HPI Decision Document

Determination of an Application for an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2016

Decision document recording our decision-making process

The Permit Number is:	EPR/YP3623LC/A001
The Applicant / Operator is:	Europa Oil and Gas Limited
The site is located at:	Cloughton 2 Wellsite, Coastal Road Burniston, Scarborough, YO13 0DB
Consultation commences on:	29/07/2026
Consultation ends on:	23/09/2026

What this document is about

This is a draft Decision Document, which accompanies a draft Permit.

It explains how we have considered the Application, and why we have included the specific conditions in the draft Permit we are proposing to issue to the Applicant. It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our decision. Unless the document explains otherwise, we have accepted the Applicant's proposals.

The document is in draft at this stage because we have yet to make a final decision. Before we make this decision, we want to explain our thinking to the public and other interested parties, to give them a chance to understand that

thinking and, if they wish, to make relevant representations to us. We will make our final decision only after carefully considering any relevant matter raised in the responses we receive. Our mind remains open at this stage. Although we believe we have covered all the relevant issues and reached a reasonable conclusion, our ultimate decision could yet be affected by any further information that may be provided that is relevant to the issues we have to consider. However, unless we receive information that leads us to alter the conditions in the draft Permit, or to reject the Application altogether, we will issue the Permit in its current form.

In this document we frequently say, “we have decided”. That gives the impression that our mind is already made up; but as we have explained above, we have not yet done so. The language we use enables this document to become the final decision document in due course with no more re-drafting than is absolutely necessary.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future. A lot of technical terms and acronyms are inevitable in a document of this nature: we provide a glossary of acronyms for ease of reference, this can be found in Annex 1 at the end of the document.

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Preliminary information and use of terms

We gave the application the reference number EPR/YP3623LC/A001 We refer to the application as “the **Application**” in this document.

The number we propose to give to the Permit is EPR/YP3623LC. We refer to the proposed Permit as “the Permit” in this document.

The Application was duly made on 30/04/2025.

The applicant is Europa Oil and Gas Limited. We refer to Europa Oil and Gas Limited as “the **Applicant**” in this document. Where we are talking about what would happen after the Permit is granted (if that is our final decision), we call Europa Oil and Gas Limited “the **Operator**”.

Europa Oil and Gas Limited‘s proposed facility is located at Cloughton 2 Wellsite, Coastal Road, Burniston, Scarborough YO13 0DB. We refer to this as “the regulated facility” in this document.

Glossary

Exploration	Activities carried out to provide information about geological structures and the presence or absence of hydrocarbons together with assessments to determine whether the reservoir development is economically feasible.
Extractive waste	Extractive waste is waste directly resulting from the prospecting, extraction, treatment and storage of mineral resources and the working of quarries.

Flaring	Flaring is a technique used where quantities of flammable waste gas are burnt in a controlled manner. The gas flow is ignited under controlled conditions.
Flow-back fluid	A mixture of hydraulic fracturing fluid, which may include mobilised natural gas and formation water which returns to the surface following the hydraulic fracturing process.
Hydraulic fracturing	Hydraulic fracturing or “fracking” is a technique that uses fluid, usually water, pumped at high pressure into the rock to create narrow fractures which provide paths for the tight gas to flow into the well bore and to surface. Once the fractures have been created, small particles, usually of sand, are pumped into them; these particles keep the fractures open when the water is flowed back up the well. The water normally contains small quantities of other substances to improve the efficiency of the process, e.g. to reduce friction.
Reservoir stimulation	Reservoir stimulation is the injection of fracturing fluid into a target formation designed to improve the efficiency of the flow of fluids through the reservoir rock and into the well. At Cloughton 2 Wellsite the reservoir stimulation involves squeezing a small volume of oil-based fluid into the formation to bypass any reservoir damage created during drilling, or by other fluids previously used during well testing, and then using proppant to keep the pathways open to allow gas and hydrocarbon fluids to flow into the well at economic rates.
Hydraulic fracturing fluid	The fluid injected into the formation under pressure, and which consists predominantly of clean water, or flow-back fluid and clean water, together with a proppant and a friction reducer.
HSE	Health and Safety Executive
JAGDAG	Joint Agencies Groundwater Directive Advisory Group
NORM	An abbreviation for naturally occurring radioactive material. Due to the highly reducing conditions in hydrocarbon reservoirs and the long residence time, formation waters may contain moderate concentrations of natural radioactive elements (such as radium). Thus, formation water recovered at the surface, or scales formed on well casing or downhole equipment, may contain elevated total alpha and total beta radioactivity counts.

Regulated facility	This is the term used in the Environmental Permitting (England and Wales) Regulations 2016. Those Regulations provide that any regulated facility must be operated only under and in accordance with an environmental permit. The term is defined in the Regulations so as to include a "mining waste operation, a "groundwater activity" and an "installation", which in this case includes a facility for the loading, unloading, handling or storage of, or the physical, chemical or thermal treatment of crude oil or stabilised crude petroleum as an activity listed in Schedule 1 section 1.2 Part A (1) (e) to the Environmental Permitting (England and Wales) Regulations 2016). A "mining waste operation" is further defined so as to include the management of extractive waste, whether or not it involves a waste facility.
Reservoir	The rock formation in which the hydrocarbon being targeted is held. In this case this is the Kirkham Abbey Formation.
Perforation	Perforating the wellbore involves creating small holes through the casing and cement to establish a flow path between the reservoir and the well, allowing oil or gas to enter the well
Wellbore	The engineered construction through which the hydrocarbon is to be extracted.
Proppant	Proppant is a solid particulate material, injected with a stimulant fluid, designed to hold fractures open after the active reservoir stimulation has ceased.

Links to guidance documents

The list below provides links to the key guidance documents referred to in this document. The links were correct at the time of producing this document.

- Environmental permits: when and how we consult - GOV.UK
- Control and monitor emissions for your environmental permit - GOV.UK
- Develop a management system: environmental permits - GOV.UK
- Risk assessments for your environmental permit - GOV.UK
- Monitoring emissions to air, land and water (MCERTS) - GOV.UK
- Odour management: comply with your environmental permit - Guidance - GOV.UK
- Onshore oil and gas sector guidance - Guidance - GOV.UK
- Habitats regulations assessments: protecting a European site - GOV.UK
- Noise and vibration management: environmental permits - GOV.UK

1 · Our proposed decision

We are minded to grant the Permit to the Applicant. This will allow it to operate the regulated facility, subject to the conditions in the Permit.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the Permit will ensure that a high level of protection is provided for the environment and human health.

The draft Permit contains conditions, including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations 2016 (EPR) and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Permit, we have considered the Application and accepted that the details provided are sufficient and satisfactory to make use of the standard condition acceptable and appropriate.

2 · How we reached our draft decision

2.1 Receipt of Application

The Application was duly made on 30/04/2025. This means we considered it was in the correct form and contained sufficient information for us to begin our determination but not that it necessarily contained all the information we require to determine the Application: see section 2.6 Requests for Further Information.

2.2 Confidential information

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

However, a confidentiality claim was submitted by the manufacturer for the process chemical/product NUT PLUG, ECF-1882, FORM-A-BLOK AS, Glydril MC, Safe-Cor, Safe-Scav-NA, ULTRAFREE and SAFE-SURF EU 18/09/2025.

We have accepted the claim for confidentiality.

A meeting was subsequently held during which the composition of the process chemical was reviewed. It was determined that the constituents are non-hazardous and, on this basis, the detailed composition is not required to be disclosed.

We have not received any other information in relation to the Application that appears to be confidential in relation to any other party.

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

2.3 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.

2.4 Consultation on the Application

We carried out consultation on the Application in accordance with the EPR, our statutory Public Participation Statement (PPS) and our own internal guidance RGN 6 for Determinations involving Sites of High Public Interest. RGN 6 was withdrawn as external guidance, but it is still relevant as Environment Agency internal guidance.

We consider that this process satisfies and frequently goes beyond the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the Industrial Emissions Directive (IED), which applies to the regulated facility and the Application. We have also taken into account our obligations under the Local Democracy, Economic Development and Construction Act 2009 (particularly Section 23). This requires us, where we consider it appropriate, to take such steps as we consider appropriate to secure the involvement of representatives of interested persons in the exercise of our functions, by providing them with information, consulting them or involving them in any other way. In this case, we consider that our consultation already satisfies the requirements of the 2009 Act.

We sent copies of the Application to the following bodies, which includes those with whom we have “Working Together Agreements”:

- Local Authority Environmental Protection Department
- Local Council
- Local Authority Planning
- UK Health and Safety Agency UKHSA
- Mineral Planning Authority

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly. Note, under our Working Together Agreement with Natural England, we only inform Natural

England of the results of our assessment of the impact of the regulated facility on designated Habitats sites.

Any comments that have been received after the close of the consultation and prior to issue were taken into consideration as part of our determination process.

We can only consider comments which are relevant to the proposed activities under the application.

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

2.5 Engagement

We made the Application available online via our Citizen Space page where the public were able to provide comments. This contained all the information required by the IED, including telling people where and when they could see a copy of the Application.

The application was publicised on the GOV.UK website at YO13 0DB, Europa Oil & Gas Limited: environmental permit application advertisement - EPR/YP3623LC/A001 - GOV.UK between 16 July and 19 September 2025 for a period of 9 weeks instead of the usual 4 weeks to allow the public to review and then provide comment on additional information requested from the applicant, see section 2.6 for full details of the additional information requested.

The Application and all other documents relevant to our determination were available to view on our Public Register. Anyone wishing to see these documents could do so and arrange for copies to be made.

We consider this application to be of high public interest and so we have carried out extra engagement with the public:

- We wrote to local residents (in total 400+ occupiers) and other interested parties, including the local MP, councillor and parish councils to inform them that we had received an application and inviting them to comment. The link to the consultation web page was provided in this letter. We also sent a poster to the parish councils advertising the consultation and detailing how to take part and asked them if they could help advertise it to the local communities.
- We printed a hard copy of the application and installed it at the Newby and Scalby Library, 450 Scalby Rd, Scarborough, YO12 6EE for individuals who did not have access to the internet.

- We held a public engagement event at Burniston Village Hall on the 2nd of September 2025 (12-4pm) to discuss the permit application from Europa Oil and Gas Limited.
  The objective of the event was to answer questions on:
  - what the application is for
  - what the technique is
  - what we (EA) look at during our permitting process
  - how we regulate the site/checks we make
  - what the consultation is for
  - how to participate in the consultation

- We issued a press release on 7th August 2025 to help bring attention to the application consultation, and to provide the link to the consultation page on our website inviting comments about this permit application in order to understand any concerns.

