

Keadby Next Generation Power Station

Environmental Permit Application

Appendix C – Site Condition Report

The Environmental Permitting (England and Wales) Regulations 2016

Operator: Keadby Next Generation Limited

Date: 24th October 2025

Document Version Control

Version	Date	Author	Approver	Changes
Draft	25/09/2025	Izzy Mills	Helen Watson	Amended following client review
Issue	24/10/2025	Izzy Mills	Helen Watson	Final

GLOSSARY

Abbreviation	Description
AEP	Annual Exceedance Probability
AGST	Above Ground Storage Tanks
ALC	Agricultural Land Classification
BGS	British Geological Survey
bgl	Below Ground Level
CAS	Chemical Abstracts Service
CLP	Classification, Labelling, and Packaging Regulations
DWS	Drinking Water Standard
EA	Environment Agency
ES	Environmental Statement
EQS	Environmental Quality Standard
GAC	Generic Assessment Criteria
IED	Industrial Emissions Directive
MCA	Mineral Consultation Areas
MSA	Mineral Safeguarding Areas
MSDS	Material Safety Data Sheet
NAPL	Non-aqueous Phase Liquid
PAH	Poly Aromatic Hydrocarbons
RHS	Relevant Hazardous Substances
SPZ	Source Protection Zones
TPH	Total Petroleum Hydrocarbons
WQS	Water Quality Standard

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1. Site Details

Name of the applicant	Keadby Next Generation Limited
Activity address	<p>The Proposed Installation address is:</p> <p style="text-align: center;">Keadby Next Generation Power Station</p> <p style="text-align: center;">Trentside, Keadby, North Lincolnshire</p> <p style="text-align: center;">DN17 3EF</p> <p>The site location is:</p> <p style="text-align: center;">53°35'54.8"N 0°45'41.7"W</p> <p>https://maps.app.goo.gl/YEHH86wRcadwKFXd8</p>
National grid reference	SE 820120

Document reference and dates for Site Condition Report at permit application and surrender	Keadby Hydrogen Next Generation Power Environmental Permit Application, Main Supporting Document, Appendix C
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Document references for site plans (including location and boundaries)	<ul style="list-style-type: none"> • Site Location Drawing (Figure 1, Appendix A of the Main Supporting Document) • Site Installation Boundary (Figure 2, Appendix A of the Main Supporting Document) • Indicative Installation Layout (Figure 3, Appendix A of the Main Supporting Document)
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2. Condition of the Land at Permit Issue

<p>Environmental setting including:</p> <ul style="list-style-type: none"> • geology • hydrogeology • surface waters 	<p>Geology</p> <p>Although not mapped, Made Ground is expected across the Proposed Installation Site (the Site) given the historical site use, up to a depth of 2m. The Made Ground across the Site is made up of Artificial deposits on the natural ground's surface.</p> <p>Below the Made Ground deposits lie deposits of clay and silt with subsequent layers with potential presence of silt, sand, peat and basal gravel, having a thickness of between 12 and 17m. These layers together comprise the Superficial Deposits at the Site.</p> <p>The Bedrock deposits across the Site comprise Mercia Mudstone Group, consisting of predominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/ anhydrite widespread; sandstones are also present.</p> <p>A review of available records, comprising BGS Geindex website and published maps, selected historical BGS borehole records available from the Site and historical ground investigations (summarised in Volume II, Appendix 13A – Phase I Desk Based Assessment Addendum of the Environmental Statement (ES) provided in Appendix B of the Main Supporting Document) indicate that the Site is underlain by the geological succession summarised below.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Geological stratum</th> <th style="text-align: left;">Location</th> <th style="text-align: left;">Anticipated thickness</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <tr> <td>Made Ground</td> <td>Made Ground is expected across the Site given the historical site use.</td> <td>Up to 2m</td> <td>Artificial deposits on the natural ground's surface.</td> </tr> <tr> <td>Warp (artificially induced Alluvium)</td> <td>Across the majority of the Site.</td> <td>12 – 17m</td> <td>Clay and silt.</td> </tr> <tr> <td>Mercia Mudstone Group (bedrock)</td> <td>Across the Site and study area, beneath the superficial deposits.</td> <td>Up to 200m</td> <td>Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/ anhydrite widespread;</td> </tr> </tbody> </table>	Geological stratum	Location	Anticipated thickness	Description	Made Ground	Made Ground is expected across the Site given the historical site use.	Up to 2m	Artificial deposits on the natural ground's surface.	Warp (artificially induced Alluvium)	Across the majority of the Site.	12 – 17m	Clay and silt.	Mercia Mudstone Group (bedrock)	Across the Site and study area, beneath the superficial deposits.	Up to 200m	Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/ anhydrite widespread;
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			sandstones are also present.
<p>Hydrogeology</p> <p>The superficial geology (Alluvium/ Warp) is classified as a Secondary A aquifer. These are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. The bedrock geology (Mercia Mudstone Formation) is classified as a Secondary B aquifer. These are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers. Environment Agency (EA) Groundwater Maps show that the Site falls outside any Groundwater Source Protection Zones (SPZ). There are no SPZ within 1km of the Site.</p> <p>The Site is also identified to be located in an area with the groundwater vulnerability classified as medium-high. These are high priority groundwater resources that have limited natural protection. These areas are likely to be characterised by generally high leaching soils. This results in a medium-high overall pollution risk to groundwater from surface activities.</p> <p>The Site is indicated to be outside any surface water Safeguard Zones for Drinking Water.</p> <p>There is one licenced groundwater abstraction recorded within the Site. This abstraction point is indicated to be within the footprint of the existing Keadby Power Station (National Grid Reference 482619, 411656). It has multiple variations to the licence, with the most recent licensed to 'Siemens Public Limited Company' (Md/028/0083/040). The abstraction is listed as being for 'industrial/ commercial/ public services/ dewatering' and is related to the Keadby 2 Power Station (undergoing commissioning).</p> <p>Based on local authority consultation carried out as part of the ES, there are no records of private water abstractions within a 1km radius of the Proposed Installation Site.</p> <p>Groundwater levels within the historical borehole records reviewed indicate generally shallow groundwater levels within the superficial geology of between 0.9m - 3.0m below ground level (bgl). Occasionally, deeper groundwater strikes were recorded between 5.4m - 6.9m bgl. There is insufficient information to conclude at this stage whether these levels are representative of true groundwater levels across the wider area. The EA do not hold any groundwater level monitoring data within the Site boundary.</p> <p>Hydrology</p> <p>There are numerous surface water features located within the vicinity of the Site. The River Trent (tidal river) (Humber Upper)</p>			

