

Permitting Decisions - Variation

We have decided to grant the variation for East Northants Resource Management Facility operated by Augean South Limited.

The variation number is EPR/TP3430GW/V007.

The variation is for:

- An extension of the site running north to south on the west side of the current landfill (to include an area formed of 9 additional phases (12 to 21));
- An extension of time from the year 2025 to 2046 for the leachate level limit of 5m in phases 1 to 11 in the current landfill, however, limit the new phases 12 to 21 in the extension area, to 1m;
- Continue with the same waste types, same approach to engineering and design, but with consideration to pipelines, overhead cables and culvert;
- Increase in the annual tonnage to be infilled from 250,000 to 300,000 tonnes per annum.

No other changes are proposed, so the types of waste (mainly consisting of treatment residues, contaminated soils, and asbestos), the operating techniques such as containment design, site operations and the management and monitoring of emissions including particulates, leachate and landfill gas remain the same as at present. Leachate extracted from the site is used in the onsite hazardous waste treatment plant which is separately permitted (EPR/YP3138XB).

This variation has been consolidated with the current permit, but the permit conditions have not been updated, except where required as a result of the variation application made by the operator including where we need to add in the standard template conditions.

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
- explains why we have also made an Environment Agency initiated variation
- 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

Site investigation, Site Setting, Conceptual Site Model (CSM) and Karstic (Doline) Areas near Phases 14 and 21

Site investigation

A desk top study and a site investigation was carried out in the western extension area to establish the geological and hydrogeological conditions.

The ground investigations were completed by way of drilling exploratory boreholes and extracting core samples where possible and installing boreholes for gas and groundwater monitoring.

The operator investigated the area around the swallow hole located on the north-western corner of the existing site in detail, looking for limestone solution features (dolines). In the application the operator requested that the final landfill design around these areas shall be agreed following issue of the variation, to allow for further targeted investigations in this area as they didn't not have access to the land prior to the national infrastructure planning decision - development control order (DCO) being determined (issued 6 February 2023).

For the purposes of this variation, the operator has considered two options:

- Retention of a 20m wide corridor to provide a route for surface water drainage from the land to the west of the proposed extension to the swallow hole;
- Retention of a 150m wide standoff from the landfill area boundaries if deemed necessary.

Furthermore, no landfilling will take place over water and gas pipelines which intersect the proposed extension area. These pipelines will have suitable stand-off distances to landfilling.

We have agreed that the further investigations to ascertain the extent of the doline area can be undertaken and preoperational condition 4 (a to c) have been placed in the permit to agree the site investigation plan, undertake the investigation and submit revised conceptual model and a final site design for the western extension area.

Site setting

The geology of the site setting is described as having Blisworth Limestone (non-water bearing) present in the northern part of the extension area (<2m thick). Also, the Rutland Formation is 5m-13.5m thick beneath the northern part of the extension area, and between 5m-20m thick beneath the southern area combined with Glacial Till. Beneath this, the Lincolnshire Limestone is present (14m-20m thick), and this overlies the Grantham Formation/ Northampton Sand. Karst

features such as swallow holes and doline depressions have been recorded in the vicinity of the site. Generally the groundwater flows in N-S direction, but also falls to the west - southwest in the mid to southern part of the extension (see figure 2).

A number of samples of Glacial Till and Rutland Formation were tested for vertical hydraulic conductivity with results ranging $1.9e^{-10}$ m/s to $8.4e^{-12}$ m/s (Glacial Till) and $1.8e^{-11}$ to $5.2e^{-9}$ m/s (Rutland) demonstrating that both the Glacial Till and Rutland Formation have a very low permeability.

The site will be engineered and will retain at least 2 m of Rutland Formation or Glacial Till in situ beneath the landfill base consistent with existing arrangements. A 1 m thick artificial clay liner, 2mm HDPE geomembrane with 300mm sand protection layer and geotextile separator will also be included. The landfill cap will either be 1mm High-density polyethylene (HDPE) or Linear low-density polyethylene (LLDPE) or 1m clay, with 1-1.5m restoration soils. A suitable drainage geocomposite will be placed over the cap to act as a drainage pathway to the perimeter surface water system. The leachate will continue to be collected and used in the waste treatment facility and excess removed by tanker to a suitable site for treatment.