Any comments that have been received after the close of the consultation and prior to issue were taken into consideration as part of our determination process.

We can only consider comments which are relevant to the activities proposed under the permit application.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Section 10. We have taken all relevant representations into consideration in reaching our draft determination.

2.6 Requests for Further Information

Although we were able to consider the Application duly made, we needed more information in order to determine it and issued an information notice on 15/08/2025. A copy of the information notice was placed on our public register.

In addition to our information notices, we received additional information during the determination:

Site Condition Report, updated in response to Request for Further Information issued on 19/09/2025, received 22/09/2025.

Waste Gas Management Plan, updated in response to Request for Further Information issued on 10/12/2025, received 15/01/2026.

Surface Management Plan, updated in response to Request for Further Information FI issued on 10/12/2025, received 15/01/2026.

Odour Management Plan, updated in response to Request for Further Information issued on 10/12/2025, received 15/01/2026.

Waste Management Plan, updated in response to Request for Further Information issued on 10/12/2025, received 21/01/2026.

We made a copy of this information available to the public in the same way as the responses to our information notices.

Having carefully considered the Application and all other relevant information, we are now putting our draft decision before the public and other interested parties in the form of a draft Permit, together with this explanatory document. As a result of this stage in the process, the public has been provided with all the information that is relevant to our determination, including the original Application and additional information obtained subsequently, and we have given the public two separate opportunities (including this one) to comment on the Application and its determination. Once again, we will consider all relevant representations we receive in response to this final consultation and will amend this explanatory document as appropriate to explain how we have done this, when we publish our final decision.

Finally, we have consulted on our draft decision from [date] to [date]. A summary of the consultation responses and how we have considered all relevant representations is shown in Section 11.

3 · The legal framework

The Permit will be granted, if appropriate, under Regulation 13 of the EPR. The Environmental Permitting regime is the legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an installation as described by the Industrial Emissions Directive (IED)
- an operation covered by the Waste Framework Directive (WFD)
- subject to aspects of other relevant legislation which also must be addressed, including the Mining Waste Directive (2006/21/EC) and the Groundwater Directive (2006/118/EC)

We address some of the major legal requirements directly where relevant in the body of this document. Other requirements are covered in Section 9 towards the end of this document.

We consider that, if we grant the Permit, it will ensure that the operation of the regulated facility complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

4 · Key Issues in the Determination

4.1 Application overview

The key issues arising during determination of the Application were the assessment of the four main activities proposed as follows:

1. A Mining Waste Operation, as defined by the Mining Waste Directive and Schedule 20 of the Environmental Permitting (England and Wales) Regulations 2016 as amended, relating to the management of extractive waste not involving a Mining Waste Facility.

2. An underground non-hazardous Mining Waste Facility as defined by the Mining Waste Directive and Schedule 20 of the Environmental Permitting (England and Wales) Regulations 2016 as amended for the permanent deposit and accumulation of non-hazardous waste in the Carboniferous sandstones as the well test is completed. The non-hazardous waste will include drill cuttings coated with residual Low Toxicity Oil Based Muds ("LTOBM").

3. The incineration by flaring of hazardous waste, namely natural gas above 10 tonnes per day, as an activity listed in Part 2 Schedule 1.2 of the Environmental Permitting (England and Wales) Regulations 2016 as amended relating to the loading, unloading, handling and storage of crude oil.

4. A groundwater activity, as defined by the Groundwater Directive and Schedule 22 of the Environmental Permitting (England and Wales) Regulations 2016 as amended, for well stimulation,

The regulated facility is located approximately 0.34km southeast of Burniston village in the Scarborough borough of North Yorkshire at National Grid Reference (NGR) TA 02081 92802.

This application is for the construction of a temporary wellsite within a secure, enclosed compound for the purpose of drilling an appraisal borehole. If natural gas is encountered, the drilling rig will be demobilised from the regulated facility, and a production test will be undertaken. If natural gas is not encountered during drilling, the appraisal borehole will be decommissioned (abandoned) in accordance with industry guidance. The drilling rig and associated equipment will then be removed, and the wellsite restored to its original condition.

There will be 4 phases of the development. Phase 1 will involve the construction of the wellsite and is expected to take 7 weeks, which includes creating an access track, clearing the regulated facility, and constructing the well cellar and hardstanding area. The hardstanding will have a perimeter containment ditch and a fully welded HDPE membrane underneath. These features are designed to prevent any accidental spills during later phases / operations from leaving the wellsite and potentially impacting on the quality of groundwater and surface water within the Humber River Basin District.

Phase 2 of the development involves drilling an appraisal borehole from the well cellar and is expected to take around 8 weeks. This borehole will extend to the target formations, with rock samples collected as drilling progresses. Geophysical logging will then be carried out. If natural gas is encountered and deemed suitable for further testing, production casing will be installed in the borehole.

If natural gas is found during drilling, phase 3 will be the testing and will take up to 17 weeks, it will involve a proppant squeeze to improve well performance by creating small fractures near the wellbore and increasing permeability. This process uses 300–500 m^3 of water-based fluid mixed with proppant, pumped into the target reservoir. After injection, the fluid will be recovered, and the well cleaned under Schedule 22, 8(1)(I) of the Environmental Permitting Regulations 2016. This is classed as a groundwater activity because it involves injecting substances to improve fluid or gas flow for energy extraction. Therefore, a permit is required.

If hydrocarbons are detected during drilling, the well will be safely completed with fluids and a wellhead, and the rig will be removed. The well will then undergo clean-up and testing, including casing perforation and stimulation. Testing aims to assess the reservoir's commercial viability through two phases: Well Clean Up (WCU) and Extended Well Test (EWT), during which hydrocarbons will be produced.

During the proppant squeeze, approximately 50–70% of the carrier fluid will remain within the target formation, having been adsorbed onto charged, high-surface-area minerals. Because this fluid is retained in the formation, a mining waste facility is required. The mining waste facility will not be located at the wellsite; it will be situated more than 1.9 km below ground and up to 1.6 km away via a deviated borehole. The operator proposes 4 discrete mining waste zones, each with different dimensions, which together will form the mining waste facility, with zone sizes ranging approximately from 65–80 m in height and 130–263 m in radius , and 1–2 mm in width within the target formation, where the proppant fluid will remain.

A Waste Gas Management Plan ensures best practices for managing waste gases and is a requirement of the permit. Testing of the Cloughton-2 well is

expected to last up to 17 weeks, generating extractive wastes including natural gas, circulation fluid / suspension brine and produced water.

A WCU is performed to bring reservoir fluids to the surface for the first time after drilling, inactivity, or maintenance, aiming for a stable flow for testing or production. It uses a well testing spread including a choke manifold, safety valve, separator, storage tanks, vent lines, and combustion units, with waste gas managed under the approved Waste Gas Management Plan. During WCU, gas flow rates can fluctuate and composition data may be inaccurate due to mixing with wellbore fluids. Separated crude oil and condensate are stored for sale, while formation water is treated as waste and sent to an appropriately licensed facility. Natural gas is managed as per Best Available Techniques (BAT) guidelines. If the well does not flow naturally, a proppant squeeze may be applied. For Cloughton-2, fluids are expected to be primarily dry natural gas, with minimal crude oil or water.

If hydrocarbons are confirmed during the WCU, testing proceeds to the EWT, a longer test to evaluate commercial viability and determine detailed fluid composition. Produced fluids are separated into crude oil/condensate, formation water, and natural gas using a three-phase separator. Oil and condensate are stored for sale, while formation water, potentially containing low levels of NORM, is sampled for radionuclide analysis and sent to either a permitted water treatment facility or an RSR-permitted site for disposal, depending on results. Natural gas is managed according to BAT under the Waste Gas Management Plan. The EWT assesses formation flow characteristics over an extended period, with duration varying for oil or gas testing.

After drilling, a completion assembly, such as tubing, packers, sleeves, or pumps, is installed to enable reservoir fluid production. This semi-permanent setup remains until well maintenance or end-of-life. Before testing, circulation runs using clean fluid remove residual mud and debris, with waste managed similarly to the drilling phase. Expected extractive wastes during this stage include circulation fluid/suspension brine, water-based drilling fluids, and salt-saturated water-based drilling fluids.

A proppant squeeze is performed to restore and enhance permeability in the target formation by pumping a slurry of proppant (sand) and gelled carrier fluid through perforations at pressures exceeding the fracture gradient, creating small fractures that remain propped open for improved hydrocarbon flow. The process may involve up to 4 stages, each using 300–500 m^3 of fluid and 12.5 tonnes of proppant, preceded by a Diagnostic Fracture Injection Test (DFiT) to calibrate treatment parameters. The operation requires a Hydraulic Fracture Plan (HFP) and regulatory approval from the North Sea Transition Authority, Environment Agency, and HSE. For Cloughton-2, the treatment is designed to extend 130–263 m laterally and 65–80 m vertically within target formations.

A borehole clean-up assembly is run into the well to remove debris from perforations by circulating clean fluid down the work string, bringing debris to the surface. At surface, small steel scrapings are separated from the fluid using shakers and tanks; these scrapings are minimal due to perforation gun design. Anticipated wastes during this phase include circulation fluid/suspension brine and metal debris/scrapings.

If the well does not flow naturally, artificial lifting techniques such as gas lift using Nitrogen (N_2) or Carbon Dioxide (CO_2), or mechanical lift, may be applied. Nitrogen lift involves injecting Nitrogen to displace wellbore fluids and reduce hydrostatic pressure, enabling flow; Nitrogen is inert and vented back to the atmosphere in a closed-loop system. Anticipated wastes during this phase include circulation fluid/suspension brine, Nitrogen, CO_2, formation water/produced water, and natural gas.

A CO_2 cleanout is used to remove wellbore fluids and debris from drilling, restoring near-wellbore permeability. Liquid CO_2 is pumped under pressure below the formation's fracture gradient, then released at surface to rapidly expand into gas, forcing debris out. All injected CO_2 returns to surface in gaseous form and is processed through a three-phase separator, with none remaining in the formation. This process is considered de-minimis and does not require a groundwater activity permit under EPR2016. Any formation gas mobilised or released during this activity is captured and managed in accordance with the Waste Gas Management Plan.