	<p>flows in a north-south direction to the east of the wider Keadby Power Station Site.</p> <p>The River Torne flows 20m south of the A18 junction.</p> <p>Sheffield and South Yorkshire Navigation/ Stainforth and Keadby Canal is to the south of the Site and crosses the northern section of the A18 access road flowing in a west-east direction.</p> <p>In addition, there are various named and unnamed drains in the Site's vicinity.</p> <p>Nine surface water abstractions have been identified in the vicinity of the Site.</p> <p>The Site is located within a nitrate vulnerable zone – surface water.</p> <p>The EA 'Flood map for planning' indicates that the Site and surrounding environs (other than a small, slightly elevated area between Keadby Common in the east, Keadby Boundary Drain in the west, and the Stainforth and Keadby canal to the south, and around Crowle) is within the EA's indicative Flood Zone 3 (defined as land assessed as having a 1 in 100 or greater annual probability of river flooding (>1% Annual Exceedance Probability or AEP), or a 1 in 200 or greater annual probability of flooding from the sea (>0.5% AEP) in any year). However, land north of the Stainforth and Keadby canal benefits from flood defences (embankments) along the River Trent. Based on the information provided by the EA, it has been determined that during the existing scenario the Site is at a 'low' risk of flooding from tidal sources with the defences in place or resulting from overtopping of the defences during events that exceed a 0.5% AEP (1 in 200 chance) of flooding.</p>							
<p>Pollution history including:</p> <ul style="list-style-type: none"> • pollution incidents that may have affected land • historical land-uses and associated contaminants • any visual/olfactory evidence of existing contamination • evidence of damage to pollution prevention measures 	<table border="1"> <thead> <tr> <th data-bbox="481 1265 713 1301">Mapping Date</th> <th data-bbox="719 1265 1383 1301">Description of Land</th> </tr> </thead> <tbody> <tr> <td data-bbox="481 1301 713 1503">Circa 1885 – 1886</td> <td data-bbox="719 1301 1383 1503"> <p>The Site is shown to be largely undeveloped with predominantly open fields. Properties are shown near to the western banks of the River Trent.</p> <p>A railway passed near to Keadby Junction, running broadly parallel adjacent to the south of the Site in a west-east direction.</p> </td> </tr> <tr> <td data-bbox="481 1503 713 1942">1967 – 1969</td> <td data-bbox="719 1503 1383 1942"> <p>A power station is shown to have been developed to the east of the Site (i.e. in the location of Keadby 1 generating station). Three mixed circular and rectangular tanks of unknown contents are present south and east of the power station.</p> <p>Railway lines, orientated in a west-east direction, occupy the land to the south of the Site and terminate, at the power station. Adjacent to the north of the railway lines is a conveyor system, presumably used for the transport of materials and fuels, such as coal, from trains to the power station.</p> <p>An area marked up as slag heap is to the west of the Site, with 2 sludge pools also shown.</p> </td> </tr> </tbody> </table>	Mapping Date	Description of Land	Circa 1885 – 1886	<p>The Site is shown to be largely undeveloped with predominantly open fields. Properties are shown near to the western banks of the River Trent.</p> <p>A railway passed near to Keadby Junction, running broadly parallel adjacent to the south of the Site in a west-east direction.</p>	1967 – 1969	<p>A power station is shown to have been developed to the east of the Site (i.e. in the location of Keadby 1 generating station). Three mixed circular and rectangular tanks of unknown contents are present south and east of the power station.</p> <p>Railway lines, orientated in a west-east direction, occupy the land to the south of the Site and terminate, at the power station. Adjacent to the north of the railway lines is a conveyor system, presumably used for the transport of materials and fuels, such as coal, from trains to the power station.</p> <p>An area marked up as slag heap is to the west of the Site, with 2 sludge pools also shown.</p>	
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		Keadby Common Farm and White House Farm are to the east of the Site. Further to the east, an increase in properties is noted.
	1978 – 1982	The Site remains shown as agricultural land. Circa seven mixed circular and rectangular tanks are shown to occupy the land directly south of the power station building.
	1991 – 1994	The Site remains shown as agricultural land. Keadby Common Farm is no longer shown.
	1995	<p>The disused power station has become an electric generation station and a change in site layout is observed.</p> <p>The railway and conveyor system that was previously present terminating at the power station is now absent from the landscape.</p> <p>A set of small tanks and a single tank is located to the west; five tanks run parallel to the south, and an additional set of tanks is located east of the electric generation station.</p> <p>Further west from the electric generation station are three large tanks.</p> <p>The refuse heap and area of marshland to the south-west of the Site are now indicated to be absent.</p> <p>A large electric substation is now present directly to the east of the Site with electricity transmission cables and pylons connected to the electric generation station, with overhead cables leading off to the north, south and west. A building and mast are present to the north of the electric generation station.</p>
	2000 - 2006	<p>The slag heap to the west of the Site is now shown as a disused Spoil Heap, and the sludge pits are no longer present.</p> <p>No notable changes.</p>
	2020	Wind turbines are shown to the north of the Site, but no other changes are notable.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	<p>Historical mapping has been reviewed to evaluate the potential for past activities, both on and adjacent to the Site, to have impacted upon the Site’s environmental and land quality. The adopted 2003 Local North Lincolnshire Plan does not refer to any Mineral Safeguarding Areas (MSA) or Mineral Consultation Areas (MCA) in the area.</p> <p>Based on available data and local authority consultation carried out for the ES, there are no records of aggregate/ mineral quarrying or mining, non-coal mining or coal mining within 500m of the Site. As such, the risk from quarrying and mining can be considered to be negligible.</p>	

