Permitting Decisions - Variation

We have decided to grant the variation for Thorpe Marsh Landfill operated by Thorpe Marsh Green Energy Hub Limited.

The variation number is EPR/CP3091SC/V002.

The permit was issued on 03/02/2025.

(Note: Transferred from H.J. Banks and Company Limited to Thorpe Marsh Green Energy Hub Limited on the 03/02/2025. (EPR/CP3091SC/T003))

Pulverised fuel ash (PFA) was originally deposited at the site from the generation activities of Thorpe Marsh Power Station, a 1GWatt coal-fired station, commissioned in 1963 and closed in 1994. Despite closure of the Power Station in 1994 the landfill's environmental permit was not surrendered.

This variation is for the redevelopment of the landfill to operate a Battery Energy Storage System (BESS) at a closed landfill site. The site is a pre-landfill directive site and therefore Landfill Directive Standards will apply to the redeveloped area. The project will involve the redeposition of excavated waste (PFA) on the site. This will be required in order to provide sufficient land coverage for the BESS to be constructed. No waste will be imported onto site from external sources.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision-making process. It

- highlights key issues in the determination
- summarises the decision making process in the decision considerations section to show how the main relevant factors have been taken into account
- shows how we have considered the consultation responses

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit and the variation notice.

Key issues of the decision

Selection of Contaminant of Concern

The review of groundwater monitoring indicated the concentrations of some of the substances selected as contaminants of concern, for which action limits were proposed, were elevated in groundwater above that recorded in the landfill leachate. This was not considered appropriate as it would make it difficult to determine the impact the proposal operation would have on groundwater. As a result, the applicant was required to re-assess the monitoring data to determine appropriate contaminants of concern that would be used as compliance parameters. It is considered more appropriate to choose compliance parameters with lowest concentrations in groundwater and surface water than the source term concentration.
In response the applicant identified contaminants with lower concentrations in groundwater than the source term which were indicative of Pulverised Fuel Ash (PFA) deposited at the site. In view of the above the list of contaminants of concern has been revised.

To ensure regulatory action is taken should the operation impact the water environment the applicant was also requested to update the monitoring plan to include proposal for groundwater and surface compliance limits for key contaminant of concern including action plans for remediating any potential breach of the limits. This information was provided and assessed to be acceptable.

Groundwater Compliance Limits and Action Levels

The proposed action levels and compliance limits are provided in Table 5-2 of the Revised Monitoring Plan.
The compliance limits (trigger levels) for aluminium, nickel, vanadium and chromium (VI) are not acceptable because the proposed limits allow too much headroom above the maximum baseline concentrations for aluminium, nickel and vanadium. This could lead to unregulated upward trend in concentrations of the contaminants of concern in groundwater before regulatory action is initiated by Environment Agency. In view of this Environment Agency revised the proposed limits for these substances by setting the compliance limits at appropriate levels that would ensure adequate protection of groundwater and complied with the prevent and limit requirements of paragraph 6 of Schedule 22 of the Environmental Permitting Regulations 2016 (EPR 2016).

Environment Agency also set the compliance limit for chromium (VI) as interim limit. This was because the substance was analysed at a limit of detection that was higher than that recommended by UK Technical Advisory Group on the Water Framework Directive (UKTAG). Future analysis needs to be carried out at lower limit of detection equivalent to UKTAG limit of quantification of 1ug/l to address this issue. This is necessary as chromium (VI) is a hazardous substance which must not be discernible above UKTAG limit of quantification of 1 ug/l or maximum baseline concentration if higher that limit of quantification.

Surface Water Emissions Limits & Action Level

The proposed limits are shown in table 6-2 of the EMP. Like issues described above under groundwater limits, the surface water emissions limits for chromium, nickel and vanadium have been similarly revised by Environment Agency to ensure high level of environment protection and compliance with EPR 2016. The emission limit for chromium VI has also been set as an interim limit due to high detection limit used by the laboratory. Future analysis of chromium V1 needs to be conducted at lower limit of detection below UKTAG limit of quantification of 1 ug/l.
Surface Water Monitoring Location Plan Figure 2 dated November 2024 has been provided. This showed the surface water sampling locations and Discharge Consent Monitoring Location.

Landfill Cap

Environment Agency disapplied the requirement for engineered landfill cap. This is because evidence from leachate and groundwater monitoring data showed the leaching potential of the PFA has significantly reduced following several years of operating the site as dilute and disperse landfill. Most contaminant concentrations in groundwater within Drift Deposits are higher than those in the leachate source term. As a result we agreed with the applicant's conclusion that landfill cap will not be required as the source no longer pose significant risk to groundwater.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The comments and our responses are summarised in the consultation responses section.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- Local Authority – Environmental Protection Department: regulationenforcement@doncaster.gov.uk
- Local Authority – Planning: tsi@doncaster.gov.uk
- Director of Public Health: Rachael.Leslie@doncaster.gov.uk
- UKHSA: envpermitting@ukhsa.gov.uk
- Health and Safety Executive: concerns@hse.gov.uk

The comments and our responses are summarised in the consultation responses section.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 ‘Understanding the meaning of regulated facility’.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan/s which we consider to be satisfactory.

These show the extent of the site of the facility including the discharge points.

The plans show the location of the part of the installation to which this permit applies on that site.

The plan is included in the permit.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is not within our screening distances for these designations.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator’s risk assessment is satisfactory.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Dust management

We have reviewed the dust and emission management plan in accordance with our guidance on emissions management plans for dust.

We consider that the dust and emission management plan is satisfactory and we approve this plan.

