





Site Condition Report

University of Liverpool Energy Company Ltd



Report produced for University of Liverpool Energy Company Ltd

Provided by Walker Resource Management Ltd (WRM)

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0.1	04/04/2022	Initial draft
0.2	28/04/2022	Internal review
0.3	29/04/2022	Internal amendments
0.4	17/06/2022	Update following client review
1.0	17/06/2022	First issue

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1.0 SITE DETAILS

Name of the applicant	University of Liverpool Energy Company Limited
Activity address	University of Liverpool Energy Centre Limited, Ashton Street, Liverpool, L69 3ZX
National grid reference	SJ 35839 90499

Document reference and dates for Site Condition Report at permit application and surrender	EPR-A02_Site_Condition_Report (19/07/2022)
Document references for site plans (including location and boundaries)	ULEC_Site_Location_Plan ULEC_Site_Layout_Plan

2.0 CONDITION OF THE LAND AT PERMIT ISSUE

<p>Environmental setting</p>	<p>The University of Liverpool Energy Company (ULEC) Ltd is applying for a Part A Installation Permit to operate a pair of Energy Centres. The Energy Centres are made up of two, immediately neighbouring buildings and consists of the following;</p> <ul style="list-style-type: none"> • Three natural gas fired combined heat and power (CHP) units • Three natural gas fired boilers <p>The CHP units and boilers have an aggregated net thermal input rating of 65MW.</p> <p>ULEC is a wholly owned subsidiary of University of Liverpool. The Energy Centres are situated within the University of Liverpool Campus, to the east of Liverpool city centre. The site is bordered by several educational, cultural, and industrial buildings, as well as some residential.</p> <p><u>Geology</u></p> <p>The underlying geology of the proposed facility is as follows:</p> <ul style="list-style-type: none"> • There is one type of bedrock beneath the site (i.e rock types far before the surface). The site is underlain by the Wilmslow Sandstone Formation. This Sedimentary Bedrock formed approximately 247 to 252 million years ago in the Triassic Period. Immediately to the west of the site, the land is underlain with Helsby Sandstone Formation – Sandstone which is also Sedimentary Bedrock formed approximately 242 to 247 million years ago in the Triassic Period. • There are no recorded superficial deposits (i.e. rock types beneath the surface) beneath the entire site although to the east of the site there is a record of a deposit known as Devensian Till. <p><u>Hydrogeology</u></p> <p>The hydrogeological features of the subsurface features of the site are:</p> <ul style="list-style-type: none"> • The Bedrock Aquifer on which the site is located is designated as a <i>Principal Aquifer</i>. These are layers of rock that have high intergranular and/or fracture permeability meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale and they were previously designated as major aquifers. • There is no designation for the Superficial Aquifer across the site as there are no recorded superficial deposits. <p><u>Groundwater</u></p> <p>The groundwater characteristics for the site location are presented below:</p> <ul style="list-style-type: none"> • The site is not situated within <i>Groundwater Source Protection Zone (SPZ)</i>. The closest SPZ is a <i>Zone III – Total Catchment</i> located approximately 2.8km to the northeast of the site.
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	<ul style="list-style-type: none"> The groundwater vulnerability classification of the site bedrock is classified as a <i>Principle Bedrock Aquifer – Medium Vulnerability</i>. Medium vulnerability areas offer some ground water protection. There are no records of superficial deposits, therefore there is no designation of Superficial Aquifer. As such, there is no classification of the groundwater vulnerability of the superficial aquifer. There is Limited Potential for groundwater flooding at the site. There are three licensed groundwater abstraction within 500m of the site. Two are operated by Royal Liverpool and Broadgreen Hospitals NHS Trust (under licence number Nw/069/0030/016). The final one is operated by Mr Mcgreavy and under licence number Nw/069/0030/009) <p><u>Flooding</u></p> <ul style="list-style-type: none"> The site is located in Flood Zone 1 according to the EA Flood map for planning tool. This indicates that there is no flood risk at site. <p><u>Hydrology</u></p> <ul style="list-style-type: none"> The nearest main surface water feature is the River Mersey located approximately 2,100m to the west of the site.
	<p><u>Historical Land Use</u></p> <p>A review of the historical Ordnance Survey maps and information pertinent to the entire site and within a 250m radius is summarised below:</p> <p>1849 - 1850</p> <ul style="list-style-type: none"> Site is primarily derelict land, used as part of the Infirmary building. The northern portion of the site is made up of a small street (Pembroke Gardens) and the most northern part of the site consists of residential gardens. The site is bordered by Ashton Street to the east and Dover Street to the south. There are residential buildings situated to the west (beyond Ashton Street) and additional hospital buildings and parkland to the south (beyond Dover Street). There are also residential buildings located north of the site. <p>1864</p> <ul style="list-style-type: none"> No changes <p>1891</p> <ul style="list-style-type: none"> The site is no longer derelict and now forms part of Royal Infirmary site in the form of additional buildings. Pembroke Gardens no longer exists, and the entirety of site is now part of the Royal Infirmary land. Additional buildings are now located to the south of the site (south of Dover Street), as part of the Royal Infirmary. <p>1890-1893</p> <ul style="list-style-type: none"> No changes <p>1908</p> <ul style="list-style-type: none"> No changes to the site area. An underground tunnel runs directly beneath the site.