<p>Baseline soil and groundwater reference data</p>	<p>As the Proposed Installation is to be installed on concrete hard standing with controlled drains, using a limited type and quantity of potentially contaminating raw materials stored in appropriately secured and banded containers, the likelihood of the new operations adversely affecting the surrounding environment is considered to be minimal. Therefore, based on the review of existing ground conditions and Proposed Installation operations, it is considered that the proposed activities do not pose a significant risk to the environment.</p> <p>In 2022 Fugro undertook intrusive ground investigation to provide information on ground, groundwater and ground contamination conditions in relation to the proposed Keadby 3 Low Carbon Gas Power Station, the alternative development to the Proposed Installation.</p> <p>The interpretative ground investigation report and factual ground investigation reports are presented in Annex C. The intrusive ground investigation works were undertaken between August and November 2022. A total of 113 exploratory locations were investigated to a maximum depth of 42m comprising a mixture of boreholes and in-situ geotechnical test locations.</p> <p>Within the area of the Proposed Installation, made ground was recorded across the Site comprising a gravelly clayey sand with fragments of brick, glass, wood, ash and coal. The made ground thickness varied between 0m and 2.9m with an average thickness of 1m.</p> <p>Natural superficial deposits comprised alluvium, with alternate clay and sand layers, across the site over glaciofluvial deposits comprising silty sand which on average 7.4m thick. In total there is approximately 13-14m of superficial deposits which overly the Mercia Mudstone bedrock.</p> <p>Groundwater monitoring standpipes were installed in the natural superficial deposits and bedrock at the Site and Groundwater monitoring undertaken between October 2022 and December 2022 recorded an average depth to groundwater in the superficial deposits of an average 0.5 to 2m bgl.</p> <p>During the investigation no olfactory evidence of contamination was recorded and no evidence was non-aqueous phase liquid (NAPL) was identified on the groundwater during subsequent monitoring.</p> <p>The soil sample results were compared to generic assessment criteria (GAC) values for a commercial land use. The majority of samples tested recorded contaminant concentrations below the GAC.</p> <p>119 samples across the wider site were collected from areas of made ground. Of those 119 samples 68 were taken from areas of made ground within the Proposed Installation permit boundary. 65 of these samples were tested for the presence of polycyclic aromatic hydrocarbons (PAHs) and of the 65 samples, 23 were found with</p>
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	<p>elevated levels of PAHs. Of the 68 samples, 12 were tested for total petroleum hydrocarbons (TPH) and 4 of those samples identified elevated levels of TPH.</p> <p>Three rounds of water samples were taken from 23 groundwater monitoring boreholes 14 of which are located within the proposed permit boundary. The results were assessed against the generic water quality standards (WQS) including environmental quality standards (EQS) and UK drinking water standards (DWS). The results showed elevated levels of arsenic at all locations and elevated levels of nickel at 9 locations. 2 of the locations also had elevated levels of Phenol and Benzo(a)pyrene.</p> <p>For surface water features, two rounds of monitoring across the wider site (including areas outside of the permit boundary) were undertaken at 5 locations. These samples were compared against generic WQS including EQS and DWS. Samples from two of these locations indicated elevated levels of Phenol and another location reported elevated levels of Nickel.</p>
<p>Supporting information</p>	<p>Keadby Hydrogen Phase 1 Desk Based Assessment Addendum</p>

3. Permitted Activities

Permitted activities	Section 1.1 Part A(1)(a): Burning of any fuel in an appliance with a rated thermal input of 50MW or more
Non-permitted activities undertaken	N/A
Document references for: <ul style="list-style-type: none"> • plan showing activity layout; and • environmental risk assessment 	<ul style="list-style-type: none"> • Indicative Installation Layout (Figure 3, Appendix A of the Main Supporting Document) • Environmental Risk Assessment (Section 7 and Appendix J of the Main Supporting Document of the Environmental Permit Variation)

- 3.1.1 As demonstrated in the Quantitative Risk Assessment (Main Supporting Document Section 7 and Appendix K), the activities undertaken at the Proposed Installation and the associated pollution prevention and containment measures are considered to represent a negligible risk of pollution to the underlying soil and groundwater, hence no collection of baseline data is proposed.
- 3.1.2 The Proposed Installation will maintain an incident register throughout the lifetime of the operations which will log any losses of containment or near misses, and record whether the loss was contained to the site systems (as expected) or managed to enter the underlying soil and groundwater, in which case the clean-up and remediation activities undertaken will be recorded.
- 3.1.3 The Proposed Installation will also maintain an infrastructure monitoring log to record the schedule inspection and maintenance of containment systems e.g. lubrication oil tank and bunding, and any significant maintenance or repair activities required. Details of the routine inspection and maintenance activities will be developed prior to commencement of operations and will be in line with industry best practice.

4. Changes to the Activity

Have there been any changes to the activity boundary?	Not applicable
Have there been any changes to the permitted activities?	Not applicable
Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?	Not applicable
Checklist of supporting information <ul style="list-style-type: none"> • Plan showing any changes to the boundary (where relevant) • Description of the changes to the permitted activities (where relevant) • List of 'dangerous substances' used/produced by the permitted activities that were not identified in the Application Site Condition Report (where relevant) 	Not applicable

5. Measures to Protect Land

<p>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.</p>	<p>Not applicable</p>
<p>Document references for:</p> <ul style="list-style-type: none"> • Inspection records and summary of findings of inspections for all pollution prevention measures • Records of maintenance, repair and replacement of pollution prevention measures 	<p>Not applicable</p>

6. Pollution Incidents that may have had an Impact on Land and their Remediation

<p>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.</p>	<p>Not applicable</p>
<p>Document references for:</p> <ul style="list-style-type: none"> • Records of pollution incidents that may have impacted on land • Records of their investigation and remediation 	<p>Not applicable</p>

7. Soil Gas and Water Quality Monitoring (where undertaken)

<p>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.</p>	<p>Not applicable</p>
<p>Document references for:</p> <ul style="list-style-type: none"> • Description of soil gas and/or water monitoring undertaken • Monitoring results (including graphs) 	<p>Not applicable</p>

8. Decommissioning and Removal of Pollution Risk

<ul style="list-style-type: none">• Site closure plan• List of potential sources of pollution risk• Investigation and remediation reports (where relevant)	Not applicable
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9. Reference and Remediation (where relevant)

<ul style="list-style-type: none"> • Land and/or groundwater data collected at application (if collected) • Land and/or groundwater data collected at surrender (where needed) • Assessment of satisfactory state • Remediation and verification reports (where undertaken) 	<p>Not applicable</p>
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10. Statement of Site Condition

Not applicable.

ANNEX A – STAGE 1 – 3 ASSESSMENT

A1 Introduction

A Stage 1 to 3 assessment, as outlined in the European Commission Guidance concerning baseline reporting (2014/C 136/03), has been carried out to support the Site Condition Report. The European Commission Guidance under Article 22(2) of Directive 2010/75/EU specifies criteria for baseline reports, covering aspects such as the necessity of the report, investigation design, and report development. The Stage 1 to 3 assessment has been prepared to include the following components:

- Specification of primary containment, including the volume of any relevant hazardous substances (RHS) proposed for storage or use within the scope of this Environmental Permit application and their Material Safety Data Sheets (MSDS).
- Description of secondary containment measures and their volumes, alongside a compliance evaluation in accordance with CIRIA Report C736—Containment systems for the prevention of pollution.

