engineering Limited (GEL), Factual Ground Investigation Report, October 2023

9.2.8 An additional phase of investigation was undertaken by GEL from 2 to 5 October 2023 and comprised the installation of 5 new boreholes.

Card Geotechnics Limited (CGL), Water Sampling Factual Report October, 2023

9.2.9 Following the detection of PFAS in groundwater and surface water, further groundwater and surface water sampling was undertaken.

9.2.10 Four rounds of monitoring were undertaken between 25 September and 19 October 2023 from groundwater monitoring installations, surface water, drainage runs and the basement.

9.2.11 A summary of the total PFOS in groundwater sampling data at the boreholes within the Installation boundary (BH-ARP-02, BH-ARP-19 and BH-ARP-104) is provided in **T**able 10-2 of this report.

GEL, Factual Ground Investigation Report, 2024

9.2.12 The GEL 2024 phase of ground investigation was proposed to provide additional information in support of the contamination assessments of the site. This focused on the PFAS contamination identified within the groundwater and drainage systems within the site. The investigation also assessed the spatial distribution of areas of hydrocarbon contamination encountered during the 2023 phase of works.

9.2.13 The intrusive works were undertaken between 4 and 26 November 2024 and the groundwater and surface water monitoring was undertaken between 20 November and 13 December 2024.

9.2.14 This investigation assessed total petroleum hydrocarbons (TPH) in soil samples at various locations across the former Didcot A Site, including BH-ARP-205 and BH-ARP-206 within the installation boundary. See Table 10-1 for results.

9.2.15 PFAS was confirmed to be present in groundwater, flooded basements and within the wider drainage system of the former Didcot A Site.

ARUP, Ground Contamination Interpretative Report and Generic Quantitative Risk Assessment, 2025

9.2.16 This report provided an updated preliminary risk assessment for the proposed site redevelopment incorporating the latest previous investigation phases.

9.2.17 The report summarised the phases and findings of ground investigation undertaken at the site during the decommissioning of the former Power Station, and more recent works undertaken in support of the redevelopment of the site. It also includes a contamination risk assessment based on the results from the ground investigation works undertaken at the site.

Remediation Strategy 2025

9.2.18 A remediation strategy has been developed for targeted remediation of soils, surface water, shallow groundwater and basement and has been submitted to the LPA and EA as a requirement of the planning process.

9.2.19 Remediation of soils is proposed to remove oil infrastructure and surrounding impacted soil, areas of hydrocarbon impact in shallow soils. The ACM and asbestos in the shallow soils will be removed where encountered and material with residual PFAS contamination in the drainage system will be removed.

9.2.20 The remediation strategy proposes the targeted removal of PFAS detected in site drainage and in groundwater. The proposed method is the injection of collodial activated carbon or similar agent to absorb and attenuate PFAS in source areas. Decommissioning of the drainage infrastructure and basement will mitigate potential residual sources of PFAS.

9.2.21 Conditions attached to the site planning permission require completion of a remediation verification report, detailing how the remedial works detailed in the remediation strategy

have been completed to achieve the required objectives. This will be subject to approval by the LPA.

10 STAGE 8 – PRODUCE A BASELINE REPORT

10.1.1 Stage 8 of the IED baseline assessment is to summarise all of the information collected in stages 1 to 7 to produce a report which identifies the state of the soil and groundwater contamination by relevant hazardous substances.

10.1.2 Details provided in Stages 1-7 include information on potential contaminant sources on site both historic and those which will be present as a result of the proposed permitted activity. It is noted that the data summarised below is representative of the site conditions prior to site re-development and implementation of remediation works to address historic contamination risks identified on site. An updated baseline assessment can be completed post-remedial works, prior to first operation of the installation.

10.1.3 Summary of data (prior to site remediation)

10.1.4 The 2024 GEL Ground Investigation identified that some petroleum hydrocarbon fractions exceeded saturation limits locally in soil samples in boreholes BH-ARP-205 and BH-ARP-206 which sit within the installation boundary. This indicates possible free phase hydrocarbons remaining in soil. See Table 10-1 below for baseline hydrocarbon in soils and groundwater.