Conceptual Site Model and Karstic (Doline Area)

The operator's desk top study and ground investigations informed the conceptual site model (illustrated in figure 1 below). However, as described above in the Site Investigation section further work is necessary to ascertain the extent of the doline area. We have agreed that the operator will undertake site investigation works, in the 150 m wide zone, to include (but not be limited to):

- finding the cavities and areas of increased fracturing;
- determining what aperture is significant and understand further how they are formed;
- ascertaining the width of the stand-off areas;
- providing the revised detailed design of the containment system.

We require this work to be done as we need to ensure that the subgrade beneath the site is stable and will support the engineered lining system. The extent of the doline areas needs to be understood and no landfilling will be undertaken in the 150 m wide zone until the site investigation has been undertaken and we are satisfied with the revised site design. If fracture areas are found, based on the results of the work under the pre-operational condition 4 a to c we would not allow any landfill development above areas in which cavities are identified. However, the 150 m wide zone may be reduced if no evidence of cavities is found. (See also the Stability Risk Assessment (SRA) section below).

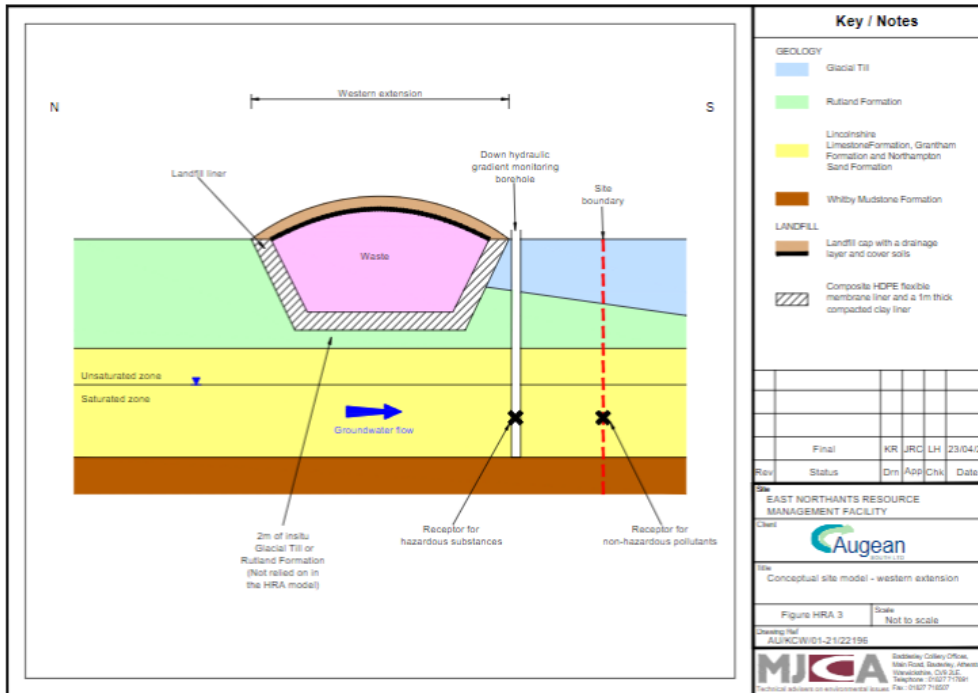


Figure 1 – Conceptual Site Model (reproduced from application EPR/TP3430GW/V007 dated May 2021)