Mechanical lift is used when a well cannot flow naturally, as an alternative to gas lift. Techniques include swabbing, using a swab cup assembly on wireline, coiled tubing, or drill pipe to remove liquids, and longer-term methods such as beam pumps, rod pumping, hydraulic pump jacks, and electric submersible pumps. Downhole pumps require liquid to function and cannot operate effectively in gas-dominant reservoirs, so gas lift may be needed initially to clear liquids and determine fluid composition. Once fluids reach the surface, they are separated into oil, gas, and formation water via a three-phase separator. Oil is stored for sale, while formation water is tested and sent to a permitted treatment facility. Natural gas is managed according to BAT guidelines.

If the well is unsuccessful or when it reaches the end of its producing life, it will be abandoned following Oil & Gas UK guidelines and relevant regulations, including Borehole Sites and Operations Regulations 1995 and Offshore Installations and Wells Regulations 1996. Well design considers future abandonment by addressing permeable and hydrocarbon-bearing zones. Abandonment involves setting cement barriers above and below these zones, cutting casing strings 1.5 m below ground level, welding a steel plate over the top, removing the concrete cellar, and restoring the site. Site restoration for Cloughton-2 is expected to take about six weeks.

The volume of fluid used for the proppant squeeze is between 300 m^3 and 500 m^3 and does not contain hazardous properties. Surrounding lithological properties are low permeability and as such hydraulically isolated the zone of stimulation. Supporting documents demonstrate the overall percentage of waste remaining in the spatial volume of mining waste facility will be 1.04% immediately following the proppant squeeze activity. This will reduce during the ongoing production of hydrocarbons and/or comingling with other extractive wastes. As such, even if the well is never brought onstream, the Agency agrees that the proppant squeeze fluid will not lead to any danger to the environment and, therefore, should not be classified as a Category A Waste Facility.

The proppant squeeze is the injection of fracturing fluid into a target formation designed to improve the efficiency of the flow of fluids through the reservoir rock and into the well. The proppant squeeze needs to be authorised as a groundwater activity under Schedule 22, 8(1)(I) of the Environmental Permitting Regulations 2016. The proppant squeeze would leave some sand proppant and fluid in the ground, which will become extractive waste at the end of the period that the well is operating.

The application does not involve high-volume hydraulic fracturing as defined under Section 4A of the Infrastructure Act 2015.

Section 4B(1) of the Act defines *"associated hydraulic fracturing"* as hydraulic fracturing of shale or strata encased in shale which:

(a) is carried out in connection with the use of the relevant well to search or bore for or get petroleum, and
(b) involves, or is expected to involve, the injection of—
(i) more than 1,000 cubic metres of fluid at each stage, or expected stage, of the hydraulic fracturing, or
(ii) more than 10,000 cubic metres of fluid in total.

The proposal submitted by Europa Oil & Gas Limited does not meet these criteria. The proposed activity comprises a proppant squeeze, which involves the injection of fluid into the geological formation at pressures above the fracture pressure in order to place proppant. However, the volumes of fluid proposed are substantially below the thresholds set out in Section 4B(1)(b) of the Infrastructure Act 2015. As such, the activity does not constitute *associated hydraulic fracturing* for the purposes of the Act, and the statutory provisions relating to high-volume hydraulic fracturing do not apply.

In England, proppant squeeze operations are permitted because they involve significantly lower volumes of fluid and additives compared to high-volume hydraulic fracturing. The reduced scale of these operations allows potential environmental risks to be more readily identified, managed, and mitigated.

The key distinction is scale. High-volume hydraulic fracturing in shale gas reservoirs, where concerns have arisen regarding induced seismicity, typically involves the injection of thousands of cubic metres of fluid, delivered via multiple

stages along horizontal wells. By contrast, proppant squeeze operations typically use less than 500 cubic metres of fluid. At the Cloughton site, the proposed injection volumes are between 300 and 500 cubic metres, across up to four injection stages, which is consistent with a low-volume proppant squeeze rather than high-volume hydraulic fracturing.

The Environmental Permitting (England and Wales) Regulations 2016 provide a framework for regulating activities that could impact the environment, including reservoir stimulation. These regulations require operators to obtain an environmental permit for activities that involve the management of extractive waste, such as the fluids and proppants used in reservoir stimulation.

Note: The Environment Agency do not regulate seismicity. The NSTA are the responsible authority for this and for the seismic monitoring. In addition, the HSE regulate people safety and well integrity.

Onshore oil and gas (OOG) permits are often multi-regime permits. Onshore oil and gas exploration and production is not a permitted activity on its own right in the Environmental Permitting Regulations, but the operator may need a permit from the Environment Agency for handling of waste and naturally occurring radioactive materials (NORM), oil storage, combustion of gas and surface and groundwater discharge/abstraction facilities. This is the case for Cloughton 2.

4.2 Technical considerations

The wellsite will be constructed with a full containment over the drilling pad comprising an impermeable liner beneath the hard standing connected into perimeter containment ditch. The drilling of Cloughton 2 is an exploration well with a period of extended well testing, this does not allow production activities to take place. The design of Cloughton 2 wellbore is largely based on the information obtained from the drilling of Cloughton 1 in 1986. Cloughton 2 will target up to 4 specific horizons within the Carboniferous sandstones (Primary target). The Kirkham Abbey and Brotherton Limestone have been identified as secondary targets; no proppant squeeze is authorised in these secondary targets by this application as there is insufficient information provided. The permit includes for the drilling of Cloughton 2; near wellbore treatment; a proppant squeeze designed over 4 phases to target each target horizon (within Carboniferous sandstones), extended well testing of gas production rates and storage of any crude oil arising from the extended well test. This is not production and the activities are limited in duration.

We regulate the management of the extractive wastes arising from these activities, including the flaring of natural gas during the extended well test. We regulate the proppant squeeze as a groundwater activity.

4.2.1 Drilling of well and radial drilling operations

The target depths for Cloughton 2 well have been based on the information obtained from the existing Cloughton 1 well, whilst noting the actual depth to the target horizons in Cloughton 2 will be confirmed during the drilling process. Cloughton 2 will target 4 separate horizons within the Carboniferous Sandstones.

We have reviewed the drilling additives to be used and are satisfied that they do not present a risk to the groundwater quality in any of the formations.

Only those additives that have been identified in the approved operating techniques referred to in condition 2.3 and Schedule 1, table S1.2 of the permit can be used, and any deviation from this list will require prior approval from us.

We have reviewed the design of the casing and are satisfied that they do not present a risk to groundwater quality in the formations and will provide seal to isolate the formations from the wellbore. Well integrity is assured through compliance with the well examination regime and regulation by the Health and Safety Executive, and further through conformance to Oil & Gas UK and UK Onshore Operators' good practise guidelines for well design and construction.

4.2.2 Near Wellbore Treatments

The Operator may also undertake one or more near wellbore treatments within the target horizons during the period of the extended well testing as listed within the Waste Management Plan (WMP) and referenced within the operating techniques. The purpose of near wellbore treatments is to reinstate or improve the permeability of the formation, having potentially been blocked as a result of the initial drilling and completion operations.

All near wellbore treatments will be applied to the target horizons at pressures and pump rates lower than those that would be required to fracture the formation. Initially, an injectivity test is first undertaken. This test is an engineering test, which will apply increased pressure to the formation until it reaches a point at which injectivity starts to occur. This, in turn, will determine the maximum pressure that can be used for a near-wellbore treatment.

We have reviewed the proposed activities comprising well completion (borehole completion and clean-up activities) as described within the WMP. Additives for these processes have been reviewed, and we are satisfied that they do not pose a risk to groundwater within the formations. Only those additives that have been identified in the approved operating techniques referred to in condition 2.3 and Schedule 1, table S1.2 of the permit can be used, and any deviation from this list will require prior approval from us.

4.2.3 Groundwater activity - Proppant Squeeze

The Applicant has proposed to undertake a 'proppant squeeze' and inject a slurry of proppant and gelled water targeting the four horizons at a pressure greater than the fracture propagation pressure of the formation.

The proposed “proppant squeeze” is a small-scale hydraulic fracturing process which has historically taken place in conventional oilfields, where oil is extracted from tight formations of sandstone reservoirs, or where the geological formations are prone to damage during the drilling process, resulting in impeded oil flows. The hydraulic fracturing at Cloughton 2 will be undertaken in up to 4 phases - each targeting a single horizon that will be done in order to stimulate the flow of gas within each horizon.

The proppant squeeze will be confined to the Carboniferous Sandstones approximately 2000m TVDSS. Within the Carboniferous Sandstones (Primary Target), four specific horizons have been identified for the proppant squeeze. The Kirkham Abbey and Brotherton Limestone have been identified as secondary targets; no proppant squeeze is authorised in these secondary targets.

A pre-treatment injectivity test will first be undertaken using up to 15m^3 of gelled liquid. The purpose of the injectivity test is to determine the breakdown pressure, propagation pressure and carrier fluid leak-off rate, which in turn will inform the main proppant treatment. Should the pre-treatment injectivity test indicate that the main proppant treatment may extend further than the design, the fluid volumes and pressures will be adjusted accordingly, to ensure the design objective is achieved. This calibration process, comparing data obtained during the pre-treatment injectivity test with the original design parameters and adjusting the main proppant treatment accordingly, will be documented within the Hydraulic Fracturing Plan, which must be submitted to Oil and Gas Authority and the Environment Agency for approval prior to commencement of the hydraulic fracturing process.

The process involves a mixture of proppant (resin-coated ceramic beads) and gelled water being pumped through the perforations into the target horizons at a pressure exceeding the fracture propagation pressure of the formation.

The proppant treatment will be undertaken as a multistage treatment with up to 4 treatments being undertaken. It will consist of approximately 60 to 80 tonnes of resin-coated ceramic beads and approximately 300m^3 to 500m^3 of gelled liquid. The fluid mix is injected at a surface pressure of 9,000psi for less than 1 hour, then flowed back through the production facilities in a controlled manner.

The fractures create channels through near wellbore formation which would have been blocked as a result of the initial drilling and completion operations and there is a need, due to the low permeability of the primary and secondary target formations, to undertake a proppant squeeze to stimulate the well by creating new localised fractures near to the wellbore, improving the formations permeability. The proppant squeeze is designed to extend to about 263m in a lateral direction and 85m in a vertical direction, above and below the perforations. The target formation for injection is the Carboniferous sandstones with up to 4 specific target horizons. The activity will therefore create factures in the formation and enhance the permeability of the formations.

The ‘proppant squeeze’ constitutes a groundwater activity in accordance with the definition in paragraph 3 of Schedule 22 to the Environmental Permitting (England and Wales) Regulations 2016 (EPR) because of the potential for discharge to groundwater in the Carboniferous Sandstones.