10.1.5 In the analysis of samples BH-ARP-205 and BH-ARP-206, the concentrations of Aliphatics in the >C21-C35 range significantly exceeded the limit of <1,000 µg/kg, with measured values of 3,420 µg/kg and 3,130 µg/kg, respectively.

10.1.6 Additionally, the Aromatics in the >EC21-EC35 range also surpassed the limit of <1,000 µg/kg, showing concentrations of 2,680 µg/kg for BH-ARP-205 and 2,920 µg/kg for BH-ARP-206. These exceedances indicate elevated levels of both aliphatic and aromatic hydrocarbons in these mid-to-high carbon ranges for both samples.

10.1.7 Groundwater boreholes BH-ARP-02 and BH-ARP-104 also exceeded the limit of <1,000 µg/kg for many of the aliphatic components.

Table 10-1: TPH in soils samples from location within or in proximity to the installation boundary

Component	Limit	Unit	2024 GEL Investigation		2023 GEL Ground Investigation		
			BH-ARP-205 14/11/2024	BH-ARP-206 15/11/2024	BH-ARP-02 Sample Ref[1]:1 06/06/2023	BH-ARP-104* Sample Ref[1]:5 03/10/2023	BH-ARP-19 12/06/2023
Aliphatics >C5-C6 (HS_1D_AL)	<10	µg/kg	91.2	<10	< 10	11	< 10
Aliphatics >C6-C8 (HS_1D_AL)	<10	µg/kg	<10	<10	<10	58	<10
Aliphatics >C8-C10 (HS_1D_AL)	<10	µg/kg	<10	<10	<10	192	<10
Aliphatics >C10-C12 (EH_2D_AL_#1)	<1000	µg/kg	<10	<1,000	<1500	166,000	<1,500
Aliphatics >C12-C16 (EH_2D_AL_#1)	<1,000	µg/kg	<1,000	<1,000	470,000	1,040,000	<1,200
Aliphatics >C16-C21 (EH_2D_AL_#1)	<1,000	µg/kg	<1,000	<1,000	2,400,000	1,200,000	<1,500
Aliphatics >C21-C35 (EH_2D_AL_#1)	<1,000	µg/kg	3,420	3,130	1,000,000	726,000	<3,400
Aliphatics >C35-C44 (EH_2D_AL_#1)	<1,000	µg/kg	<1,000	<100	3,400	206,000	<3,400
Total Aliphatics >C10-C44 (EH_2D_AR_#1)	<5,000	µg/kg	<5,000	<5,000	3,900,000	-	<10,000
Aromatics >EC5-EC7 (HS_1D_AR)	<10 µg/kg	µg/kg	<10	<10	<10		<10
Aromatics >EC7-EC8 (HS_1D_AR)	<10	µg/kg	<10	<10	<10		<10
Aromatics >EC8-EC10 (HS_1D_AR)	<10	µg/kg	<10	<10	<10	11	<10
Aromatics > EC10-EC12 (EH_2D_AR_#1)	<1,000	µg/kg	<1,000	<1,000	900	20.5	<900
Aromatics > EC12-EC16 (EH_2D_AR_#1)	<1,000	µg/kg	<1,000	<1,000	16,430	338,000	<500

Component	Limit	Unit	2024 GEL Investigation		2023 GEL Ground Investigation		
			BH-ARP-205 14/11/2024	BH-ARP-206 15/11/2024	BH-ARP-02 Sample Ref[1]:1 06/06/2023	BH-ARP-104* Sample Ref[1]:5 03/10/2023	BH-ARP-19 12/06/2023
Aromatics > EC16-EC21 (EH_2D_AR_#1)	<1,000	µg/kg	<1,000	<1,000	117,700	255,000	<600
Aromatics > EC21-EC35 (EH_2D_AR_#1)	<1,000	µg/kg	2,680	2,920	70,650	82,600	<1,400
Aromatics >EC35-EC44 (EH_2D_AR_#1)	<1,000	µg/kg	<1,000	<1,000	<1000	<1000	<1,400
Aromatics > EC40-EC44 (EH_2D_AR_#1)	<1,000	µg/kg	<1,000	<1,000	1,400	<1000	-
Total Aromatics > EC10-EC44 (EH_2D_AR_#1)	<5,000	µg/kg	<5,000	<5,000	510,000		<10,000
Total Aliphatics & Aromatics >C5-C44 (EH_2D_Total_#1+HS_1D_Total)	<10,000	µg/kg	<10,000	<10,000	207,700	4,040,000	-