	<ul style="list-style-type: none"> • Additional buildings are now located to the south of the site (south of Dover Street), as part of the University of Liverpool. <p>1927</p> <ul style="list-style-type: none"> • The site still remains part of the Royal Infirmary land. • The land to the south of Ashton Street (south of the site) is now part of the University of Liverpool. <p>1954</p> <ul style="list-style-type: none"> • The site still remains part of the Royal Infirmary land but is now located to the east of a tennis court. There have been small alterations to the buildings that form the site. • The land to the west of Ashton Street is now comprised of buildings for the University of Liverpool. • There are also nurses homes situated directly north of the site. • Dover Street (to the south of the site) is no longer a through route and is also part of the Royal Infirmary Site. • The land to the south of the site (directly south of Dover Street) has been developed as a Laboratory, as part of the University of Liverpool. <p>1955</p> <ul style="list-style-type: none"> • No changes <p>1959 - 1968</p> <ul style="list-style-type: none"> • No changes to the building which forms the site. • The land situated to the west of Ashton Street (west of the site) is now part of the University of Liverpool School of Medicine. <p>1968 – 1984</p> <ul style="list-style-type: none"> • The land immediately to the west of the site contains more roofed buildings, as part of the Royal Infirmary buildings. • The tennis court is now located directly southwest of the site. • The land that was previously Dover Street, to the south of the site is now completely part of the University of Liverpool and the Royal Infirmary land. <p>1978 – 1984</p> <ul style="list-style-type: none"> • The tennis court removed from the Royal Infirmary site and replaced with additional buildings and car parking spaces. • Some additional buildings to the south of the site. <p>1993</p> <ul style="list-style-type: none"> • No changes <p>1994</p> <ul style="list-style-type: none"> • No changes <p>2000</p> <ul style="list-style-type: none"> • Two car parks are now located at the south end of the site. The northern portion of the site still consists of buildings. • The land to the south of the site now consists of car parking spaces. <p>2022</p> <ul style="list-style-type: none"> • The site now forms part of the University of Liverpool School of Medicine. • The site now consists of two distinct buildings, the larger one being to the southern part of the site. • There is a car part to the west of the site. • Dover Street is to the south of the site and is now a through street.
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	<p><u>Pollution Incidents</u></p> <ul style="list-style-type: none"> • There have been three recorded pollution incidents to controlled waters within 1km of the site location. The first incident occurred in 1997, approximately 864m from the site. The pollutant was recorded as <i>Sewage- Wrong Connection</i>. The second pollution incident occurred in 1998, approximately 732m from the site, with the pollutant being recorded as <i>Diesel Lost From A Train</i>. The third incident was also in 1998 and occurred 951m from the site and the pollutant was recorded as <i>Chemicals - Solvents</i>. All three incidents were recorded as a Category 3 – Minor Incident. • There have been no recorded pollution incidents to land within 2km of the site. • There have been no recorded pollution incidents to air within 2km of the site. <p><u>Waste Register</u></p> <ul style="list-style-type: none"> • There is one Historical Landfill Site within 1km of the site boundary, at Overbury Street. The last input date was August 1993. • There are three Environment Agency regulated Waste Managed Facilities within 1km of the site boundary. Only one of these Facilities is currently in issue (Licence Number 53442). • There are no local authority recorded landfill sites within 1km of the site. <p><u>Industrial Activity</u></p> <ul style="list-style-type: none"> • There are a number of trade, commercial, Education and Health and manufacturing/production sites within 1km of the site. The nearest Education and Health Point of Interest is approximately 95m from the site. The nearest Manufacturing and Production Facilities are located approximately 75m from the site. 												
<p>Baseline soil and groundwater reference data</p>	<p>At the time of writing, with the exception of the estimations provided below, baseline soil and groundwater reference data has not been collected by the operator.</p> <p>The baseline estimated soil chemistry for the application site is presented below (See Annex C for further details):</p> <table border="1" data-bbox="440 1442 1067 1803"> <thead> <tr> <th>Parameter</th> <th>Concentration (mg/kg)</th> </tr> </thead> <tbody> <tr> <td>Arsenic</td> <td><15</td> </tr> <tr> <td>Cadmium</td> <td><1.8</td> </tr> <tr> <td>Chromium</td> <td>60-90</td> </tr> <tr> <td>Lead</td> <td>300-600 (Northern portion) 200-300 (Southern and Eastern portion) 100-200 (South Eastern portion)</td> </tr> <tr> <td>Nickel</td> <td>15-30</td> </tr> </tbody> </table> <p>It is expected that periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil as a requirement of the environmental permit.</p>	Parameter	Concentration (mg/kg)	Arsenic	<15	Cadmium	<1.8	Chromium	60-90	Lead	300-600 (Northern portion) 200-300 (Southern and Eastern portion) 100-200 (South Eastern portion)	Nickel	15-30
Parameter	Concentration (mg/kg)												
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Supporting information	<ul style="list-style-type: none">• Annex A – Historic Mapping• Annex B – Site Sensitivity• Annex C – Datasheet
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3.0 PERMITTED ACTIVITIES