The applicant has provided a list of chemicals proposed for use in the fracture fluid in the Chemical Inventory. The corresponding Material Safety Data Sheets have been included in the Wellbore Fluids – Production, Near Wellbore Treatments and Proppant Squeeze Operations Document. All chemical components of the fracture fluid have been assessed based on the Joint Agencies Groundwater Directive Advisory Group (JAGDAG) Methodology for the determination of hazardous substances for the purposes of the Groundwater Directive (2006/118/EC).

The chemicals on the applicants list have been assessed as non-hazardous in terms of persistence, bioaccumulation, and toxicity in line with this JAGDAG methodology.

A hazardous substance is any substance or group of substances that are toxic, persistent and liable to bio-accumulate. A non-hazardous pollutant is any pollutant other than a hazardous substance.

We are satisfied that chemicals proposed for use in the fracture fluid have been correctly classified as non-hazardous to groundwater. The operator is not permitted to use any other chemical that is not on the list in the Waste Management Plan.

4.2.4 Flow-back fluid and Disposal

Based on estimations from previous conventional hydraulic fracturing operations within the industry - it is estimated that between 30 to 50 % of the proppants injected, will be returned to surface as flow-back fluid via the production facilities, and stored onsite for subsequent offsite transfer to an Environment Agency approved waste treatment facility for disposal.

4.2.5. Retained Fluid within the Formation

It is estimated that between 50% to 70% of proppant fluid injected during the fracturing process will be retained within the formation, having been adsorbed on the ion-charged, high surface area minerals within the formation.

We have classified the formation within which the fluid is retained as a Non-Hazardous Mining Waste Facility, the extent of which will be determined through fracture height and growth modelling.

As a result of the retention of proppant fluid within the target horizons, the Carboniferous Sandstone (4 horizons) being classified as a Mining Waste Facilities, there is a requirement, through assessment, to establish Best Available

Technique (BAT) for the management of the retained proppant fluid. The options considered as part of the BAT assessment include:

- Recovery of all proppant carrier fluid over prolonged flow-back periods during hydrocarbon production;
- Increased recovery of proppant fluid using artificial lifting (submersible pumps);
- Recovery of proppant fluid by excavation; and
- Retention of proppant fluid within the formation.

The BAT assessment identified that both the prolonged flow-back periods and artificial lift are unlikely to result in a 100% recovery of proppant fluid from the formation.

Recovery by excavation is not feasible due to the depth of formation within which the fluid is retained. Such methods of excavation would have a significant environmental impact. This would involve the development of a mineshaft considerably wider than the proposed Cloughton 2 borehole to a depth of approximately 2000mTVDSS, sufficiently large enough to accommodate structural supports for safety against collapse and of entry of necessary personnel, machinery and supplies. The development of a mine would create significant extractive waste, the volume of which would far exceed the volume of waste the development seeks to retrieve from the target formation. This option offers no environmental benefit and would cause significant local amenity impacts and disruption to the local community. Economically, the development of a mine would render the exploration and subsequent production of hydrocarbons from the Carboniferous Sandstones unviable.

As it is not feasible to retrieve 100% flow-back, either by a prolonged flow-back period or by artificial lift and the removal of proppant fluid by excavation is not feasible, retention within the formation is considered BAT. The alternative options are unrealistic and/or theoretical in nature. Injected proppant fluid, retained at depth, does not present an environmental risk. Proppant retained within the formation prevents the fractures from closing and provides the permeability for hydrocarbons to flow. As the proppant fulfils a purpose, it is not considered a waste.

We have assessed all the chemicals to be used using the determination under Groundwater Directive 2006/118/E which is followed by JAGDAG. We have permitted the use of only those proppants that have been assessed to be non-hazardous under JAGDAG's methodology.

An indication of the aerial extent of the Non-Hazardous Mining Waste Facility for the proppant fluid is included within documents ZG-EOG-CLTN-EPR-04-01 and S5N No.1 response Issue Number 250921 and is based on the maximum anticipated fracture length. The base of the well is approximately 1750m

southwest of the surface location, which for clarity, is the top of the borehole within the Cloughton 2 wellsite.

4.2.6. Protection of groundwater

We have reviewed the Environmental Risk Assessment and the Site Condition Report, against our information and conceptual understanding of the location. We are satisfied that the potential risks to groundwater have been adequately identified and addressed through mitigation measures in the permit.

Groundwater is defined in the Environmental Permitting Regulations 2016 (EPR 2016) as all water that is below the surface of the ground in the saturation zone and in contact with the ground or subsoil (Regulation 2(1)). There are no restrictions on the quality of the groundwater or the depth of the geological formation that contains that groundwater.

The Environment Agency has determined that the Carboniferous sandstones may contain groundwater, and although the formation will have a relatively low permeability due to the depth of burial, technically, the water content is considered to meet the definition of groundwater as defined in the EPR 2016.

We have evaluated whether a Groundwater Activity Permit is required for any of the proposed activities using the definition of groundwater activity set out in paragraph (3)(1) of Schedule 22 to the EPR 2016. A groundwater activity is:

a) The discharge of a pollutant that results in the direct input of that pollutant to groundwater

b) A discharge of a pollutant that results in or might lead to a direct or indirect input to groundwater;

c) any other discharge that might lead to a direct or indirect input of a pollutant to groundwater;

d) an activity in respect of which a notice under Schedule 22 has taken effect;

e) an activity that might lead to a discharge mentioned above where that activity is carried on as part of the operation of a regulated facility of another class.

The Environment Agency has concluded that the groundwater activity may be granted for the proppant squeeze under paragraph (8)(1)(l) of Schedule 22 to the EPR 2016 which states that “in relation to England. The injection of any substance into groundwater to increase the flow of fluids or gas to a well or borehole in connection with the extraction or use of any source of energy”. The Environment Agency has concluded through review of the risk assessments and mitigation measures therein, that the groundwater activity does not compromise the achievement of any of the environmental objectives relating to groundwater in the Humber River Basin District.

4.2.7. Groundwater Activity Conditions

The Groundwater Activity Permit conditions are designed to ensure that the activities are controlled to limit the discharge of non-hazardous pollutants to groundwater in the Carboniferous sandstones.

The Permit contains conditions which are protective of the water environment as a whole:

- the hydraulic fracturing fluid will only contain additives that have been assessed by us as non-hazardous. We have imposed a pre-operational condition which requires the operator to establish baseline groundwater quality.
- We have also imposed condition 3.5.1 (a) and (b) to monitor groundwater during and after operations on site, at specific points as listed in tables S3.2 and 3.3 in the Permit.
- The Cloughton 2 well will be integrity tested prior to the hydraulic fracture commencing to ensure the well is fit for purpose.
- The Applicant will be required to submit a Hydraulic Fracture Plan which will need to be approved by both the Oil and Gas Authority and the Environment Agency. The Hydraulic Fracture Plan will include, but is not limited to:

    - a map showing faults near the well and along the well path, with a summary assessment of faulting and formation stresses in the area and the risk that the operations could reactivate existing faults;
    - information on the historical seismicity and assessment of the risk of induced seismicity;
    - summary of the planned operations, including stages, pumping pressures and volumes
    - the processes and procedures that will be put in place before or during hydraulic fracturing to identify the vertical and horizontal extents of the fractures within the target formation and ensure that they are not near the permitted boundary**;**
    - in the event that the fractures extend beyond the permit boundary, the steps that would be taken to assess and if necessary mitigate the effect and limit further propagation outside the target rocks;
    - a comparison of proposed activity to any previous operations and relationship to historical seismicity;
    - proposed measures to monitor local seismicity during the operations;
    - proposed reporting during hydraulic fracturing and proposals for post fracturing reporting of the location, orientation and extent of the induced fractures to demonstrate that the permit has been complied with.

In addition to the above, the Hydraulic Fracture Plan will include, details of the geomechanical modelling used to predict the extent of the proposed proppant squeeze fracture. The details are to include a statement of all the parameters and their values that affect the modelled fracture extent, and the sources of those

values. These will include values for in-situ stresses, rock strengths, injection pressures and volumes, and injection fluid viscosity.

The Hydraulic Fracture Plan will also show how new values for model parameters discovered during testing of the well will be incorporated in the model, and how proppant squeeze injection parameters will be adjusted to maintain the actual fracture extent to be within that originally proposed. Details of these parameters are to be made available to the Environment Agency when finalized.

4.2.8 Surface and groundwater monitoring

The applicant has stated within their Site Condition Report that they will construct 3 groundwater monitoring boreholes to enable sampling of shallow groundwater in order to demonstrate that the activities are not causing pollution. The proposed locations are presented in Appendix 3729/HIA/A1 of the HIA. We have included a pre-operational condition requiring these boreholes to be installed and samples collected prior to the commencement of the drilling of the exploration well. We have included this monitoring in the permit.

During the exploration operations all surface water discharges from regulated facility will be contained on site and will be tankered to an appropriate treatment facility.

4.2.9 Legislation - Comments

Schedule 22 to the EPR 2016 – Water Framework and Groundwater Daughter Directives

To the extent that it might lead to a discharge of pollutants to groundwater (a “groundwater activity” under the EPR 2016), the Permit is subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit will require the taking of all necessary measures to prevent the input of any hazardous substances to groundwater, and to limit the input of non- hazardous pollutants into groundwater so as to ensure such pollutants do not cause pollution, and satisfy the requirements of paragraph 6 of Schedule 22 and Article 6(1) Groundwater Daughter Directive.

The groundwater activity is permitted under EPR 2016 Schedule 22 paragraph 8(l) for the “injection of any substance into groundwater to increase the flow of fluids or gas to a well or borehole in connection with the extraction or use of any source of energy” and therefore the prohibition on direct inputs does not apply.

5 · The Regulated Facility

We considered the extent and nature of the facility at the regulated facility in accordance with RGN2 ‘Understanding the meaning of regulated facility’ and our Oil and Gas guidance in relation to groundwater and mining waste activities.

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. However, the submitted site plan does not identify the extent of the mining waste facility. On this basis, the boundary of the mining waste facility has been defined within the Permit to ensure that its extent is clearly established and regulated accordingly.

5.1 Management

The Applicant is the sole Operator of the regulated facility.

We are satisfied that the Applicant is the person who will have control over the operation of the regulated facility after the granting of the Permit and that the Applicant will be able to operate the Installation so as to comply with the conditions included in the Permit.

5.2 The site’s location

The Operator has provided plans which we consider to be satisfactory.