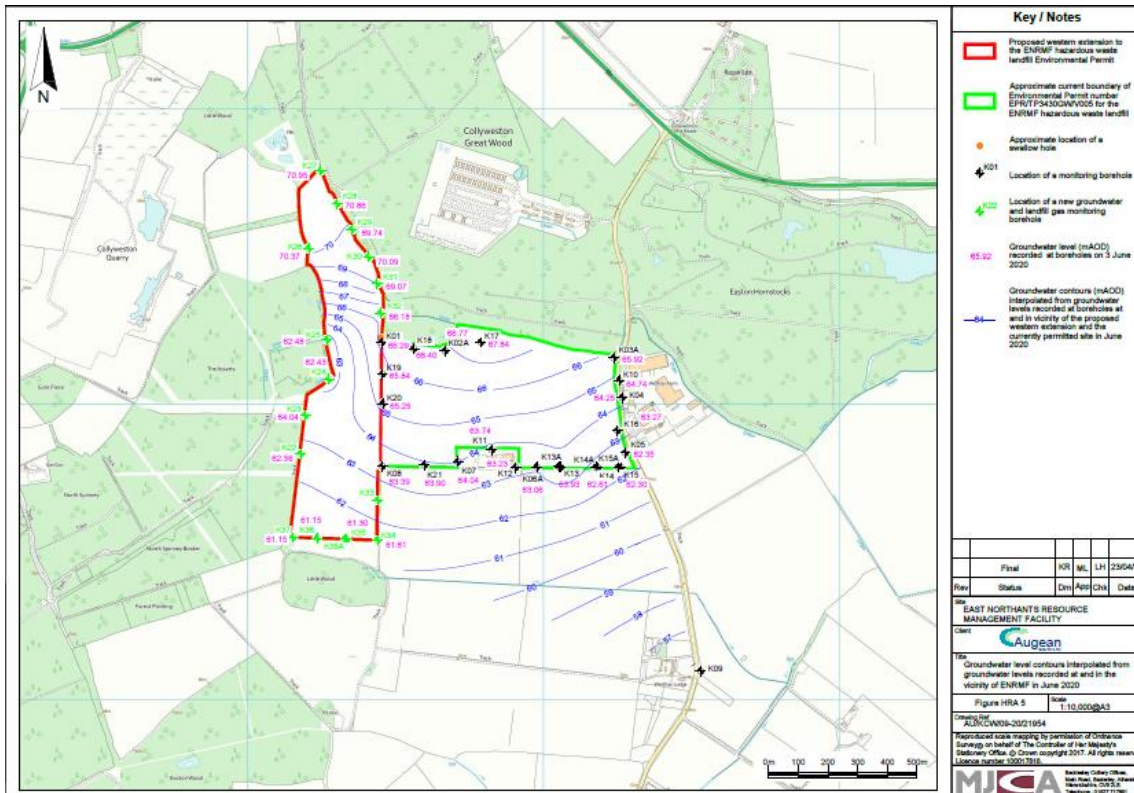


Figure 2 – Groundwater contours (reproduced from application EPR/TP3430GW/V007 dated May 2021)

Additional Information requested and received

We requested additional information via Schedule 5(1) Notice dated 19/05/2022 and received a response on 22/07/2022 where the operator submitted additional cross sections to further inform the above CSM and the Stability Risk Assessment (SRA).

This response was largely satisfactory, as the operator has:

- revised the restoration drawing in the SRA and Environmental Setting and Installation Design (ESID) report;
- provided details of the current technically competent manager;
- revised modelling and updated report for the hydrogeological risk assessment (HRA);
- revised Conceptual site model and drawings for the SRA;
- discussed the geological setting and details;
- outlined the additional site investigation proposed to be done under the control of a pre-operational condition;
- committed to not treat any cavities found by grouting and will standoff any area suspected of containing a void and revise the landfill design if necessary; and
- committed to add two additional groundwater monitoring boreholes, one on the eastern side and one on the western side of the south of the extension area.

However, we still required the operator to:

- clarify their interpretation of how dolines are formed; and
- clarify what fracture aperture is considered to be significant when considering effect on the containment system, and long-term development of cavities.

We requested this additional information via Schedule 5(2) Notice dated 06/10/2022.

The response received on 18/11/2023 was largely satisfactory, as the operator:

- committed to only developing the landfill within the karstic/doline area (150m corridor between Phases 14 and 21) if the site investigations indicate it can;
- assessed and modelled worst-case scenarios for what a significant void would look like and that the likelihood of these occurring concluding that it is extremely unlikely that a significant void would occur and if it did that design of the site would protect groundwater;

- revised the HRA inputs for the management control period in line with Environment Agency’s guidance, demonstrating that it is extremely unlikely that there will be an impact on the groundwater; and
- outlined the additional site investigation, using different techniques which they propose to do under the control of a pre-operational condition 4a & b.

However, to ensure the site design is appropriate in and around the karstic/doline area, we have included a pre-operational condition 4b & c in the permit to undertake an additional site investigations to ascertain extent of the doline area, fully understand how any apertures are formed or made worse (possibility likely to be via surface water/groundwater actions and interactions and sediment movement) and revise the site design to account for the findings of the investigation.