1. For boreholes with more than one sample ref, the highest value has been inputted into this table.

10.1.8 Inspection pit logs in the 2024 GEL Ground Investigation for trial pits HP-205 and HP-203, both located within the installation boundary, were found to contain asbestos-containing material.

10.1.9 The 2023 CGL groundwater sampling found the total PFOS concentration measured at BH-ARP-02 groundwater monitoring point, located within the installation boundary, was recorded at 47.6 ng/L, significantly exceeding the regulatory limit of <0.65 ng/L. Similarly, BH-ARP-19 exceeded the limit with a recording of 2,140 ng/l.

Table 10-2 PFOS levels in Groundwater from Boreholes within the Installation Boundary

Borehole	Limit	Unit	Total PFOS
BH-ARP-19	<0.65	ng/l	2,140
BH-ARP-02	<0.65	ng/l	47.6
BH-ARP-104	<0.65	ng/l	28.6

10.1.10 Whilst there is adequate data available to baseline the site for RHSs that may be used, produced and released from operational activities, the conclusions of the recent site investigations have identified that a programme of remediation works is required. The remediation strategy will be agreed with the Environment Agency via the planning process and following completion of the agreed remediation works will be subject to verification testing. Given these proposed works the baseline for the site will be confirmed once remediation works are complete and subsequent verification reports are available. This section of the SCBR will therefore be completed once verification reports have been produced and accepted. This will be prior to the permitted operations commencing.

10.1.11

11 OPERATIONAL SITE CONDITION REPORT

11.1 Operational Phase

11.1.1 This section will be updated once the facility becomes operational and will be maintained throughout the operational life of the facility.

11.2 Site Condition Report Summary

4.0 Changes to the activity	
Have there been any changes to the activity boundary? If yes, provide a plan showing the changes to the activity boundary.	If yes, provide a plan showing the changes to the activity boundary.
Have there been any changes to the permitted activities? If yes, provide a description of the changes to the permitted activities	If yes, provide a description of the changes to the permitted activities
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities? If yes, list them	If yes, list them
Checklist of supporting information	1. Plan showing any changes to the boundary (where relevant) 2. Description of the changes to the permitted activities (where relevant) 3. List of 'dangerous substances' used/produced by the permitted activities that were not identified in the Application Site Condition Report (where relevant)

5.0 Measures taken to protect land	
Use records that you collected during the life of the permit to summarise whether pollution prevention measures worked. If you can't, you need to collect land and/or groundwater data to assess whether the land has deteriorated.	
Checklist of supporting information	1. Inspection records and summary of findings of inspections for all pollution prevention measures 2. Records of maintenance, repair and replacement of pollution prevention measures

6.0 Pollution incidents that may have had an impact on land, and their remediation	
Summarise any pollution incidents that may have damaged the land. Describe how you investigated and remedied each one. If you can't, you need to collect land and /or groundwater reference data to assess whether the land has deteriorated while you've been there.	
Checklist of supporting information	1. Records of pollution incidents that may have impacted on land 2. Records of their investigation and remediation

7.0 Soil gas and water quality monitoring (where undertaken)	
Provide details of any soil gas and/or water monitoring you did. Include a summary of the findings. Say whether it shows that the land deteriorated as a result of the permitted activities. If it did, outline how you investigated and remedied this.	
Checklist of supporting information	1. Description of soil gas and/or water monitoring undertaken 2. Monitoring results (including graphs)

12 SURRENDER SITE CONDITION REPORT

12.1.1 At permit surrender, the following sections of the SCR template (EPR H5) will be completed and submitted to the EA as part of the permit surrender application. Information that has been gathered over the lifetime of the Permit will be used to identify whether the land is in a satisfactory condition. If necessary, surrender reference data will be collected and remediation will be undertaken if required.

