

Engreen Environmental Consultants Ltd.

**Report
Title:**

Site Condition

Client:

Geopura Ltd

Issue Date:

February 2024

**Report
Reference:**

P207-R03-F2-SCR.

Submitted to:

Environment Agency

Main Contributors:

R Wheeler (Geopura)

David Green (Engreen)

Authorised for issue by:



David Green
MA, C Eng, FIChemE

Contents

1	Introduction	1
1.1	General	1
1.2	Permitting Requirements	1
1.3	General Guidance Documents	1
2	Site Details	2
2.1	Site Details	2
2.2	Condition of the Land at Permit Issue	2
2.3	Permitted Activities	3
3	Site Description	4
3.1	Site Description	4
3.2	Potential Contamination Sources from Proposed Use	4
4	Environmental Setting	6
4.1	Geology	6
4.2	Hydrogeology	6
4.3	Hydrology	6
4.4	Natural Impacts	6
4.5	Landfill/Waste	6
5	Land Pollution History	7
5.1	Historical Development of the Site and Adjacent Land	7
5.2	Potential Contamination Sources from Historical Land Use	7
5.3	Site Management Discussions	7

1 Introduction

1.1 General

1.1.1 Summary

This document provides information in support of the Environmental Permit variation application for the Geopura Ammonia Cracking and Water Hydrolysis Installation at High Marnham.

1.1.2 Installation Information

The following details are provided for the applicant.

Company Name	Geopura
Company Registration number	11855286
Site Name	High Marnham Hydrogen
Site Address	High Marnham Power Station
Grid Reference (centre of site)	SK 80923 70852
Permit Reference	
Schedule 1 Activities	S 4.2 Part A(1) (a) (iv)

1.2 Permitting Requirements

1.2.1 General

The facility is required to apply for an Environmental Permit (EP) in order to comply with the Environmental Permitting (England and Wales) Regulations SI 2010/675, as variously amended.

1.2.2 Nature of Application

This is an application for a new Chemicals Installation permit.

1.3 General Guidance Documents

Environmental permitting: H5 Site condition report - GOV.UK (www.gov.uk).

1.3.1 Available Data Source

A comprehensive investigation of ground conditions was carried out and reported in “High Marnham Phase II Contaminated Land Investigation Report”. The sections below highlight how the relevant sections of the Phase II report inform this SCR and baseline land condition summary set out to match the H5 Guidance template.

2 Site Details

2.1 Site Details

1.0 SITE DETAILS	
Name of the applicant	Geopura Ltd
Site Name	High Marnham Hydrogen
Site Address	High Marnham Power Station
Grid Reference (centre of site)	SK 80923 70852
Document reference and dates for Site Condition Report at permit application and surrender.	P207-R03-F2 SCR
Document references for site plans (including location and boundaries)	P207-R06-F2 Site Drawings

2.2 Condition of the Land at Permit Issue

2.0 Condition of the land at permit issue	
Environmental setting including: <ul style="list-style-type: none"> • geology • hydrogeology • surface waters 	The environmental setting of the site is detailed in Section 4 of this report.
Pollution history including: <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 	The pollution history assessment for the site area has been detailed in Section 5 of this report.
Evidence of historic contamination, for example, historical site investigation, assessment, remediation and verification reports (where available)	The pollution history assessment for the site area has been detailed in Section 5 of this report.
Baseline soil and groundwater reference data	Provided in Appendix 1 – RHS information.
Relevant Hazardous Substances	The RHS identified for the land that will be included in the Installation Boundary comprise: <ul style="list-style-type: none"> • Lubricants Further information is provided in report reference P207-R01-F2 and in High Marnham Phase II Contaminated Land Investigation Report
Supporting information	The source information used to produce the Site Condition Report has been listed in Section 1.3 above. Information relating to Relevant Hazardous Substances (RHS) has

2.0 Condition of the land at permit issue	
	been provided within report reference P207-R01-F2 and in High Marnham Phase II Contaminated Land Investigation Report.

2.3 Permitted Activities

3.0 Permitted activities	
Permitted activities	Environmental Permitting (England and Wales) Regulations SI 2016/1154 S 4.2 Part A(1) (a) (i)
Non-permitted activities undertaken	None within this application Installation Boundary.
Document references for: <ul style="list-style-type: none"> • plan showing activity layout; and • environmental risk assessment. 	The site layout is detailed in the drawings contained within report referenced P207-R06-F2. Environmental risk has been assessed within the reports P207-R02-F2.

3 Site Description

3.1 Site Description

3.1.1 Location and Topography

High Marnham Power Station is centred around National Grid reference SK 808 711, approximately 5km to the north of Sutton on Trent.

The topography of the site, on the floodplain of the adjacent River Trent, is relatively flat at between 5m and 9m above Ordnance Datum (mAOD).

3.1.2 History

The Power Station was commissioned in 1962 and closed down in 2003. Prior to the power station construction, the site was largely occupied by agricultural land, although a suspected former dump for construction waste is understood to have been present adjacent to the rail sidings.