To address this requirement the aim of Annex A is to conduct an assessment aligned with Stages 1 to 3 of the European Guidance concerning baseline reports as outlined in Article 22(2) of Directive 2010/75/EU on Industrial Emissions. The guidance describes the following stages:

- Stage 1: Identify the hazardous substances currently in use, produced or released at the Proposed Installation.
- Stage 2: Identify relevant hazardous substances to evaluate pollution risks.
- Stage 3: Assess the site-specific pollution possibility.

The outcome of the three stages will determine the pollution risk for the site.

Following the identification of the pollution risk and the information gathered from this assessment, the CIRIA Report C736—Containment systems for the prevention of pollution has been used to undertake a qualitative assessment to determine what level of classification of secondary containment is appropriate and the requirements of that level of classification. Consideration of how the design of the secondary containment complies with the secondary containment classification requirements is then provided.

A2 ASSESSMENT STAGES 1 – 2

Stage 1 requires the identification of hazardous materials that may be encountered within the Proposed Installation including raw materials, products, intermediaries, by-products, emissions or waste. The materials that will be present at the Proposed Installation are detailed in Table A1.

Stage 2 requires the assessment of the potential pollution risk posed by the hazardous substances identified in Stage 1. This assessment requires a review of the chemical and physical properties of each material. To do this the information necessary for this evaluation has been gathered primarily from MSDS for the relevant substances. The MSDS can be found in Annex B. These documents provide essential information, including the Chemical Abstracts Service (CAS) numbers for each substance, which serve as unique identifiers for chemical compounds. The assessment also considers the classification of the materials under the European Union's Regulation (EC) No. 1272/2008, which governs the classification, labelling, and packaging of substances and mixtures (CLP Regulation). A summary of the findings from both stages of this assessment is presented in Table A1. This includes not only the identified hazardous substances but also their corresponding classifications and any relevant safety considerations.

Table A1: Raw Materials to be Stored, used and Handled on-site and Waste Materials Produced and Stored

Stage 1		Stage 2				
Material	State S Solid L Liquid G Gas	CAS No. (main components only)	CLP Classification	Hazardous substances under Stage 2 (Yes/No)	Environmental Fate and Behaviours Product (P) Water (W) Sewer (S) Air (A) Waste/ Land (L)	Potential Pollution Risk to Soil and Groundwater
Raw Materials						
Natural gas	G	74-82-8 74-84-0 7727-37-9 74-98-6	H220 Extremely flammable gas H280 Contains gas under pressure; may explode if heated	Yes	A	No, as substance not a risk to soil and groundwater
Hydrogen	G	1333-74-0	H220 Extremely flammable gas H280 Contains gas under pressure; may explode if heated	Yes	A	No, as substance is not a risk to soil and groundwater.
10 - <25% Ammonia (aqueous)	L	1336-21-6	H314 Causes severe skin burns and eye damage H335 May cause respiratory irritation	Yes	A, W, L	Yes, if released to the environment
Diesel	L	68334-30-5	H226 Flammable liquid and vapour flammable liquids H332 Harmful if inhaled H315 Causes skin irritation H351 Suspected of causing cancer	Yes	W, L	Yes, if released to the environment

Stage 1		Stage 2				
Material	State S Solid L Liquid G Gas	CAS No. (main components only)	CLP Classification	Hazardous substances under Stage 2 (Yes/No)	Environmental Fate and Behaviours Product (P) Water (W) Sewer (S) Air (A) Waste/ Land (L)	Potential Pollution Risk to Soil and Groundwater
			H353 Causes damage to organs through prolonged or repeated exposure H304 May be fatal if swallowed and enters airways H411 Toxic to aquatic life with long lasting effects			
Lubrication oil	L	Mixture	None	Yes	L	Yes, if released to the environment
		125643-61-0	H413 May cause long lasting harmful effects to aquatic life			
		68855-45-8	H413 May cause long lasting harmful effects to aquatic life			
		722503-68-6	(1B) H317 May cause an allergic skin reaction			
		83846-43-9	(1) H317 May cause an allergic skin reaction			
Water treatment/cooling tower chemicals - biocides (hypochlorite)	L	7681-52-9	H290 May be corrosive to metals H314 Causes severe skin burns and eye damage H400 Very toxic to aquatic life H411 Toxic to aquatic life with long lasting effects	Yes	W, L	Yes, if released to the environment

Stage 1		Stage 2				
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Water treatment/cooling tower chemicals - oxygen scavenger	L, S	497-18-7	H302 Harmful if swallowed H315 Causes skin irritation H317 May cause an allergic skin reaction H411 Toxic to aquatic life with long lasting effects	Yes	W, L	Yes, if released to the environment
Water treatment/cooling tower chemicals - sulphuric acid	L	7664-93-9	H314 Causes severe skin burns and eye damage.	Yes	W, L	Yes, if released to the environment
Water treatment/cooling tower chemicals - Solenis Performax DC5006	L	Mixed	Not a hazardous substance or mixture	Yes	W, L	Yes, if released to the environment
38% Hydrogen sulphate	L	7681-38-1	H318 Causes serious eye damage	Yes	W, L	Yes, if released to the environment
Sodium hydroxide solution 5 – 51%	L	1310-73-2	H290 May be corrosive to metals H314 Causes severe skin burns and eye damage	Yes	L	Yes, if released to the environment

Stage 1		Stage 2				
Material	State S Solid L Liquid G Gas	CAS No. (main components only)	CLP Classification	Hazardous substances under Stage 2 (Yes/No)	Environmental Fate and Behaviours Product (P) Water (W) Sewer (S) Air (A) Waste/ Land (L)	Potential Pollution Risk to Soil and Groundwater
			H318 Causes serious eye damage			
Nitrogen (N)	G	7727-37-9	H280 Contains gas under pressure; may explode if heated	No	A	No, substance is not a risk to soil and groundwater.
Instrument Air N (79%) O (21%)	G	7727-37-9	H280 Contains gas under pressure; may explode if heated	No	A	No, substance not a risk to soil and groundwater.
		7782-44-7	H280 Contains gas under pressure; may explode if heated			
Water (H ₂ O)	L	7732-18-5	None applicable. Not hazardous	No	S, L	No
Wastes						
General mixed waste from administration buildings	S	Mixture	Unknown	No	L	Yes
Used filters	S	Mixture	Unknown	Yes	S	Yes
Wastewaters from gas turbine periodic cleaning and oily water	L	Mixture	Unknown	Yes	L	Yes