We have approved the dust and emission management plan as we consider it to be appropriate measures based on information available to us at the current time. The applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The applicant should keep the plans under constant review and revise them annually or if necessary sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance ‘Control and monitor emissions for your environmental permit.

The plan has been incorporated into the operating techniques S1.2.

Updating permit conditions during consolidation

We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit[s].

Waste types

No waste can be imported to the site. The operation is to redeposit previously deposited PFA to allow development of the BESS foundation.

We have specified the permitted waste types, descriptions and quantities, the environmental risk assessment is acceptable.

Pre-operational conditions

Based on the information in the application, we consider that we need to include pre-operational conditions.

The applicant was required to provide an assessment of the risk to water environment resulting from the proposal to pile through the deposited waste in order to establish foundation for the switchyard / substation. Piling through the landfilled waste has great potential to create a preferential pathway which could allow further contamination of groundwater within the superficial deposits and bedrock aquifer as well as driving solid contaminants down to aquifer systems during installations. Hence, the risks to water environment needed to be assessed as part of the permit application.

In response the applicant provided an outline Piling Risk Assessment. This demonstrated the risk to water environment due to piling through the deposited waste to establish foundation for the switchyard / substation is low provided the measures proposed in the report (Outline Piling Risk Assessment, November 2024) are implemented. To ensure these measures are enforced Environment Agency imposed the pre-operation condition POM1 in the permit.
Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

We have included an improvement programme (IC1) to ensure that the detail on installation of groundwater monitoring boreholes replacing boreholes decommissioned prior to PFA movement is submitted to the Agency and approved. An updated site monitoring plan showing the locations of the replacement boreholes will also be required. The plan titled Figure 1 dated November 2024 has been provided to show monitoring wells requiring decommissioning.

Emission limits

Emission Limit Values or equivalent parameters have been added for the following substances:

Surface Water	**Discharge**	**Groundwater**	**Gas**
Aluminium Chromium Nickel Vanadium Calcium Chromium VI Magnesium	Suspended Solids pH Total TPH	Aluminium (dissolved) Chromium (dissolved) Chromium (hexavalent) Vanadium Calcium Nickel (dissolved) Magnesium (dissolved)	Methane Carbon Dioxide

We made these decisions in accordance with Environment Agency Guidance LFTGN02 ‘Monitoring of Landfill Leachate, Groundwater and Surface Water’ (February 2003) and risk assessments for your environmental permit.

Monitoring

We have decided that monitoring should be added for the following parameters, using the methods detailed and to the frequencies specified:

Discharge	Groundwater	Surface Water	Gas
Base Of Monitoring Point (mAOD)	Visual Oil and Grease	pH	Methane
Suspended Solids	Water Level	Aluminium	Carbon Dioxide
Total TPH	pH	Ammoniacal Nitrogen	Oxygen
	Aluminium	Boron	Atmospheric Pressure
	Ammoniacal Nitrogen	Cadmium	Differential pressure
	Antimony	Chloride	
	Arsenic	Chromium (III and VI)	
	Barium	Copper	
	Boron	Electrical conductivity	
	Cadmium	Arsenic	
	Calcium	Iron	
	Chloride	Lead	
	Chromium (III And VI)	Magnesium	
	Copper	Manganese	
	DOC	Mercury	
	Electrical Conductivity	Molybdenum	
	Fluoride	Nickel	
	Iron	Potassium	
	Lead	Sodium	
	Magnesium	Sulphate	
	Manganese	Vanadium	
	Mercury	Zinc	
	Molybdenum		
	Nickel		
	Total Alkalinity		
	Total Chrome		
	Vanadium		
	Zinc		
	Potassium		
	Selenium		
	Sodium		
	Sulphate		
	Tin		
	Volatile Organic Compounds		
	Base Of Monitoring Point (mAOD)		

These monitoring requirements have been included in order to ensure protection of the environment.

We made these decisions in accordance with Environment Agency Guidance LFTGN02 ‘Monitoring of Landfill Leachate, Groundwater and Surface Water’ (February 2003) and risk assessments for your environmental permit.

Based on the information in the application we are satisfied that the operator’s techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.

Reporting

We have added reporting in the permit, see Schedule 4 of the permit.

We made these decisions in accordance with the relevant technical guidance notes LFTGN02 and LFTGN03.

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

We only review a summary of the management system during determination. The applicant submitted their full management system. We have therefore only reviewed the summary points.

A full review of the management system is undertaken during compliance checks.

Technical competence

Technical competence is required for activities permitted.

The operator is a member of the CIWM/WAMITAB scheme

We are satisfied that the operator is technically competent.

Previous performance

We have assessed operator competence. There is no known reason to consider the applicant will not comply with the permit conditions.

We have checked our systems to ensure that all relevant convictions have been declared.

No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.

Financial competence

There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.

Financial provision

We are satisfied that the operator has made the necessary financial provision.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit variation.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation responses

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, newspaper advertising and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from UKHPA. Environmental Hazards and Emergencies Department. 20/09/2024

Brief summary of issues raised: The main emissions of potential concern are fugitive emissions of dust and impacts on groundwater. The applicant has proposed mitigation measures as outlined in a Dust Management Plan. The applicant has noted the presence of an aquifer in source zone III in their assessment and has indicated that the process activity poses a low risk. It is recommended that the regulator should satisfy themselves that the applicant's assessment is robust and that the cell design is appropriate.

Based on the information contained in the application supplied to us, UKHSA has no significant concerns regarding the risk to the health of the local population from the installation.

Summary of actions taken: None required