Gas and Water pipelines

As shown in the drawing ESID 6 of the ESID report¹ discussed in the application and the Environmental Statement, there are a number of utilities within the extension area. It shows there is a gas and two water pipelines that transect the site. The operator has not proposed to amend the position of these but have proposed that they will confirm to us the detailed cell design and the amount standoff that has been agreed with the pipeline authority and water utility company. The redundant oil pipeline will be removed, and the overhead electricity cables will be diverted to a trench alongside the water pipelines.

In accordance with the operator’s proposal, we have required them, via pre-operational condition 2 to provide us with the appropriate information and evidence that the utility authority has agreed the extent of the standoff from the pipeline, and we can ensure that the risk assessments and site design that have been approved are still valid. The final design will be confirmed and verified via condition 2.5 – Landfill engineering.

We are satisfied that the operators risk assessments, operational techniques, and management plans submitted as part of the variation application, Schedule 5 Notices and requests for further information responses will prevent or, where that is not practicable, minimise the impact on the environment. We have accepted, as the operator has proposed, that additional site investigation is undertaken – see more details in the stability risk assessment (SRA) section.

¹ Environmental Setting and Installations Design (ESID) report; reference AU/KCW/AW/5646/01/ESID : May 2021.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has been made.

We have accepted the claims for confidentiality.

We have excluded Appendix I of the application from the public register which contained details of the expenditure plan and financial provision arrangements.

We have excluded the response to the request for further information dated 09/09/2022 which contained details of the revised expenditure plan and financial provision arrangements.

We have excluded the response to the request for further information dated 28/03/2023 which contained details of the revised expenditure plan and financial provision arrangements.

We consider that the inclusion of the relevant information on the public register would prejudice the applicant's interests to an unreasonable degree.

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

Identifying confidential information

We have not identified any additional 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:

- Food Standards Agency
- North Northants Planning Authority
- North Northants Environmental Health Department
- National Grid

- Health and Safety Executive
- Anglian Water
- Director of Public Health
- UK Health Security Agency.

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', Appendix 1 and 2 of RGN2 'Interpretation of Schedule 1' and 'Defining the scope of the installation'.

The site

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

This shows the extent of the site of the facility including the discharge points. The plan shows the extended permit boundary that include a series of ten new hazardous waste landfill phases to the west of the currently permitted area (the western extension). The proposed western extension covers an area of approximately 26.3 hectares and will provide an additional landfill void of approximately 2.5 million cubic metres.

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 within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

The following operational controls incorporated into the permit to protect the identified SSSI Sites of Special Scientific Interest, local wildlife site, ancient woodland, national nature reserve, and protected habitat/species.

SSSI's identified are:

- Collyweston Great Wood and Easton Hornstocks SSSI
- Bedford Purlieus SSSI

- Bonemills Hollow SSSI

National Nature Reserves identified are:

- Collyweston Great Wood & Easton Hornstocks (NNR)

Local Wildlife Site identified are:

- Fineshade Woods

Ancient Woodlands identified are:

- Wittering Coppice

Operational controls

Once the void is constructed, the clay barrier, site infrastructure, management and monitoring will protect the designated areas and when the engineered cap has been placed, there will be dedicated drainage for surface run off directed to purpose-built drains that will drain to the swallow hole. **No drainage** to the swallow hole will be permitted from the site activities during the operational phase of the landfill.

To prevent, and if it can't be prevented, to minimise the risk of release of dust from construction activities, soil storage, waste handling operations and vehicle movements, the following mitigation is outlined in the submitted risk assessments and management plans:

- During handling of waste, dust emissions shall be visually monitored continuously by staff. If required, the surface of the material will be dampened down before screening.
- Site inspections will include visual monitoring for dust from the waste treatment and storage areas.
- Dust will be monitored periodically and limited to 200 mg/m²/day²
- Dampening down of dust, if necessary.
- Cleaning of nearby roads and hard surfaces to minimise transportation of dust and particulates

In the event of dust emissions from the site being detected: -

- The incident must be reported to the site manager.
- A record must be made of the incident and actions taken.