Stage 1	Stage 2					
Material	State S Solid L Liquid G Gas	CAS No. (main components only)	CLP Classification	Hazardous substances under Stage 2 (Yes/No)	Environmental Fate and Behaviours Product (P) Water (W) Sewer (S) Air (A) Waste/ Land (L)	Potential Pollution Risk to Soil and Groundwater
from oil/water separators						
Waste oil	L	Mixture	Unknown	Yes	L	Yes
Ion Exchange Resins	S	Mixture	Unknown		S	Yes

A2.1 Assessment Stage 3

Stage 3 of the European Commission Guidance focuses on assessing the site-specific pollution possibility. The first requirement is to identify potential pollution risks by evaluating each relevant hazardous substance to determine if circumstances exist that may result in its release in sufficient quantities to pose a pollution risk. The guidance requires the consideration of the quantity of hazardous substances handled, produced, or emitted, as well as their location on the site, including delivery, storage, usage, and movement. Additionally, the guidance requires the assessment of the presence and integrity of containment, site surfacing, and drainage systems.

As outlined in Table A1, the following substances have been identified as not having a pollution risk and therefore will not be assessed as part of Stage 3:

- Natural gas
- Hydrogen
- Nitrogen
- Instrument air
- Water

The following materials will be further assessed in Stage 3:

- 10 - <25% ammonia (aqueous)
- Diesel
- Lubrication oil
- Water treatment/ cooling tower chemicals
 - biocides (hypochlorite)
 - oxygen scavenger
 - sulphuric acid
 - Solenis Performax DC5006
- 38% Hydrogen sulphate
- Sodium hydroxide solution 5 – 51%
- General mixed waste from administration buildings
- Used filters
- Wastewaters from gas turbine and oily water from oil/ water separators
- Waste oil
- Ion exchange resins

Stage 3 of the assessment is presented in Table A2.

Table A2: Stage 3: Assessment of Site-Specific Pollution Potential

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
10 - <25% Ammonia (aqueous)	3,000m ³	Above ground storage tanks	Delivered in tankers/HGVs and unloaded in dedicated fuel/chemical delivery area.	Secondary containment will be in place however type is to be confirmed. Secondary containment will be in line with CIRIA 736.	Chemicals will be delivered within sealed containers.	<p>Bulk storage of ammonia will be located on a concrete surface.</p> <p>Areas where chemicals are handled will comprise concrete hard standing of watertight construction and be kerbed/ bunded to ensure that spillages and/ or leaks in those areas are contained, manually cleaned up and removed for treatment off-site.</p> <p>All containers holding substances which have the potential to cause a risk to the environment will be fitted with secondary containment which will be designed and constructed according to the requirements of CIRIA C736, API 650 and relevant Eurocodes.</p> <p>Road tanker unloading areas will have the kerbed/ bunded areas sized to hold the full inventory of the tanker, in line with the CIRIA guidance in the event of a full loss of containment.</p> <p>All chemicals will be delivered by an SSE approved contractor to appropriate</p>	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
						<p>unloading bays. Appropriate site training/ induction will be in place and appropriate monitoring points and audio/ visual alarms will be present during any bulk chemical transfers to minimise the chance of leaks/ overfill.</p> <p>All bunding will be inspected regularly by an operative who has received the appropriate training.</p>	
Diesel	40m ³	Emergency diesel generator storage tank	Delivered to the site as required in tankers	Containment to be confirmed as to whether the diesel will be stored in a belly tank or an individual tank. It is expected that both containment options will comprise a integrally bunded steel tank with 110% spill containment capacity.	Diesel will be brought to the site and offloaded directly into the storage tank. The filling will be observed by a trained, competent person. A drip tray will be present beneath the filling location. The tank will be fitted with measures to prevent overfill.	<p>Stored diesel will be located on a concrete surface. Areas where lubrication oil is handled will comprise concrete hard standing of watertight construction and be kerbed/ bunded to ensure that spillages and/ or leaks in those areas are contained, manually cleaned up and removed for treatment off-site.</p> <p>Diesel storage tanks will be fitted with containment bunds designed and constructed according to the requirements of CIRIA C736, API 650 and relevant Eurocodes.</p> <p>Road tanker unloading areas will have the kerbed/ bunded areas sized to hold the full inventory of the tanker, in line with the</p>	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
						<p>CIRIA guidance in the event of a full loss of containment.</p> <p>All chemicals will be delivered by an SSE approved contractor to appropriate unloading bays. Appropriate site training/ induction will be in place and appropriate monitoring points and audio/ visual alarms will be present during any bulk chemical transfers to minimise the chance of leaks/ overfill.</p> <p>All bunding will be inspected regularly by an operative who has received the appropriate training.</p>	
Lubrication oil	7m ³ l	Location to be confirmed but will be within the vicinity of the Gas Turbine and Steam Turbine.	Delivered to the site as required in tankers	Containment to be confirmed but is anticipated to be stored in an integrally banded steel tank with 110% spill containment capacity.	Lubrication oil will be brought to the site to the bulk storage tank. The filling will be observed by a trained, competent person. A drip tray will be present beneath the filling location. The tank will be fitted with measures to prevent overfill.	<p>Bulk storage of lubrication oil will be located on a concrete surface. Areas where lubrication oil is handled will comprise concrete hard standing of watertight construction and be kerbed/ banded to ensure that spillages and/ or leaks in those areas are contained, manually cleaned up and removed for treatment off-site.</p> <p>Lubrication oil tanks will be fitted with secondary containment bunds that will be constructed according to the requirements</p>	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
						<p>of CIRIA C736, API 650 and relevant Eurocodes.</p> <p>Road tanker unloading areas will have the kerbed/ bunded areas sized to hold the full inventory of the tanker, in line with the CIRIA guidance in the event of a full loss of containment.</p> <p>All chemicals will be delivered by an SSE approved contractor to appropriate unloading bays. Appropriate site training/ induction will be in place and appropriate monitoring points and audio/ visual alarms will be present during any bulk chemical transfers to minimise the chance of leaks/ overfill.</p> <p>All bunding will be inspected regularly by an operative who has received the appropriate training.</p>	
Water treatment/ cooling tower chemicals - biocides (hypochlorite)	1-2m ³	Location to be confirmed but will be within the vicinity of water treatment plant as shown on Main Supporting	Delivered in tankers/HGVs and unloaded in dedicated fuel/chemical delivery area.	Water treatment chemicals will be stored prior to use within a self-bunded IBC storage container Secondary containment	Chemicals will be delivered in a seal container.	Areas where chemicals are handled will comprise concrete hard standing of watertight construction and be kerbed/ bunded to ensure that spillages and/ or leaks in those areas are contained, manually cleaned up and removed for treatment off-site.	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
Water treatment/ cooling tower chemicals oxygen scavenger		Document Appendix A, Figure 2.		will be in place however type is to be confirmed. Secondary containment will be in line with CIRIA 736. It is expected that chemicals will be stored in a bulk chemical storage area. The chemical storage area will be bunded (either to 110% spill capacity of individual tanks or 25% spill capacity of the combined total volume of all containers stored within it).		<p>All containers holding substances which have the potential to cause a risk to the environment will be fitted with secondary containment which will be designed and constructed according to the requirements of CIRIA C736, API 650 and relevant Eurocodes.</p> <p>Road tanker unloading areas will have the kerbed/ bunded areas sized to hold the full inventory of the tanker, in line with the CIRIA guidance in the event of a full loss of containment.</p> <p>All chemicals will be delivered by an SSE approved contractor to appropriate unloading bays. Appropriate site training/ induction will be in place and appropriate monitoring points and audio/ visual alarms will be present during any bulk chemical transfers to minimise the chance of leaks/ overfill.</p> <p>All bunding will be inspected regularly by an operative who has received the appropriate training.</p>	
Water treatment/ cooling tower chemicals - sulphuric acid							
Water treatment/ cooling tower chemicals - Solenis Performax DC5006							