These show the extent of the site of the facility. However, the submitted site plan does not identify the extent of the mining waste facility. On this basis, the boundary of the mining waste facility has been defined within the Permit in table S1.1 (AR3) to ensure that its extent is clearly established and regulated accordingly.

The plan is included in the Permit.

5.2.1 Proposed site design: potentially polluting substances and prevention measures

Under Article 22(2) of the IED the Applicant is required to provide a baseline report containing at least the information set out in paragraphs (a) and (b) of the Article before starting operation.

The Applicant has submitted a Site Condition Report; however, this does not include a report on baseline conditions as required by Article 22. As a result, we have imposed pre-operational condition PO 01, which requires the operator to establish baseline groundwater quality prior to operation.

The baseline report is an important reference document in the assessment of contamination that might arise during the operational lifetime of the Permit and at cessation of activities at the site.

5.2.2 Closure and decommissioning

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place for the closure and decommissioning of the regulated facility as referred to in section 19 of the Waste Management Plan Issue Number 260119.

At the definitive cessation of activities, the Operator must satisfy us that the necessary measures have been taken so that the site ceases to pose a risk to soil or groundwater, taking into accounts both the baseline conditions and the site's current or approved future use. To do this, the Operator will apply to us for surrender of the Permit, which we will not grant unless and until we are satisfied that these requirements have been met.

5.3 Operation of the regulated facility

5.3.1 Processes carried out

The processes proposed to be carried out are as follows:

Wellsite Construction: The temporary wellsite is built within a secure compound, including an access track, cleared working area, a well cellar, and a hardstanding lined with containment measures. The HDPE membrane and perimeter ditch ensure spills during later operations remain contained.

Appraisal Drilling and Logging: An appraisal borehole is drilled to target formations, with rock samples collected and geophysical logging carried out. If natural gas is encountered, production casing is installed to prepare for testing.

Decision Following Drilling: If no natural gas is encountered, the borehole will be decommissioned (abandoned) and the site restored. If gas is found, the drilling rig is removed and the well progresses to production testing.

Well Completion: A completion assembly is installed to enable controlled production of reservoir fluids. Clean-out circulation removes drilling residues, with fluids and waste managed similarly to the drilling phase.

Well Clean-Up: Initial flow is established using surface testing equipment. Gas is managed through the Waste Gas Management Plan, oil or condensate is stored for sale, and formation water is disposed of at a licensed facility. A proppant squeeze may follow if flow is insufficient.

Extended Well Test: A longer-duration test assesses commercial viability, separating fluids into oil or condensate for sale, formation water for suitable

treatment, and natural gas managed under BAT-compliant controls. This phase provides detailed reservoir performance data.

Proppant Squeeze: A stimulation technique using a water-based slurry with proppant pumped above fracture pressure to open small fractures and improve flow. Conducted in multiple stages, it requires regulatory approval and is significantly lower in volume than hydraulic fracturing.

Groundwater Activity Requirements: The proppant squeeze involves injecting substances to enhance flow and therefore requires an Environmental Permitting Regulations Schedule 22 groundwater activity permit.

Mining Waste Facility: Because a portion of the proppant fluid remains underground, it forms part of a deep subsurface mining waste facility. Due to the small hazardous fraction and geological containment, it is not classified as a Category A facility.

Borehole Clean-Out: Clean-out tools circulate fluid to remove perforation debris, generating minimal metal scrapings and brine-based waste streams managed at the surface.

Artificial Lift – Gas Lift: Nitrogen or CO_2 may be injected to reduce hydrostatic pressure and initiate flow in a non-flowing well. Waste streams include brines, injected gases, and produced fluids.

CO_2 Cleanout: Liquid CO_2 is used to flush debris without exceeding the fracture gradient. All CO_2 returns to surface as gas for processing, making it a de-minimis activity without groundwater permit requirements.

Mechanical Lift: Mechanical lifting methods such as swabbing or pump systems are used where natural flow and gas lift are insufficient. Produced fluids are separated into oil, formation water, and gas for appropriate management.

Waste Gas Management: Waste gases generated during testing are managed using BAT under the Waste Gas Management Plan to minimise environmental impact.

Well Abandonment and Restoration: Non-commercial or end-of-life wells are abandoned by installing cement barriers, cutting casing below ground level, sealing and removing infrastructure, and restoring the site in line with UK regulations.

Extractive Wastes: Wastes generated across operations include natural gas, brines, drilling fluids, formation water containing potential NORM, and minor metal debris. These are managed through permitted disposal routes and BAT-compliant controls.

For further information see details in section 4.1 Application overview.

5.3.2 Environmental management system

We are satisfied that appropriate management systems and management structures will be in place for this regulated facility, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

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

5.3.3 Site security

Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures will be in place to ensure that the site remains secure.

5.4 Management plans

5.4.1 Accident management plan

The Applicant has not submitted an Accident Management Plan (AMP). After considering the other information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised.

5.4.2 Waste management plan

Article 5 of the Mining Waste Directive (Directive 2006/21/EC) focuses on Waste Management Plans (WMP) for extractive waste. It requires operators to develop plans for the prevention, minimisation, treatment, recovery, and disposal of waste, taking into account the principle of sustainable development. These WMPs must be approved by the EA and reviewed every five years. The Applicant has provided a WMP which we consider is satisfactory. The WMP, including associated documents, has been assessed in accordance with these requirements and is approved subject to conditions. Condition 2.3.1 ensures that the operations are limited to those described in the WMP and in table S1.2. It also ensures that the Operator follows the techniques set out and that any deviation will require our written approval. Any significant changes will require a formal variation of the permit. Where a condition imposes a specific requirement that will take precedence over anything in the plan.

The WMP is a key operational document for the management of extractive wastes resulting from oil and gas exploration and production and is therefore incorporated to the operating techniques in table S1.2 of the permit.

5.4.3 Environmental risk

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

The Operator’s risk assessment is unsatisfactory and we required additional information.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be screened out as environmentally insignificant, with the exception of odour associated with emissions to air from flaring and venting activities. The operator has proposed the use of propane support fuel during gas-lifting operations to maintain efficient combustion; however, no details have been provided on how this will be implemented or controlled. In the absence of this information, it has not been possible to fully assess the odour associated with emissions to air. A pre-operational condition PO 03 has therefore been imposed requiring the operator to update the operating procedures to clearly define the introduction and management of propane during these activities.

5.4.4 Environmental impact assessment

In determining the application we have considered the Environmental Statement.

We have also considered the planning committee report refusing it.

5.4.5 Waste Gas Management Plan

The applicant submitted a Waste Gas Management Plan (WGMP); however, we considered this to be unsatisfactory in relation to potential additional phases of well testing or production and have therefore requested further information via pre-operational condition PO 07. This condition requires the operator, prior to any additional phase of well testing or production, to submit a revised WGMP which demonstrates detailed consideration of all available options for the beneficial utilisation of all gas arising from the activity (including gas not currently utilised and emissions from storage vessels and road tanker operations). Where such utilisation is not feasible, the plan must provide a detailed assessment of all available abatement and disposal techniques, including both combustion and non-combustion methods, to ensure waste gas is managed in a manner that minimises environmental impact in line with available techniques.

5.5 Operating techniques

5.5.1 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.

5.5.2 Assessment of BAT

See section 4.2.5 Retained Fluid within the Formation.

5.5.3 Operating techniques for emissions that screen out as insignificant

We consider emissions to screen out as insignificant when the short-term process contribution (PC) is less than 10% of the short-term environmental standard or the long-term PC is less than 1% of the long-term environmental standard.

Emissions of benzene, oxides of nitrogen, carbon monoxide and hydrocarbons have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the regulated facility.

We consider that the emission limits included in the Permit reflect the BAT for the sector.

5.5.4 National Air Pollution Control Programme

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018.Our decision complies with the programme's strategy and aids the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this Permit.

6 · Nature conservation, protected species and habitat designations

The Conservation of Habitats and Species Regulations 2017, widely known as the Habitats Regulations, covers sites of European importance such as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). Ramsar sites, classified under the Ramsar convention of 1971, are classed as having the same protection as European sites. We screen for potential effects on the

ecological integrity of a European site when considering any proposal. These regulations enshrine the precautionary principle in law.

We screen for Sites of Special Scientific Interest (SSSI) as covered by The Wildlife and Countryside Act 1981 (WCA81), The Countryside and Rights of Way Act 2000 (CRoW Act) subsequently amended and strengthened this act, and the Natural Environment and Rural Communities Act 2006 (NERC06). We also screen for Marine Conservation Zones (MCZ).

Screening is also carried out for protected species, National nature reserves (NNR), Local nature reserves (LNR), Local wildlife sites (LWS), and non-statutory sites such as National Landscapes and heritage sites.

Our screening criteria are based on the risks posed by the proposed activities and the sensitivity of the receptor. We have checked the location of the proposed permission to ascertain if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage, protected species and habitat designations. The application is within our screening distances for these designations.

6.1 Sites considered

The following Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites are located within 10 km of the regulated facility:

- Beast Cliff-Whitby (Robin Hood's Bay) (SAC) 6087m
- North York Moors (SAC) 7623m
- North York Moors (SPA) 7623m
- Flamborough and Filey Coast (SPA) 9413m

The following Sites of Special Scientific Interest (SSSI) are located within 2 km of the regulated facility:

- Iron Scar and Hundale Point to Scalby Ness (SSSI) 690m

The following local nature sites (ancient woodlands, local wildlife sites and national and local nature reserves) are located within 2 km of the regulated facility:

- Scarborough to Whitby Disused Railway 514m
- Cloughton Beck Marsh 1595m
- Goose Dale & Quarry Banks 1784m

6.2 Assessments

6.2.1 Habitats Assessment

The Applicant's habitats assessment was reviewed by our technical specialists for habitats and conservation and specialists for air dispersion modelling who agreed with the assessment's conclusions, that there would be no likely significant effect on the interest features of the protected sites.

Designated ecological receptors were identified within the relevant screening distances, including a Site of Special Scientific Interest and the North York Moors National Park within 2 km, and SACs and SPAs within 10 km. Potential impact pathways to habitats were assessed through air emissions, surface water runoff, groundwater, and other emissions using a Source–Pathway–Receptor approach. Supporting assessments, including air quality and hydrogeology, concluded that impacts would not be significant. With the implementation of standard mitigation measures, including containment systems, monitoring, and operational controls, the overall residual risk to habitats is considered not significant.