² There is no limit for ecological receptors, therefore the limit used to protect human health is used. (Reference: Technical Guidance Note (Monitoring) M17 Monitoring Particulate Matter in Ambient Air around Waste Facilities – July 2013 (final paragraph of section 5.5.2).

- Waste storage and treatment procedures will be reviewed and additional controls imposed as deemed necessary by the site manager.

Dust monitoring is carried out as part of the landfilling operation and will continue to be monitored.

To prevent run off from waste areas into surface water and groundwater, potentially affecting nearby environmentally sensitive habitats, e.g. if site becomes flooded, the following mitigation is outlined in the submitted risk assessment and management plans:

- Construction of site infrastructure e.g. landfill sidewall seal, drainage system, leachate controls and subsequent capping to prevent waste and/or leachate contaminating groundwater and surface water. The site infrastructure is built in line with the conditions of the permit and is done under construction quality assurance (CQA) check by a competent third party and reported to the Environment Agency.
- Activities will be managed and operated in accordance with a management system and conditions in the permit which will include procedures to minimise the risk of contaminated run-off being discharged to surface water and/or groundwater.
- Management of the leachate – extraction of leachate to maintain it at permitted level and within the engineered sealed area.
- Waste acceptance procedures are in place to ensure all material accepted at the facility is on the approved waste list.
- Water from the wheel washing plant is reused in the treatment plant which is also on the site (separately permitted as EPR/YP3138XB – marked in yellow in drawing ESID 3³ of the ESID report contained in the application).

To prevent, and if it can't be prevented to minimise, the risk of noise and disturbance from site plant, delivery vehicles and screening operation on local wildlife species. Activities will be managed and operated in accordance with a management system which will include procedures to minimise noise from the operations on site.

- All machinery and plant will be maintained in accordance with manufacturers' specifications.
- Restriction to the site operating hours between 7am and 6 pm from Monday to Friday and 7 am to 1 pm Saturday.

In addition, prior to the development the operator will:

³ Environmental Setting and Installations Design (ESID) report; reference AU/KCW/AW/5646/01/ESID : May 2021: Drawing ESID 3

- Undertake preliminary works such as creating new hedgerow and/or banks and gaping-up hedgerow;
- Create a standoff with planting of wildflowers, cover and hibernation sites;
- Erect fencing to prevent deer incursion and steel panel amphibian exclusion fencing;
- Fence will be erected sensitively to protect tree roots and ground nesting species. The fencing is designed to exclude the animals from the working area only and will be removed on restoration. The species will continue to be able to move around the perimeter of the site in the ecological standoff;
- Undertake supervised trapping of protected species in the standoff area;
- Maintain a watching brief for invasive alien plant species and supervise removal/treatment as required.

During the operation of the extended area:

- The site will be constructed, operated and monitored within the framework of the permit conditions and approved management plans.
- Runoff will contain minimal suspended solids in surface water discharge (permit limit).
- The operator will maintain the soil piles to minimise dust being blown towards the SSSI
- The operator will maintain a watching brief for invasive alien plant species and supervise removal/treatment as required.
- The operator has proposed a restoration scheme including planting of trees and shrubs;

Please see restoration drawing below (Figure 3 – Restoration plan).

We have consulted Natural England on our SSSI assessments and taken their comments into account in the permitting decision.

The decision was taken in accordance with our guidance.



Figure 3 – Restoration Plan

Environmental impact assessment

In determining the application we have considered the Environmental Statement.

Environmental risk

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

Hydrogeological Risk Assessment

The operator undertook a review of hydrogeological risk assessment (HRAR) including the leachate and groundwater quality as well as leachate and groundwater depth data from 2014 to 2020. Also, the construction quality assurance validation data were used to confirm the engineering containment parameters. We are satisfied with the HRAR and modelling, however the model runs were not conducted in line with the Environment Agency guidance nor was the modelling done as it was in 2014, where the model was run for different management control periods. Therefore, we requested that the operator provide the additional modelling and report via Schedule 5 Notice dated 19/05/2022 and 06/10/2022 (see above in Key Issues).

The operator response to the Schedule 5 Notices contained an improved model. Based on that we consider operator's hydrogeological risk assessment is satisfactory.

We accept the operator's justification as the Hydrogeological Risk Assessment demonstrates that the design complies with the regulations regarding the protection of groundwater in Schedule 22 of the EPR and, therefore, complies with the requirements of the Directive.