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
38% Hydrogen sulphate	10m ³	Location to be confirmed but will be within the vicinity of water treatment plant as shown on Main Supporting Document Appendix A, Figure 2.	Delivered in tankers/HGVs and unloaded in dedicated fuel/chemical delivery area.	Dedicated flammable materials IBC storage unit with integrated bunding Secondary	Chemicals will be delivered within sealed containers.	<p>Areas where chemicals are handled will comprise concrete hard standing of watertight construction and be kerbed/ bunded to ensure that spillages and/ or leaks in those areas are contained, manually cleaned up and removed for treatment off-site.</p> <p>All containers holding substances which have the potential to cause a risk to the environment will be fitted with secondary containment which will be designed and constructed according to the requirements of CIRIA C736, API 650 and relevant Eurocodes.</p> <p>Dry and powdered materials will be contained within bags, sacks or other suitable smaller containers. All dry and powdered materials will be stored on suitably robust shelving / pallets within the dedicated storage area inside the building which has an impermeable concrete floor.</p> <p>Road tanker unloading areas will have the kerbed/ bunded areas sized to hold the full inventory of the tanker, in line with the CIRIA guidance in the event of a full loss of containment.</p>	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
						<p>All chemicals will be delivered by an SSE approved contractor to appropriate unloading bays. Appropriate site training/ induction will be in place and appropriate monitoring points and audio/ visual alarms will be present during any bulk chemical transfers to minimise the chance of leaks/ overflow.</p> <p>All bunding will be inspected regularly by an operative who has received the appropriate training.</p>	
Sodium hydroxide solution 5 – 51%	10m ³	Location to be confirmed but will be within the vicinity of water treatment plant as shown on Main Supporting Document Appendix A, Figure 2.	Delivered in tankers/HGVs and unloaded in dedicated fuel/chemical delivery area.	Secondary containment will be in place however type is to be confirmed. Dedicated flammable materials IBC storage unit with integrated bunding. Secondary	Chemicals will be delivered within sealed containers.	<p>Areas where chemicals are handled will comprise concrete hard standing of watertight construction and be kerbed/ bunded to ensure that spillages and/ or leaks in those areas are contained, manually cleaned up and removed for treatment off-site.</p> <p>All containers holding substances which have the potential to cause a risk to the environment will be fitted with secondary containment which will be designed and constructed according to the requirements of CIRIA C736, API 650 and relevant Eurocodes.</p>	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
						<p>Road tanker unloading areas will have the kerbed/ bunded areas sized to hold the full inventory of the tanker, in line with the CIRIA guidance in the event of a full loss of containment.</p> <p>All chemicals will be delivered by an SSE approved contractor to appropriate unloading bays. Appropriate site training/ induction will be in place and appropriate monitoring points and audio/ visual alarms will be present during any bulk chemical transfers to minimise the chance of leaks/ overfill.</p> <p>All bunding will be inspected regularly by an operative who has received the appropriate training.</p>	
General mixed waste from administration buildings	60 tonnes	Site segregated waste storage area (location to be confirmed) on impermeable surface.	Delivery not applicable but the general waste will be collected periodically by a licenced contractor and taken offsite for either	Site segregated waste storage area. The waste storage area will be bunded where required with a sealed drainage system	Waste generated will be collected from administration areas and brought to a dedicated segregated waste storage area onsite. Waste will comprise administrative and municipal type waste only.	<p>Admin and municipal types of wastes will be removed from site periodically but will be stored temporarily in the interim.</p> <p>The general waste will be temporarily stored within the segregated waste storage area will be designed to prevent the escape of stored waste. Surfacing within the storage area will be impermeable.</p>	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
			recycling or landfill.			On-site personnel will be responsible for will receive appropriate training for the management of the waste storage area. This will include how to appropriate segregate the waste and store correctly to minimise the risk of an escape. The waste storage area will also be kept clean and tidy.	
Used filters	5 tonnes	Site segregated waste storage area (location to be confirmed) on impermeable surface.	Delivery not applicable. Used filters will be collected periodically by a licenced contractor and taken offsite for disposal.	Site segregated waste storage area. The waste storage area will be banded where required with a sealed drainage system	Used filters will be generated periodically following maintenance. The used filters will be removed by trained personnel before being moved to the segregated waste storage area for temporary storage. Once sufficient quantities are accumulated, the used filters will be collected and taken offsite by a licenced contractor for disposal.	The segregated waste storage area will be designed to prevent the escape of stored waste. Surfacing within the storage area will be impermeable. On-site personnel will be responsible for and will receive appropriate training for the management of the waste storage area. This will include how to appropriate segregate the waste and store correctly to minimise the risk of an escape. The waste storage area will also be kept clean and tidy.	Low
Wastewater from gas	20 tonnes	Following cleaning the	Removal offsite in tanker by	No storage anticipated	Following a cleaning cycle the	Only required periodically following cleaning of the turbine. The wastewater	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
turbine periodic cleaning		wastewater will be collected and removed from site. Storage not anticipated however if temporary storage is required it will be contained within an appropriate bunded container and removed as soon as is practicable.	licenced waste contractor for disposal.		wastewater will be collected and removed offsite in a tanker by a licenced contractor.	will be collected following cleaning and removed off-site as soon as is practicable. If temporary storage is required, the container will be stored within a building on an impermeable surface or on a portable containment bund. The wastewater will be collected by a licenced contractor and transferred to an appropriate facility for disposal.	
Oily water from oil/water separators	10 tonnes	Treated within the oily-water drainage system.	N/A	Treated within the oily-water drainage system		Contained within the oily wate treatment system. See section 4.4 of Main Supporting Document for further details.	Low
Waste oil	50m ³ per major maintenance programme	Site segregated waste storage area (location to be confirmed) on impermeable surface.	Removal offsite in tanker by licenced waste contractor for disposal.	Site segregated waste storage area. The waste storage area will be bunded where required with a sealed drainage system	The waste oil will be removed from the process when required and transferred by trained personnel and taken to a dedicated waste storage area over an impermeable surface.	Waste oil storage containers will be stored within a bunded storage area. In accordance with the requirements of CIRIA C736, API 650 and relevant Eurocodes. On-site personnel will be responsible for will receive appropriate training for the management of the waste storage area. This will include how to appropriate segregate the waste and store correctly to	Low