<p>Permitted activities</p>	<p>The University of Liverpool Energy Company (ULEC) Ltd is applying for a bespoke installation environmental permit for the operation of Energy Centres, consisting of three CHP units and three natural gas fired boilers.</p> <p>Permitted activity will be agreed in accordance with the environmental permit issued.</p> <p>ULEC Ltd currently hold no environmental permits or licences but are seeking to obtain a bespoke installation permit to operate the Energy Centres under Part (A)1 (a) of the Environmental Permitting Regulations - <i>Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts</i>. ULEC does however hold a GHG Emissions permit which is annually verified/audited under the UK ETS.</p>
<p>Non-permitted activities undertaken</p>	<p>There are no non-permitted activities undertaken.</p>
<p>Document references for:</p> <ul style="list-style-type: none"> • Plan showing activity layout • Historical land use maps • Site sensitivity maps 	<p>Layout Plan: ULEC_Site_Layout_Plan Historical Site Maps: Appendix A Environmental Setting Maps: Appendix B Datasheet: Appendix C</p>

4.0 CHANGES TO THE ACTIVITY

To be maintained during the life of the permit

<p>Have there been any changes to the activity boundary?</p>	
<p>Have there been any changes to the permitted activities?</p>	
<p>Have any 'dangerous substances' not identified in the Application Site Condition Report been used or produced as a result of the permitted activities?</p>	
<p>Checklist of supporting information</p>	<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)

4.1 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.

<p>Checklist of supporting information</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
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4.2 Pollution Incidents and 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.

<p>Checklist of supporting information</p>	<ul style="list-style-type: none"> • Records of pollution incidents that may have impacted on land • Records of their investigation and remediation
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4.3 Soil Gas and Water Quality Monitoring

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	<ul style="list-style-type: none"> • Description of soil gas and/or water monitoring undertaken • Monitoring results (including graphs)
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5.0 DECOMMISSIONING AND REMOVAL OF POLLUTION RISK

To be completed at permit surrender

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	<ul style="list-style-type: none"> • Site closure plan • List of potential sources of pollution risk • Investigation and remediation reports (where relevant)
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5.1 Reference Data and Remediation

Say whether you had to collect land and/or groundwater data. Or say that you didn't need to because the information from section 4 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	<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)
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5.2 Statement of Site Condition

Using the information from sections 4 and 5, give a statement about the condition of the land at the site. This should confirm that:

- The permitted activities have stopped.
- Decommissioning is complete, and the pollution risk has been removed.
- The land is in a satisfactory condition.



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