We are satisfied that the leachate head can be remain at 5m above the base until 2046 as the Hydrogeological Risk Assessment shows that this will not result in contamination of groundwater over the long term. However, the operator has proposed that this increased leachate level only applies for the period of operation of the adjacent waste treatment plant, which is subject to a separate environmental permit. Therefore, we have specified that after 31/12/2046 – the date when the planning permission for the treatment plant ceases - the leachate level limit shall be 1m above the base of the site.

Stability Risk Assessment

Additionally, the operator also undertook a stability risk assessment (SRA) which is based on a desk study of the British Geological Society information as well as the information gather from the boreholes drilled during the site investigation,

geophysical investigation and monitoring data. From this the operator has derived a conceptual site model.

However, we were not totally satisfied with the approach taken and requested that the operator review it to include the existence and long-term effect of cavities in the sub-grade on the landfill containment system.

As detailed above in the Key Issues section – Karstic (Doline) Areas near Phases 14 and 21, we are partially satisfied with the operator’s response to the Schedule 5 Notices and request for information.

After receiving the response to the Schedule 5 Notice dated 19/05/2022, we considered that there remain questions regarding the operator’s interpretation of how dolines are formed, and what fracture aperture is considered to be significant when considering effect on the containment system, and long-term development of cavities.

The operator’s proposed that a pre-operational condition be included in the permit variation for further ground investigations in the extension area to determine ground conditions and the width of the stand-off area. We have accepted that proposal and included it in the permit (pre-operational condition 4).

After receiving the response to the Schedule 5 Notice dated 06/10/2022, we considered that the information in the response provides clarifications regarding:

- the width of the stand-off area,
- significance of fracture aperture in the limestone,
- proposals for further investigation under a pre-operational condition, and
- determination of critical size of cavity that would affect the containment system.

The operator refers to research on resistivity surveying for cavities to justify use of the technique at the site. We consider this a useful technique as part of the full site investigation of the doline area.

In the response, the operator accepts a 150m stand-off zone in the area between phases 14 and 21 but with the caveat that this may be reduced subsequent to detailed ground investigations and with our approval.

The operator’s proposals are generally acceptable, though we still consider

- that their interpretation of how dolines may develop in the area is incomplete,
- conceptual site model needs to be updated to account for the processes of removal of material from a cavity by groundwater and/or surface water action/interactions potentially moving sediment and potentially creating a void that migrates in an upward direction,

- the overall conceptualisation (also see Key Issues) may only be confirmed and corrected once detailed investigations have been conducted as required by the proposed pre-operational conditions.

We consider that the scope of ground investigations under the pre-operational condition should include :

- Aquifer tracer tests – though the operator referred to the site-specific geophysical report and various publications of research [Atkinson & Farrant 2015; Doryoro, Chang and Puntu (2021)], as we consider that it is necessary to factor in the importance of tracer tests to understanding the flow paths, velocity, indications of dominant fracture networks in the limestone.
- Consideration of a multi-stage approach to geophysical surveys –
 - Stage 1 prior to any excavation of the glacial till and Rutland Formation, and,
 - Stage 2 following excavations in the glacial till and Rutland Formation at the proposed base level of landfill cells.

This would be to further reduce uncertainty in detecting subsurface cavities.

Landfill Gas Risk Assessment

The operator has submitted a landfill gas risk assessment (LGRA). The risk assessment has concluded that there is no need to take measures to collect, treat or use landfill gas from the western extension landfill area due to the type of waste being deposited in that area.

Therefore, the operator will continue to extract and flare landfill gas from cells 1A to 2B of the existing landfill.

The operator's landfill gas risk assessment is satisfactory.

Environmental Risk Assessment

The operator has submitted an environmental risk assessment (ERA).

The operator's environmental 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.

We are satisfied that techniques proposed to be used by the operator are in accordance with the relevant guidance on Gov.uk.

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 operator 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.

Changes to the permit conditions due to an Environment Agency initiated variation

We have varied the permit as shown in the variation notice.

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility. There are no changes to the waste types as a result of this variation.