Stage 3							
Material	Estimated volumes per annum	Location of storage	Delivery	Primary and secondary storage	Handling and use details	Additional containment measures and procedures	Pollution risk
						minimise the risk of an escape. The waste storage area will also be kept clean and tidy.	
Ion Exchange Resins	10 tonnes every 7 – 10 years	Site segregated waste storage area (location to be confirmed) on impermeable surface.	Delivery not applicable. Waste ion exchange resins will be collected periodically by a licenced contractor and taken offsite for disposal.	Site segregated waste storage area. The waste storage area will be banded where required, with a sealed drainage system	The ion exchange resins will be removed from the process when required and transferred by trained personnel to a dedicated waste storage area over an impermeable surface. Once sufficient quantities are accumulated, the used filters will be collected and taken offsite by a licenced contractor for disposal.	<p>The segregated waste storage area will be designed to prevent the escape of stored waste. Surfacing will be impermeable.</p> <p>On-site personnel will be responsible for will receive appropriate training for the management of the waste storage area. This will include how to appropriate segregate the waste and store correctly to minimise the risk of an escape. The waste storage area will also be kept clean and tidy.</p>	Low

A3 POLLUTION RISK

A3.1 Pollution Sources

The pollution sources relevant to the Soil and Groundwater Pollution Risk Assessment are those RHS identified in Section Table A2 and are summarised in the list below:

- Aqueous ammonia
- Diesel
- Lubrication oil
- Water treatment/ cooling water chemicals
- Hydrogen Sulphate

A3.2 Pathways

The only pathway for any of the materials stored and used at site to impact on potential soil and groundwater would be the direct loss of materials to unsurfaced ground or permeable site surfacing.

A3.3 Receptors

The environmental sensitivity of the Proposed Installation site is outlined in Table A3:

Table A3: Stage 3: Assessment of Site-specific Pollution Potential

Receptor	Sensitivity	Description
Groundwater	Low to very high sensitivity	The underlying Mercia Mudstone Formation - Mudstone bedrock deposit is classified as Secondary Aquifer - B. The underlying superficial deposits consist of Secondary Aquifer - A (Alluvium/ Warp). The sensitivity of the underlying deposits is therefore classified as varying from low to very high
Surface water	Moderate sensitivity	The River Trent is located approximately 1 km to the east of the Proposed Installation Site. The Sheffield and South Yorkshire Navigation/ Stainforth and Keadby Canal is situated approximately 0.3 km to the south. The Three Rivers is approximately 0.5 km to the south and there are two drains (the North and South Soak Drain) following the canal.
Land use	Low sensitivity	The Proposed Installation is surrounded by industrial and agricultural land and no significant land uses have been identified

A3.4 Control Measures

Storage

Table A2 outlines the measures in place that contribute to the low risk of pollution to soil and groundwater associated with the use of the raw materials as well as the waste that is produced.

For liquids or solutions these will be delivered to the site via road vehicle and will be offloaded within designated unloading bays within a fuel/chemical delivery area. The materials will then be transferred to their appropriate storage location. All raw materials and wastes will be stored with containers that are appropriately designed to contain the incoming contents.

Dry and powdered materials will be contained within bags, sacks or other suitable smaller containers. All dry and powdered materials will be stored on suitably robust shelving / pallets within the dedicated storage area inside the building which has an impermeable concrete floor.

All chemicals will be delivered in a sealed container and moved to the chemical storage area located within a building.

Secondary Containment

Road tanker unloading areas will have the kerbed/ bunded areas sized to hold the full inventory of the tanker, in line with the CIRIA guidance in the event of a full loss of containment.

All liquid raw materials will be stored over appropriately bunded areas either in the form of portable bunds, dedicated bunded storage cabinets or similar.

All containers holding substances which have the potential to cause a risk to the environment will be fitted with secondary containment which would be designed and constructed according to the requirements of CIRIA C736, API 650 and relevant Eurocodes.

The capacity of the bunding will be either 110% of the largest tank's volume or 25% of the total volume of all tanks within it.

The main Site activities will all be undertaken within dedicated buildings. The building concrete flooring and the walls around the activity areas will act to provide containment for any spills within this area. All materials stored within the building will also be located over impermeable concrete hard standing which provides an impermeable barrier to pollution entering soil or groundwater.

Areas where chemicals are handled will comprise concrete hard standing of watertight construction and be kerbed/ bunded to ensure that spillages and/ or leaks in those areas are contained, manually cleaned up and removed for treatment off-site.

Management Procedures

In addition to the primary and secondary containment storage systems that are outlined in Table A2 the site activities will also be managed in accordance with the site

Environmental Management System (EMS) which will include procedures on the delivery of raw materials and removal of waste, transporting the materials within the Installation boundary, management of storage areas, spill response, incident response, and reporting and follow up of incidents. The EMS will also detail the requirements for inspections and maintenance of the Proposed Installation to ensure efficient operation.

The management and procedures within the EMS will be subject to periodic audit and update. All site personnel will receive appropriate training on the implementation of the management procedures and controls. This will include regular site inspections to identify signs of degradation of plant infrastructure and leaks of substances. All storage areas will also be subject to scheduled visual inspections to ensure that there are no leaks or losses from primary containment. Any spillages will be cleaned up at point of spillage using appropriate techniques depending on the type of spilled material.