3.1.3 Setting

The site sits in a relatively flat district previously a power station and now being developed for industrial and commercial uses.

An electricity sub-station is located to the immediate southwest of the site.

The site is surrounded in other directions by agricultural land, with the River Trent situated less than 100m to the east at its nearest point.

3.1.4 Drainage Description

The drainage system on site comprises roof, surface, trade effluent and foul systems. Rainwater and clean effluent discharge to the River Trent.

3.1.5 Operational Areas and Bunds

All operational areas to be included within the Permit Boundary are provided with an impermeable surface. Secondary containment systems are provided on-site for all bulk relevant hazardous liquid materials.

3.1.6 Vegetation

Minimal vegetation is present around the external perimeters of the installation due to its industrial location. Any vegetation appeared in healthy condition.

3.1.7 Surface Water Features

There are no surface water features within the installation boundary.

3.2 Potential Contamination Sources from Proposed Use

The potential contamination sources from the use of the site, based on external storage in bulk, are:

- Lubricant storage (25 litre drums, provided with secondary containment);

It should be noted that the environmental risk associated with the storage and handling of these materials has been assessed as being low (see report P207-R02-F1).

4 Environmental Setting

4.1 Geology

British Geological Survey (BGS) data indicates the site is underlain by superficial deposits comprising Made Ground overlying drift Alluvium and River Terrace deposits (RTD). The superficial materials are underlain by Mercia Mudstone Group (MMG) strata, estimated to be up to 50m thick underlying the site and in turn overlying the Sherwood Sandstone Group.

4.2 Hydrogeology

The drift deposits (RTD and Alluvium) are classified by the Environment Agency (EA) as Minor Aquifers, whilst the underlying MMG is classed as a Non-Aquifer. There are no Source Protection Zones associated with groundwater abstractions within 1km of the site.

4.3 Hydrology

The River Trent is situated to the east of the site.

The drainage system of the operational power station involved the collection of surface water in interceptors before either being re-circulated for use in the cooling towers (via settlement in the emergency ash lagoon) or discharged to the River Trent at the official licence point.
Ecological Receptors

4.4 Natural Impacts

4.4.1 Radon Potential

The property is in a Lower probability radon area (less than 1% of homes are estimated to be at or above the Action Level).

4.4.2 Flood Risk

All of the installation is located in a Flood Zone 1 - Land having a less than 1 in 1,000 annual probability of river or sea flooding

4.5 Landfill/Waste

A suspected former dump for construction waste is understood to have been present adjacent to the rail sidings. None of the likely materials deposited relate to relevant substances proposed for the new installation operation.

5 Land Pollution History

5.1 Historical Development of the Site and Adjacent Land

The Power Station was commissioned in 1962 and closed down in 2003. Prior to the power station construction, the site was largely occupied by agricultural land, although a suspected former dump for construction waste is understood to have been present adjacent to the rail sidings.

5.2 Potential Contamination Sources from Historical Land Use

The following areas of the site should be noted as potential localised zones of contaminated soil:

- A 'suspect waste dump south of the locomotive shed, with an area of bare grass to the south of this feature'. Anecdotal evidence from station staff suggest the latter area, now covered by shrubs, may have been used as a waste oil dump.
- 2 areas of known or suspected asbestos (amosite lagging) contamination, adjacent to the railway sidings/dust hoppers and at the southwest corner of the coal stockyard respectively.
- The Law Gibb report refers to a spillage of 150 gallons of diesel in 1996 at the railway sidings, to the east of the track hoppers. Additionally, discussions with station staff suggest at least one significant spillage of fuel oil may have occurred adjacent to the ash plant in the early to mid 1990's. One particular incident is thought to have been caused by leakage from fuel oil pipelines and resulted in pollution of the Trent via the site discharge. However, it is also thought that the vast majority of these spillages would have been intercepted by the site drainage system and hence potential contamination of underlying soils may have been limited.

None of the historical incidents relate to relevant substances proposed for the new installation operation.

5.3 Site Management Discussions

Site Management have confirmed that there have been no recent recorded pollution incidents, nor any use of the land, which may have led to significant ground contamination issues that they are aware of.

APPENDIX 1:**Appendix 1a – RHS**

Appendix 1a**1. Relevant Hazardous Substances**

The relevant hazardous substances for the Installation are considered to be:

- Lubricants
- Ammonia

These are the only materials present in significant quantities which, if released to the environment, may have hazardous properties that could potentially cause an impact (see report reference P207-R01-F1, Installation Information).

The risk assessments contained within report ref P207-R02-F1 have demonstrated the risk of these materials impacting underlying ground and ground water as low/medium, due to the following controls:

- Stored within dedicated containers
- Storage vessels provided with secondary containment
- Level gauges and alarms
- All materials, storage and manual handling located on hardstanding
- EMS controls
- Spill kits.

No further additional site condition assessment is required, and the Site Condition Report, read in conjunction with “High Marnham Phase II Contaminated Land Investigation Report” can be taken as being representative of the whole site.