In accordance with Section 9.3.1 (Conservation of Habitats and Species Regulations 2017), the proposal has been screened to determine the likelihood of significant effects on European sites. Given the separation distances to SACs and SPAs, the absence of direct emissions pathways to these sites, and the conclusion that emissions are not significant following mitigation, it is considered that the activity will not have a likely significant effect on any European site, either alone or in combination. Therefore, no further Stage 2 Appropriate Assessment is required.

6.2.2 SSSI Assessment

The Applicant's assessment of Sites of Special Scientific Interest (SSSIs) was reviewed by our technical specialists in habitats and conservation, and by specialists in air dispersion modelling. These specialists agreed with the conclusions of the assessment that the proposal would not damage the special features of the SSSI.

An Appendix 4 was completed for Iron Scar and Hundale Point to Scalby Ness SSSI, concluding that the proposed activity is not likely to damage any of the flora, fauna, or geological or physiographical features of special interest.

Given the absence of a viable pathway between the wellsite and the SSSI, consultation with Natural England was not required

6.2.3 Assessment of local nature sites

Conservation sites are protected in law by legislation which provides the highest level of protection for SACs and SPAs, and also important protection for SSSIs. More generalised protection is provided for flora and fauna rather than for specifically named conservation designations. It is under this that we assess other sites (such as ancient woodlands, local wildlife sites and national and local nature reserves) which prevents us from permitting something that will result in significant pollution; and which offers levels of protection proportionate to the designation. However, it should not be assumed that because levels of protection are less stringent for these other sites, that they are not of considerable importance. Local sites link and support EU and national nature conservation sites together and hence help to maintain the UK's biodiversity resilience.

For SACs, SPAs, Ramsars and SSSIs we consider the Process Contribution (PC) and the background levels and concentrations in making an assessment of impact. In assessing the local nature sites, we look at the impact from the regulated facility alone to determine whether it would cause significant pollution. This is a proportionate approach, in line with the levels of protection offered by the conservation legislation to protect these other sites (which are generally more numerous than Natura 2000 or SSSIs) whilst ensuring that we do not restrict development.

Critical levels and loads are set to protect the most vulnerable habitat types. Thresholds change in accordance with the levels of protection afforded by the legislation. Therefore, the thresholds for SAC SPA and SSSI features are more stringent than those for local nature sites.

Therefore, we would generally conclude that the regulated facility is not causing significant pollution at these other sites if the PC is less than the relevant critical

level or critical load, provided that the Applicant is appropriately controlling emissions.

The PCs are below the critical levels or loads. We are satisfied that the site will not cause significant pollution at any of the other conservation sites. The Applicant is required to prevent, minimise and control emissions using BAT, this is considered further in Section 4.1.6.

6.2.4 Summary of assessment

Sites assessed – A screening distance of 10 km for SACs, SPAs and Ramsar sites (collectively known as European designated conservative sites), and 2 km for SSSIs and local nature sites has been used. The assessed conservation sites are presented in Table 3.1 of the Air Quality Assessment (AQA).

Background concentrations, critical levels and critical loads – The APIS website7 was used to establish baseline concentrations and deposition fluxes, critical levels and critical loads for the conservation sites assessed (Table F.1).

Summary of ecological assessment – The process contributions (PCs) and predicted environmental concentrations (PECs) at the conservation sites are reported in tables 4.5 and 4.7 of the AQA. We observe: At all European designated conservative sites and SSSIs, the long-term (LT) and short-term (ST) PCs are insignificant (less than 1% and 10%, respectively) against the relevant critical levels and critical loads. At all local nature sites, the LT and ST PCs are insignificant (less than 100%) against the relevant critical levels and critical loads.

The decision was taken in accordance with our guidance.

7 · Minimising the regulated facility's environmental impact

Regulated activities can present different types of risk to the environment, these include odour, noise, and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, discharges to ground or groundwater, global warming potential (GWP) and generation of waste and other environmental impacts. Consideration may also have to be given to the effect of emissions being subsequently deposited onto land (where there are ecological receptors). All these factors are discussed in this and other sections of this document.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of the emission from the regulated facility on human health and the environment and what measures we are requiring the Operator to take to ensure a high level of protection.

7.1 Emissions to Air

We consider emissions to screen out as insignificant when the short term (ST) process contribution (PC) is less than 10% of the short-term environmental standard or the long term (LT) PC is less than 1% of the long-term environmental standard.

From the Applicant's model, the process contribution at all points within each of the human health receptors be considered insignificant.

LT and ST PCs and predicted environmental concentrations (PECs) at human health receptors are reported in tables 4.2 and 4.3 of the AQA.

We observe, at the maximally impacted receptor relevant for human exposure:

• The predicted PC for 1-hour and annual mean NO2 is not insignificant (greater than 1% for LT or 10% for ST). However, the predicted PEC does not exceed the relevant ES.

• The predicted PC for 24-hour and annual mean benzene is not insignificant, however, the predicted PECs do not exceed the relevant Environmental Standards (ES).

• All other pollutant PCs are insignificant.

Emissions from operation of a shrouded ground flare are outlined in Section 3.5.1 and tables 3.9 - 3.12 of the AQA. The operator assumed the flare operates at maximum daily capacity (1.24 Nm^3/s) for the 17 weeks of production testing (Phase 3B). Emission factors for the flare have been derived from US EPA AP42[1] and European Environment Agency (EEA) guidebook 2019[2]

The operator has used the non-methane volatile organic compounds (NMVOC) release rate to represent the benzene release from the flares. This provides a conservative estimate of benzene emissions from the flares.
The operator notes that the manufacturer information for the flare indicates significantly lower emissions of oxides of nitrogen (NO_X), CO and hydrocarbons.

Based on our modelling and sensitivity analysis, we agree that the proposed installation will not contribute towards exceedances of the ES set for the protection of human health.

[1] AP-42: Compilation of Air Emissions Factors | US EPA [Accessed January 2026]
[2] EMEP/EEA air pollutant emission inventory guidebook 2019 [Accessed January 2026]

7.2 Noise and Vibration Management

We have reviewed the noise and vibration management plan in accordance with our guidance on noise assessment and control.

We consider that the noise and vibration management plan is satisfactory, and we approve this plan.

We have approved the noise and vibration 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 Noise and Vibration Impact Assessment Plan evaluates noise and vibration across all phases; construction, drilling, proppant squeeze, flow testing, and decommissioning, using national and local policy frameworks including the National Planning Policy Framework, Minerals and Waste Joint Plan, and Scarborough Local Plan. A comprehensive baseline noise survey was carried out at the nearest residential receptors, combined with detailed noise modelling that reflects worst-case propagation conditions.

The assessment concludes that noise from all stages of the development remains below levels associated with significant adverse effects at all receptors. A brief period during the proppant squeeze phase may produce marginally higher noise at Flatts Farm, but still well within a range considered minor and comparable to existing road traffic. Noise from drilling and flow testing remains low throughout, including at night. Vibration effects are expected to be negligible due to distance from receptors. The area is already influenced by road noise, and ecological impacts are not expected given the separation from designated sites. It outlines appropriate mitigation measures, including a detailed Noise Management Plan with monitoring requirements, equipment standards, complaint procedures, and operational controls. Proposed planning conditions specify clear noise limits for each development phase, all of which remain below significant impact thresholds.

7.3 Odour Management

We have reviewed the odour management plan in accordance with our guidance on odour management.

The report assesses potential odour sources, concluding that drilling historically generates minimal odour, while well testing poses the highest risk due to the handling, separation and storage of reservoir fluids and gases. Key odour-generating activities include storage of fluids in stock tanks, gas lift operations where small volumes of natural gas may be released, and the incineration of natural gas using a shrouded ground flare. To mitigate these risks, the Operator will use engineered controls such as enclosed systems, scrubbers at vent points, closed storage tanks, and high-efficiency combustion units. Additional controls include good housekeeping, waste segregation, purging and cleaning of tanks and pipework, monitoring for leaks, and adopting Best Available Techniques (BAT). The plan identifies the following release points; wellheads, combustion units, storage tanks and waste areas, and lists measures to reduce evaporation, contain emissions and improve dispersion.

Monitoring and response arrangements on site will include trained personnel carrying out continuous sniff testing and targeted monitoring of release points, supported by clear reporting procedures. All odours, including those from off-site sources, will be logged, investigated, and addressed. Strong or unidentifiable odours will trigger a detailed investigation, potentially including point-source or grab sampling for laboratory analysis. The plan also identifies receptor sensitivity, noting nearby homes and ecological sites. Community engagement, routine audits, odour diaries, and an incident-reporting framework will also be undertaken. In the event of complaints or emergencies, the Operator will implement controls and follow procedures to mitigate risk

We consider that the odour management plan is satisfactory, and we approve this plan.

We have approved the odour 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 table, S1.2 of the Permit.

8 · Draft Permit conditions, competence, monitoring and reporting

8.1 Pre-operational conditions

Based on the information in the application, we consider that we need to include pre-operational conditions. These conditions are set out below and referred to, where applicable, in the text of the decision document. We are using these conditions to require the Operator to confirm that the details and measures proposed in the Application have been adopted or implemented prior to the operation of the regulated facility.

Pre-operational measure 1 - The application proposes groundwater monitoring, however the pre-operational condition requires the boreholes to have been installed and baseline data collected prior to the groundwater activity.

Pre-operational measure 2 – Required for the operator to update the Waste Management Plan (WMP) prior to activities commencing.

Pre-operational measure 3 – Required for the operator update to the Environmental Risk Assessment (ERA) prior to activities commencing.

Pre-operational measure 4 – Required for the operator update to the Odour Management Plan (OMP) prior to activities commencing.

Pre-operational measure 5 – Required for the operator update to the Leak Detection and Repair Plan (LDRP) prior to activities commencing.

Pre-operational measure 6 - Required for the operator update to the Surface Water Management Plan (SWMP) prior to activities commencing.

Pre-operational measure 7 – This requirement ensures that waste gas is managed using the best available techniques (BAT) to minimise environmental impact before any further well testing or production occurs.

Pre-operational measure 8 - The site-specific detail relating to faults and fractures forming potential pathways is absent due to this being a new wellsite and because no detailed 3D seismic surveys extend across the site. Whilst this is unusual, the 2D surveys covering the site, together with the detailed 3D survey to the south and west and experience gained from the nearby Cloughton 1 well, provide sufficient information to enable a decision to be reached. Cloughton 1 is located approximately 5 km to the north of Cloughton 2 and has helped develop an understanding of the regional geological sequence. However, the exact depth of geological units and the presence of any local fractures or faults at Cloughton 2 will need to be verified through the drilling

process. This detail will be confirmed through the submission of a Hydraulic Fracture Plan to verify that there are no material changes to the conceptual model before any proppant squeeze operations are authorised. The requirement for a Hydraulic Fracture Plan is standard practice for proppant squeeze operations as much of the information required can only be verified through the initial drilling activity. The detailed information required by this plan will determine any potential fracture pathways and enable the regulation of this activity.