A4 CIRIA C736 Assessment

The CIRIA C736 guidance outlines three levels of secondary containment classification (Classification 1, 2 & 3). A Class 1 containment system is suitable for low-risk scenarios involving non-flammable and low-toxicity substances. It typically includes simple structures like reinforced blockwork bunds, prefabricated units, or earth bunds with adequate impermeability. These systems are designed to contain spills from small volumes of relatively benign materials and must meet minimum capacity requirements — either 110% of the largest container or 25% of the total volume stored, whichever is greater. Class 1 systems do not require fire resistance, leak detection, or enhanced inspection regimes, making them appropriate where environmental sensitivity and the likelihood of containment failure are both low.

Class 2 and Class 3 containment systems, are required where the risk of containment failure is medium or high. As such the CIRIA C736 guidance includes more detailed recommendations compared to Class 1. The guidance requires increased and more detailed level of requirements in relation to design, testing, inspection, and maintenance of the containment system to ensure ongoing integrity.

The determination of this classification rating is based on two scores, the Site Hazard Rating and the Site Risk Rating. The site hazard rating is defined in the CIRIA C736 guidance as a classification that reflects the potential environmental hazard posed by a combination of three key factors:

- Source – the nature and quantity of the hazardous inventory (e.g. chemicals, fuels, firewater, etc.).
- Pathway – the means by which a release could reach the environment (e.g. drains, soil, groundwater).
- Receptor – the sensitivity of the receiving environment (e.g. rivers, aquifers, protected habitats).

Each of these components is rated as High, Moderate, or Low, and the site hazard rating is determined by combining them. The highest individual rating among the combinations typically governs the overall site hazard rating. The site hazard rating is determined by using the Site Hazard Matrix outlined in Box 2.1 of CIRIA C736 an extract of which is shown in Figure 1.

Figure 1: Box 2.1 of CIRIA C736 Guidance Displaying the Site Hazard Risk Matrix

Environmental hazard ratings		
H = High rating		
M = Moderate rating		
L = Low rating		
Source	Pathway	Receptor
(hazard rating)	(transport potential)	(damage potential)
May be H, M or L	May be H, M or L	May be H, M or L
Possible combination of ratings:		Suggested consequent overall site hazard rating:
HHH or HHM or HMM		HIGH
HHL or MMM or HML		MODERATE
MML or HLL or MILL or LLL		LOW

Table A4: CIRIA C736 Qualitative Risk Assessment

Component	Risk Rating	Justification	Overall Site Hazard Rating	Likelihood of loss of containment	Final Site Risk Rating	CIRIA C736 Containment Classification
Ammonia (Aqueous)						
Source	Moderate	Due to volume and CLP classification	Low	Low	Low	Class 1
Pathway	Low	Robust containment				
Receptor	Moderate	Risk if comes into contact with the environment				
Diesel						
Source	Moderate to high	Due to CLP classification but relatively low volumes of consumption annually	Moderate	Low	Low	Class 1
Pathway	Low	Robust containment				
Receptor	Low	Risk if comes into contact with the environment				
Lubrication oil						
Source	Moderate to high	Due to CLP Classification	Moderate	Low	Low to Moderate	Class 1
Pathway	Low	Robust containment and drainage				
Receptor	Low	Controlled discharge if spilled				
Water treatment and cooling tower chemicals						
Source	Moderate	Due to CLP Classification	Low	Low	Low	Class 1
Pathway	Low	Robust containment				

Component	Risk Rating	Justification	Overall Site Hazard Rating	Likelihood of loss of containment	Final Site Risk Rating	CIRIA C736 Containment Classification
Receptor	Moderate	Risk if comes into contact with the environment				
Hydrogen sulphate						
Source	Moderate	Potential health risk i.e. skin irritation	Low	Low	Low	Class 1
Pathway	Low	Robust containment				
Receptor	Moderate	Risk if comes into contact with the environment				
Sodium hydroxide solution						
Source	Moderate	Potential health risk i.e. skin irritation	Low	Low	Low	Class 1
Pathway	Low	Robust containment				
Receptor	Moderate	Risk if comes into contact with the environment				
General waste (from administration building)						
Source	Low	Due to types of waste	Low	Low	Low	Class 1
Pathway	Low	Predominantly solids and robust containment measures in place				
Receptor	Low	Unlikely to cause effect to receptor				
Used filters						
Source	Low	Due to types of waste	Low	Low	Low	Class 1
Pathway	Low	Predominantly solids and robust containment measures in place				

Component	Risk Rating	Justification	Overall Site Hazard Rating	Likelihood of loss of containment	Final Site Risk Rating	CIRIA C736 Containment Classification
Receptor	Low	Unlikely to cause effect to receptor				
Wastewater from gas turbine and oily water from oil/water separators						
Source	Low	Due to types of waste	Low	Low	Low	Class 1
Pathway	Low	Low because of robust containment design and management procedures in place				
Receptor	Low	Unlikely to cause effect to receptor				
Ion exchange resins						
Source	Low	Due to types of waste	Low	Low	Low	Class 1
Pathway	Low	Only small quantities produced periodically during maintenance. Robust management measures during maintenance				
Receptor	Low	Unlikely to cause effect to receptor				

A5 Conclusions

A Stage 1–3 assessment has been undertaken in accordance with the European Commission Guidance under Article 22(2) of Directive 2010/75/EU and the Environment Agency’s requirements for baseline reporting. The assessment considered the hazardous substances associated with the Proposed Installation.

Following the identification of the pollution risk rating and the information gathered from this assessment, the CIRIA Report C736—Containment systems for the prevention of pollution was used to inform a qualitative risk assessment to determine what level of classification of secondary containment is appropriate and the requirements of that level of classification. Based on the site-specific assessment, both the overall site hazard rating and the site risk rating are considered to be low. This is because the findings indicated that all relevant substances will be managed within appropriate containment systems, including integrally bunded tanks, and hardstanding with closed drainage connected to an effluent management system. These measures, combined with operational controls such as leak detection, alarms, and regular inspections, significantly reduce the likelihood of environmental release. Consequently, a Class 1 secondary containment classification is deemed appropriate for the substances assessed.

The proposed secondary containment design for the relevant substances on the Proposed Installation comply with the requirements of a Class 1 containment system classification.

ANNEX B – MSDS

ANNEX C – KEADBY 3 GI REPORT