We are satisfied that the operator can accept these wastes for the following reasons:

- they are suitable for the proposed activities
- the proposed infrastructure is appropriate;
- the environmental risk assessment is acceptable;

- they are classified as hazardous and can be accepted at a hazardous landfill;
- they are the same wastes that are accepted currently except for 16 01 04* - end of life vehicles – which has been removed as placed in the permit in error when it was previously varied; and
- the risk assessments have been carried out using these wastes as the source term and demonstrate that with the proposed engineering and management controls, these wastes will not cause pollution.

We made these decisions with respect to waste types in accordance with Guidance on the classification and assessment of waste – Technical Guidance WM3, specific guidance on GOV.uk and the requirements of the Landfill Directive.

Pre-operational conditions

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

| Reference | Operation | Pre-operational Measures | Reason for inclusion |
|-----------|--|---|---|
| 1 | Prior to importation of waste soils for restoration of the landfill. | The operator shall submit to the Environment Agency for approval details of the types and quantity of waste to be used for the restoration of the landfill, and an assessment of the risks to the environment from the use of these specific wastes together with any additional management measures necessary to manage the risks. | There is a potential for the operator to need to import soils to fully restore the site. |
| 2 | Any earthworks for phases 17, 18 19 and 20 | The operator shall submit a report to the Environment Agency for approval detailing the final design for the specified phases showing the extent of the agreed standoff from the water, gas pipeline and/or other services running adjacent to the phase. The report shall include detailed construction proposals, drawings of the construction of the sidewall and standoff containing the pipeline (including cross sections) and evidence that the extent of the standoff has been agreed with the appropriate utility provider. No earthworks shall commence in phases 17, 18, 19 or 20 of the site prior to and unless the Environment Agency has given prior written permission under this condition. | There are a number of services crossing the site some of which will be removed or diverted; however the gas and water pipelines will remain. We need to ensure that the standoff is sufficient to allow maintenance of the services without damaging or interfering with the landfill liner or subgrade. |
| 3 | a) Surface Water discharge to the swallow hole and surface water point in Phases 12 to 21 only after the capping | There shall be no discharge of any surface water from the operational area of the landfill site prior to the relevant phases of the site draining to the swallow hole being fully capped and restored and the Environment Agency has given prior written permission under this condition. Where approved, the discharge of surface water to the swallow hole(s) following capping and restoration can be carried out in successive stages prior to the completion of all landfill phases at the site. Prior to any surface water from the capped area of the landfill site being discharged to the swallow hole(s), the operator shall provide details of the final design proposals for the ditch | There can be no direct drainage to the swallow hole. Therefore, we require operator to finalise the design of the ditch to allow the surface water from the capped areas to subsequently drain the swallow hole. |

| Reference | Operation | Pre-operational Measures | Reason for inclusion |
|-----------|--|---|---|
| | | <p>flowing from the restored landfill areas towards the swallow hole(s) to the Environment Agency for written approval.</p> <p>The actions and outcomes of the proposal shall be implemented by the operator from the date of approval in writing by the Environment Agency subject to any such amendments or additions as notified by the Environment Agency.</p> | |
| | b) Discharge to the swallow hole(s) and surface water point(s) in Phases 12 to 21 only after the capping | Prior to any surface water from the capped area of the landfill site being discharged to the swallow hole(s), the operator shall provide a report to the Environment Agency for written approval detailing discharge limits for the discharge to the swallow hole(s) and other points together with any additional management measures necessary to manage the risks, as part of the final design proposals for the ditch flowing from the restored landfill areas towards the swallow hole(s). | There can be no direct drainage to the swallow hole from operational areas of the landfill. Direct discharge from the landfill areas/phases can only commence once they are capped. Therefore, we require operator to finalise and agree the monitoring and limits for the discharge to the swallow holes prior to any discharge to them. |
| 4 | a) Within 6 months of the permit being issued and prior to the submission of ground investigation plan whichever is the soonest. | <p>The operator shall submit a report for the Environment Agency's written approval with the following:-</p> <ul style="list-style-type: none"> i. Details of any additional site infrastructure that requires to be installed. ii. The result of a tracer dye tests to map the dominant groundwater flow paths and flow rates, and fracture patterns. <p>No earthworks shall commence in phases 14 or 21 of the site prior to and unless the Environment Agency has given prior written permission under this condition.</p> | Please see Key Issues and Environmental Risk Sections |
| | b) Prior to any earthworks for | The operator shall submit a detailed ground investigation plan (SI plan), for the Environment Agency's written approval, | |