Pre-operational measure 9 - It is acknowledged that the actual depth of the target horizons can only be accurately determined through the drilling. This information is required to update the estimated mining waste facility defined within Table S1.1 of the permit.

Table S1.3A Pre-operational measures	
Reference	**Pre-operational measures**
PO 01a Groundwater monitoring	The operator shall before commencing activities authorised by the permit submit a written plan for groundwater monitoring during the operational and post decommissioning phases of the permitted activities and shall obtain the Environment Agency's written approval to it. The plan shall be based on the hydrogeological risk assessment and conceptual site model including, but not limited to: 1. Details of the proposed location: depth; and construction. method of the groundwater monitoring boreholes. 2. Number of groundwater monitoring boreholes to be installed. 3. Details of the geological formation that monitoring boreholes in PO 01b. are monitoring. 4. Groundwater sample collection procedures. 5. Details of the proposed monitoring parameters and frequency. 6. Details of how the data collected will be reviewed and interpreted including setting and reviewing trigger levels. 7. Details for further investigation if erroneous results are observed. The operator shall implement the plan in accordance with the Environment Agency's written approval.

PO 01b Groundwater monitoring	Following the Environment Agency's written approval as detailed in PO 01a above, the operator shall install the boreholes as approved by the Environment Agency and monitoring shall commence not less than 3 months prior to the construction of the exploration well.
PO 02 Waste Management Plan	At least 2 months prior to commencement of the activities the operator shall submit in writing an updated Waste Management Plan (WMP) and shall obtain the Environment Agency's written approval to it. The plan must include: Details of abatement measures (e.g. flare with support fuel) for the gas lifting process described in Section 10.8 of the Waste management Plan. The WMP shall be implemented in accordance with the Environment Agency's written approval.
PO 03 Environmental Risk Assessment	At least 2 months prior to commencement of the activities the operator shall submit in writing an updated Environment Risk Assessment (ERA) and shall obtain the Environment Agency's written approval to it. It must include: 1. Update the operating procedure detailing how the propane support fuel will be introduced during the gas-lifting operations used to encourage combustion 2. A written procedure detailing the regular maintenance and inspection of the flare. The operator shall implement the ERA in accordance with the Environment Agency's written approval.

PO 04 Odour Management Plan	At least 2 months prior to commencement of the activities the operator shall submit a written updated Odour Management Plan (OMP) and shall obtain the Environment Agency's written approval to it. The plan must include: 1. Location of release and abatement of the well test spread. 2. Updated details of the use of propane as a support fuel and provide a management system operating procedure detailing: • How propane will be introduced to the flare (engineering approach) • Conditions under which propane will be used (e.g., N_2/CO_2 concentration ranges) • Record-keeping requirements for propane usage 3. Update Section 10.1 Engineering Controls to include the following: • Location of all release points • Points to be abated • Odour abatement technique for each point e.g. reactant type or activated carbon • How abatement techniques will be monitored The operator shall implement the OMP in accordance with the Environment Agency's written approval.
PO 05 Leak Detection and Repair Plan	At least 2 months prior to commencement of the activities the operator shall submit a written 'Leak Detection and Repair Plan (LDRP)', and associated procedures and shall obtain the Environment Agency's written approval to it. The plan will: • Identify, measure, and reduce emissions of volatile organic compounds and other substances released to air, ensuring that activities and operations are in accordance with European standard EN15446 or an equivalent standard • Include regular inspections of wellhead connections and pipes for failures or leaks, • Include routine checks of storage areas for any signs of container degradation, damage, or leakage. The operator shall implement the LDRP in accordance with the Environment Agency's written approval.

PO 06 Surface Water Management Plan	At least 2 months prior to commencement of the activities the operator shall submit in writing an updated Surface Water Management Plan (SWMP) and shall obtain the Environment Agency's written approval to it. The plan must include: 1. A detailed procedure for tanker loading, including details on hose capping for all liquids. 2. A management system procedure that details the parameters to be analysed in the surface water from the containment ditch. 3. A secondary containment plan detailing which tanks, plant, and equipment will be included within the containment and how the containment is to be constructed and identify any plant, equipment or inventory that is to be located outside the secondary containment. 4. A well cellar design detailing how the well cellar will be constructed and connected to the HDPE liner to maintain the integrity of the liner. The operator shall implement the SWMP in accordance with the Environment Agency's written approval.

Table S1.3B Pre-operational measures for future development

Reference	Operation	Pre-operational measure
PO 07	Prior to any additional phase of well testing or production - Waste Gas Management Plan review	The operator shall submit a review of the Waste Gas Management Plan and shall obtain the Environment Agency's written approval for it. The plan must contain detailed consideration of all available options for the beneficial utilisation of all of the available gas from the activities, including gas that is not already utilised, gas vented from storage vessels and gas vented during the loading and unloading of road vehicles where relevant. Where such utilisation is not feasible, your plan must also consider in detail all available options, both combustion and non-combustion (including but not necessarily limited to flaring, vapour recovery, scrubbing and adsorption), for the disposal or abatement / mitigation of the waste gas so as to minimise its environmental impacts as far as available techniques allow. The operator shall implement the plan in accordance with the Environment Agency's written approval.
PO 08	At least 2 months prior to commencement of activities	The operator shall submit to the Environment Agency for approval a written Hydraulic Fracturing Plan and obtain the Environment Agency's written approval to it.

	referenced AR4 in table S1.1 - Hydraulic Fracture Plan	The plan shall include but is not limited to: 1. A map showing faults near the well and along the well path, with a summary assessment of faulting and formation stresses in the area and the risk that the operations could reactivate existing faults; 2. Information on the historical seismicity and assessment of the risk of induced seismicity; 3. Summary of the planned operations, including stages, pumping pressures and volumes; 4. The processes and procedures that will be put in place before or during hydraulic fracturing to identify the vertical and horizontal extents of the fractures within the target formation and ensure that they are not near the permitted boundary; 5. In the event that the fractures extend beyond the permit boundary, the steps that would be taken to assess and if necessary, mitigate the effect and limit further propagation outside the target rocks; 6. A comparison of proposed activity to any previous operations and relationship to historical seismicity; 7. Proposed measures to monitor local seismicity during the operations; 8. Proposed reporting during hydraulic fracturing and your proposals for post fracturing reporting of the location, orientation and extent of the induced fractures to demonstrate that the permit has been complied with.
PO 09	At least 1 month Prior to construction of Cloughton 2 wellbore - Pre-groundwater Activity	The operator shall provide written confirmation of the mining waste facility within 1 month of the construction of Cloughton 2 wellbore, provide the actual depths (m True Vertical Depth Subsea) for the proposed phases of hydrocarbon based stimulation fluid / proppant squeeze and shall obtain the Environment Agency's written approval to both.

8.2 Emission limits

Emission Limit Values (ELVs) and / or equivalent parameters or technical measures based on Best Available Techniques (BAT) have been added for the following substances for emissions to air from the flare as detailed in table S3.1:

Oxides of nitrogen – 150mg/m3

Carbon monoxide – 50mg/m3

Total volatile organic compounds (VOCs) – 10mg/m3

8.3 Monitoring

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

Oxides of nitrogen

Carbon monoxide

Total volatile organic compounds (VOCs)

Table S3.4 Process monitoring requirements		
For non-enclosed (Non-BAT) flares operating as waste incineration.	Hydrogen sulphide in flare gas feed	5.7mg/Nm3
	Flare gas feed flow rate	No limit
	Flare gas combustion temperature	Minimum 800 °C
	Methane in flare gas feed flow	No limit %v/v
	Flare gas composition as required by condition 3.5.7	No limit

These monitoring requirements have been included in order to ensure compliance with emission limits (tables S3.1), to monitor any impact on the groundwater (table S3.2) and for process monitoring (table S3.4) to ensure the flare is operating appropriately..

We made these decisions in accordance with reference the relevant technical guidance.

The Environment Agency expects that all monitoring is carried out to recognised standard by competent personnel. 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.

8.4 Reporting

We have set reporting in the Permit for the following parameters:

Oxides of nitrogen
Carbon monoxide
Total volatile organic compounds (VOCs)

Table S3.4 Process monitoring requirements	
For non-enclosed (Non-BAT) flares operating as waste incineration.	Hydrogen sulphide in flare gas feed
	Flare gas feed flow rate
	Flare gas combustion temperature
	Methane in flare gas feed flow
	Flare gas composition as required by condition 3.5.7

We made these decisions in accordance with reference the relevant technical guidance.

8.5 Technical competence

The Operator has an approval issued by the Environment Agency

We are satisfied that the Operator is technically competent.

8.6 Financial competence

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

9 · Other legal requirements

In this section we explain how we have addressed other relevant legal requirements, to the extent that we have not addressed them elsewhere in this document.

9.1 The EPR 2016 and related Directives

The EPR delivers the requirements of a number of assimilated and national laws.

9.1.1 Schedules 1 and 7 to the EPR 2016 – IED Directive

We address the requirements of the IED in the body of this document above and the specific requirements of Chapter IV in Annex 1 of this document.

There is one requirement not addressed above, which is that contained in Article 5(3) IED. Article 5(3) requires that “In the case of a new installation or a substantial change where Article 4 of Directive 85/337/EC (now Directive 2011/92/EU) (the EIA Directive) applies, any relevant information obtained or conclusion arrived at pursuant to articles 5, 6 and 7 of that Directive shall be examined and used for the purposes of granting the permit.”

Article 5 of EIA Directive relates to the obligation on developers to supply the information set out in Annex IV of the Directive when making an application for development consent.

Article 6(1) requires Member States to ensure that the authorities likely to be concerned by a development by reason of their specific environmental responsibilities are consulted on the Environmental Statement and the request for development consent.

Article 6(2)-6(6) makes provision for public consultation on applications for development consent.

Article 7 relates to projects with transboundary effects and consequential obligations to consult with affected Member States.

The grant or refusal of development consent is a matter for the relevant local planning authority. The Environment Agency’s obligation is therefore to examine and use any relevant information obtained or conclusion arrived at by the local planning authorities pursuant to those EIA Directive articles.

In determining the Application we have considered the following documents:

- The Environmental Statement submitted with the planning application (which also formed part of the Environmental Permit Application).