8.0 Decommissioning and removal of pollution risk	
Describe how the site was decommissioned. Demonstrate that all sources of pollution risk have been removed. Describe whether the decommissioning had any impact on the land. Outline how you investigated and remedied this.	
Checklist of supporting information	1. Site closure plan 2. List of potential sources of pollution risk 3. Investigation and remediation reports (where relevant)

9.0 Reference data and remediation (where relevant)	
Say whether you had to collect land and/or groundwater data. Or say that you didn't need to because the information from sections 3, 4, 5 and 6 of the Surrender Site Condition Report shows that the land has not deteriorated. If you did collect land and/or groundwater reference data, summarise what this entailed, and what your data found. Say whether the data shows that the condition of the land has deteriorated, or whether the land at the site is in a "satisfactory state". If it isn't, summarise what you did to remedy this. Confirm that the land is now in a "satisfactory state" at surrender.	
Checklist of supporting information	1. Land and/or groundwater data collected at application (if collected) 2. Land and/or groundwater data collected at surrender (where needed) 3. Assessment of satisfactory state 4. Remediation and verification reports (where undertaken)

10.0 Statement of site condition
Using the information from sections 3 to 7, give a statement about the condition of the land at the site. This should confirm that: 1. the permitted activities have stopped 2. decommissioning is complete, and the pollution risk has been removed 3. the land is in a satisfactory condition

13 CONCLUSIONS

13.1.1 RPS has undertaken an assessment of the site condition at the proposed site for an emergency back-up generation facility for Didcot North Data Centre Campus. The primary purpose of this report is to provide information to the Environment Agency in relation to the operations and to provide them with a framework against which potential future contamination issues will be assessed.

13.1.2 The storage of fuel (diesel/HVO) and use of lubricating oil, ethylene glycol and corrosion inhibitor have been identified as potential RHS due to their hazardous properties.

13.1.3 The unloading station top-up tanks will be within a concrete bund with a capacity of 110% that of the tank. The generator belly tanks will be within the relevant engine container which will each have capacity to store 110% of the relevant tank. The fuel tanks are subject to daily visual checks for integrity and leaks. All tanks are stored on an impermeable surface with sealed drainage to form a barrier and cut off the pathway to soil and groundwater. The surface is regularly inspected as part of the EMS and will be repaired where necessary to maintain the impermeable nature of the site surface. On this basis, the risk of potential contamination from fuels is minimised.

13.1.4 Lubricating oil will not be stored on the site. It will be brought onto the site as needed for maintenance purposes and waste oil will be removed from site as it is produced. On this basis the risk of potential contamination is minimised.

13.1.5 Corrosion inhibitor and ethylene glycol will be dilute and will be in a fully contained. Therefore, the potential pollution risk is deemed low and therefore on a site specific basis they are not considered to be RHSs.

13.1.6 The site is located on the historic Didcot A Power Station. The area covered by the installation was used for coal storage and cooling towers. Ground investigations conducted in 2023 and 2024 confirmed localised areas of hydrocarbon contamination in soils and groundwater from onsite oil infrastructure. TPH is also present on site at various locations, particularly localised in the northern area of the site, as well as asbestos and PFAS contamination in the drainage system.

13.1.7 A remediation strategy will be agreed with the Environment Agency (EA), and upon completion of the remediation work and verification testing additional borehole investigations may be arranged to confirm baseline hydrocarbon conditions before the facility begins operations. All proposals for these investigations will be agreed with the EA in advance, and the baseline section of the report will be updated accordingly prior to commencement of permitted activities.

DRAWINGS

Drawing 1	**Location Plan**
Drawing 2	**Proposed Permit Boundary**
Drawing 3	**Surface Water Drainage Plan**
Drawing 4	**Foul and Process Water Drainage Plan**
Drawing 5	**Sensitive Receptor Plan**

APPENDICES

Appendix A
Groundsure Report