| Reference | Operation | Pre-operational Measures | Reason for inclusion |
|-----------|--|--|----------------------|
| | the construction of phases 14 and 21. | <p>which details the investigative works to be carried out to ascertain the nature, distribution and extent of fracturing and voids, determine the extent of dolines, and to confirm the site conceptual model and the site design.</p> <p>The ground investigation plan shall include, but not be limited to:-</p> <ul style="list-style-type: none"> i. The plan for the investigation as stated in the schedule 5 response dated 18/11/2022 as a minimum. ii. Full construction details of any additional site infrastructure that requires to be installed. <p>No earthworks shall commence in phases 14 or 21 of the site prior to and unless the Environment Agency has given prior written permission under this condition.</p> | |
| | c) Prior to any earthworks for the construction of phases 14 and 21. | The operator shall carry out the site investigation in accordance with approved SI plan in 4b) above, subject to any such amendments or additions as notified by the Environment Agency, from the date approved in writing by the Environment Agency. | |

Emission limits

Emission Limit Values (ELVs) and equivalent parameters or technical measures have been added for the following substances:

- **Arsenic with a limit of 0.035 mg/l**

The operator has updated the LandSim model for the site to include Arsenic (hazardous substance).

As arsenic was not included in the 2014 HRA, but the operator has reviewed the groundwater quality monitoring data since 2003 and has identified the trends in arsenic concentrations in the groundwater at the site over time. The data shows that arsenic concentrations are similar up and down hydraulic gradient of the site. The proposed ELV for arsenic comprises the maximum concentration recorded in the groundwater up hydraulic gradient of the site of 0.035mg/l recorded at borehole K02a in May 2015.

Emission Limit Values (ELVs) and equivalent parameters or technical measures have been amended for the following substances:

- **Naphthalene has been increased from 0.00001 to 0.000075 mg/l**

This is because naphthalene has been reclassified as a non-hazardous pollutant and the environmental Assessment Level (EAL) has been updated by the Water Framework Directive Directions⁴, therefore this has been included in the permit to the general quality for a groundwater body threshold of 0.000075 mg/l.

We have amended table S3.4 with additional compliance points that are located down hydraulic gradient of the extension area and amended compliance parameters and limits that have been developed based on site monitoring results.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.

These monitoring requirements have been imposed in order to check the performance of the pollution control measures.

We made these decisions in accordance with the requirements of the Landfill Directive and our guidance on monitoring at landfills including LFTGN02

⁴ The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015.

Guidance on Monitoring of Landfill Leachate, Groundwater and Surface Water and LFTGN03 Guidance on the Management of Landfill Gas.

Management system

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.

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.

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 and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from UK Health Security Agency.

Brief summary of issues raised:

- The design for the overall site model and the individual cells should adequately address site specific factors, notably the presence of surface gas and water pipelines that are required to remain in situ, and additionally the likely presence of a natural “swallow hole” that may penetrate the natural geological barrier. The identification of the location and properties of the swallow hole should be considered in the final design solution, as detailed with the application.
- The submitted “nuisance and amenity environmental risk assessment” concludes that the operation of the western extension landfill area has a low or very low risk of adverse impact on the surrounding environment and that the measures currently in place should also be protective when in place on the proposed extension. There is no reference to any justified complaints relating to odour or dust emissions from the existing site; the final assessment should consider if such complaints have or have not been made as a measure of the effectiveness of the control measures.

Summary of actions taken:

- We have assessed:

- the design for the overall site model and the individual cells;
 - the risk assessment that supports the design;
 - the design to ensure surface gas and water pipelines that need to remain are considered;
 - presence of a natural “swallow hole” to ensure that the site design protects the groundwater; and
 - checked the effectiveness of the odour and dust emissions.
- We have included appropriate conditions in the permit to ensure:
 - that the site is constructed as per the approved design and verified that it has been;
 - hydrogeological risk assessment is reviewed on a regular basis;
 - regular monitoring of the surface water discharge;
 - that there cannot be any discharge to the swallow hole until the areas site around it have been capped and restored; and
 - control and monitoring of dust and also incorporated the dust and emission management plan into permit.