- The decision of the North Yorkshire Council to refuse planning permission on 24/04/2026.
- The report and decision notice of the local planning authority accompanying the grant/refusal of planning permission.
- The response of the Environment Agency to the local planning authority in its role as consultee to the planning process.

Where planning permission has been refused

We have reviewed the reasons given for the refusal of planning permission and specifically whether this conclusion is based on information given in the Environmental Statement. We are satisfied that these matters are entirely matters of planning policy and not relevant to our determination. The pollution control and planning regimes are intended to be complementary and should avoid duplication.

From our consideration of all the documents above, the Environment Agency considers that no additional or different conditions are necessary.

9.1.2 Schedule 9 to the EPR 2016 – Waste Framework Directive

As the regulated facility involves the treatment of waste, it is carrying out a waste operation for the purposes of the EPR 2016, and the requirements of Schedule 9 therefore apply. This means that we must exercise our functions so as to ensure implementation of certain articles of the WFD.

We must exercise our relevant functions for the purposes of ensuring that the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste and that any waste generated is treated in accordance with Article 4 of the Waste Framework Directive. (See also section 3).

The conditions of the permit ensure that waste generation from the facility is minimised. Where the production of waste cannot be prevented it will be recovered wherever possible or otherwise disposed of in a manner that minimises its impact on the environment. This is in accordance with Article 4.

We must also exercise our relevant functions for the purposes of implementing Article 13 of the Waste Framework Directive; ensuring that the requirements in the second paragraph of Article 23(1) of the Waste Framework Directive are met; and ensuring compliance with Articles 18(2)(b), 18(2)(c), 23(3), 23(4) and 35(1) of the Waste Framework Directive.

Article 13 relates to the protection of human health and the environment. These objectives are addressed elsewhere in this document.

Article 23(1) requires the permit to specify:

- the types and quantities of waste that may be treated
- for each type of operation permitted, the technical and any other requirements relevant to the site concerned
- the safety and precautionary measures to be taken
- the method to be used for each type of operation
- such monitoring and control operations as may be necessary
- such closure and after-care provisions as may be necessary

These are all covered by permit conditions.

We consider that the intended method of waste treatment is acceptable from the point of view of environmental protection, so Article 23(3) does not apply.

Article 35(1) relates to record keeping and its requirements are delivered through permit conditions.

9.1.3 Schedule 22 to the EPR 2016 – Water Framework and Groundwater Directives

To the extent that it might lead to a discharge of pollutants to groundwater (a "groundwater activity" under the EPR 2016), the Permit is subject to the requirements of Schedule 22, which delivers the requirements of EU Directives relating to pollution of groundwater. The Permit will require the taking of all necessary measures to prevent the input of any hazardous substances to groundwater, and to limit the input of non-hazardous pollutants into groundwater so as to ensure such pollutants do not cause pollution and satisfies the requirements of Schedule 22.

No releases to groundwater from the regulated facility are permitted (except for activity AR4 - the discharge of a hydrocarbon based stimulation fluid to ground via appraisal boreholes at Cloughton-2 Wellsite). The Permit also requires material storage areas to be designed and maintained to a high standard to prevent accidental releases.

9.1.4 Directive 2003/35/EC – The Public Participation Directive

Regulation 60 of the EPR 2016 requires the Environment Agency to prepare and publish a statement of its policies for complying with its public participation duties. We have published our public participation statement.

This Application is being consulted upon in line with this statement, as well as with our guidance RGS6 on Sites of High Public Interest, which addresses specifically extended consultation arrangements for determinations where public interest is particularly high. This satisfies the requirements of the Public Participation Directive.

Our draft decision in this case has been reached following a programme of extended public consultation, on the original application. The way in which this has been done is set out in section 2. A summary of the responses received to our consultations and our consideration of them is set out in section 10.

9.2 National primary legislation

9.2.1 Environment Act 1995

(i) Section 4 (Pursuit of Sustainable Development)

We are required to contribute towards achieving sustainable development, as considered appropriate by Ministers and set out in guidance issued to us. The Secretary of State for Environment, Food and Rural Affairs has issued The Environment Agency's Objectives and Contribution to Sustainable Development: Statutory Guidance (December 2002). This document; "provides guidance to the Agency on such matters as the formulation of approaches that the Agency should take to its work, decisions about priorities for the Agency and the allocation of resources. It is not directly applicable to individual regulatory decisions of the Agency."

Paragraph 4.2 of this Guidance provides the objectives we are to pursue when discharging our main operational functions. As far as determining applications for water discharge permits is concerned, this states that we are;

'To protect, enhance and restore the environmental quality of inland and

coastal surface water and groundwater, and in particular:

- to address both point source and diffuse pollution;
- to implement the EC Water Framework Directive; and
- to ensure that all relevant quality standards are met.'

The Environment Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

In respect of regulation of industrial pollution through the EPR, the Guidance refers in particular to the objective of setting permit conditions "in a consistent and proportionate fashion based on Best Available Techniques and taking into

account all relevant matters…". The Environment Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

For waste the guidance refers to ensuring waste is recovered or disposed of in ways which protect the environment and human health. The Environment Agency considers that it has pursued the objectives set out in the Government's guidance, where relevant, and that there are no additional conditions that should be included in this Permit to take account of the Section 4 duty.

(ii) Section 5 (Preventing or Minimising Effects of Pollution of the Environment)

We are satisfied that our pollution control powers have been exercised for the purpose of preventing or minimising, remedying or mitigating the effects of pollution.

(iii) Section 6(1) (Conservation Duties with Regard to Water)

We have a duty to the extent we consider it desirable generally to promote the conservation and enhancement of the natural beauty and amenity of inland and coastal waters and the land associated with such waters, and the conservation of flora and fauna which are dependent on an aquatic environment.

We consider that no additional or different conditions are appropriate for this Permit.

(iv) Section 6(6) (Fisheries)

We have a duty to maintain, improve and develop fisheries of salmon, trout, eels, lampreys, smelt and freshwater fish.

We consider that no additional or different conditions are appropriate for this Permit.

(v) Section 7 (General Environmental Duties)

This places a duty on us, when considering any proposal relating to our functions, to have regard amongst other things to any effect which the proposals would have on sites of archaeological, architectural, or historic interest; the economic and social well-being of local communities in rural areas; and to take into account any effect which the proposals would have on the beauty or amenity of any rural or urban area or on any such flora, fauna, features, buildings, sites or objects.

We considered whether we should impose any additional or different requirements in terms of our duty to have regard to the various conservation objectives set out in Section 7 but concluded that we should not.

(vi) Section 39 (Costs and Benefits)

We have a duty to take into account the likely costs and benefits of our decisions on the applications ('costs' being defined as including costs to the environment as well as any person). This duty, however, does not affect our obligation to discharge any duties imposed upon us in other legislative provisions.

In so far as relevant we consider that the costs that the permit may impose on the applicant are reasonable and proportionate in terms of the benefits it provides.

(viii) Section 81 (National Air Quality Strategy)

We have had regard to the National Air Quality Strategy and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

We have also had regard to the clean air strategy 2019 and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

We have had regard to the National Air Pollution Control Programme (set under the National Emissions Ceiling Regulations 2018) and consider that our decision complies with the Strategy, and that no additional or different conditions are appropriate for this Permit.

9.2.2 Section 108 Deregulation Act 2015 – Growth duty

We 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.

Paragraph 1.3 of the statutory guidance issued by the Department of Business, Energy and Industrial Strategy in March 2017 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 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. It also ensures that any pollution that may arise from the regulated facility does not adversely affect local businesses.

9.2.3 Legislative and Regulatory Reform Act 2006

In accordance with section 21 of this Act, when making this decision we have had regard to the need to be transparent, accountable, proportionate and consistent, and the need to target action where it is needed.

In accordance with section 22 of the Act we have had regard to the Regulators' Code; in particular the need to base our decision on environmental risk, and to support the applicant to comply and grow, so that burdens have only been imposed where they are necessary and proportionate.

9.2.4 Human Rights Act 1998

We have considered potential interference with rights addressed by the European Convention on Human Rights in reaching our decision and consider that our decision is compatible with our duties under the Human Rights Act 1998. In particular, we have considered the right to life (Article 2), the right to a fair trial (Article 6), the right to respect for private and family life (Article 8) and the right to protection of property (Article 1, First Protocol). We do not believe that Convention rights are engaged in relation to this determination.

9.2.5 Countryside and Rights of Way Act 2000 (CROW 2000)

Section 85 of this Act imposes a duty on Environment Agency to seek to further the purpose of conserving and enhancing the natural beauty of the area of outstanding natural beauty (AONB). There is no AONB which could be affected by the regulated facility.

9.2.6 Wildlife and Countryside Act 1981

Under section 28G of the Wildlife and Countryside Act 1981 the Environment Agency has a duty to take reasonable steps to further the conservation and enhancement of the flora, fauna or geological or physiographical features by reason of which a site is of special scientific interest. Under section 28I the Environment Agency has a duty to consult Natural England in relation to any permit that is likely to damage SSSIs.

We assessed the Application and concluded that the regulated facility will not damage the special features of any SSSI. This was recorded on a CROW Appendix 4 form.

9.2.7 Natural Environment and Rural Communities Act 2006

Section 40 of the Natural Environment and Rural Communities Act 2006 has been amended with effect from 1 January 2023 to require consideration as to what action we can properly take, consistently with the proper exercise of our functions, to further the general biodiversity objective, which is to further the conservation and enhancement of biodiversity and having considered, determined such policies and specific objectives as we consider appropriate for taking action to further the general biodiversity objective, and take such action as we consider appropriate, in the light of those policies and objectives, to further that objective.

Section 40(2A) states that in complying with the duty in section 40(1) and (1A) we must have particular regard to any relevant local nature recovery strategy and species protection strategy or protected sites strategy.

We have, also, considered the general biodiversity objective when carrying out our permit application determination and, consider that no different or additional conditions are required in the permit.

9.2.9 Countryside Act 1968

Section 11 imposes a duty on the Environment Agency to exercise its functions relating to any land, having regard to the desirability of conserving the natural beauty and amenity of the countryside including wildlife. We have done so and consider that no different or additional conditions in the Permit are required.

9.2.10 National Parks and Access to the Countryside Act 1949

Section 11A and section 5(1) imposes a duty on the Environment Agency when exercising its functions in relation to land in a National Park, to further the purposes of conserving and enhancing the natural beauty, wildlife and cultural heritage of the areas, and of promoting opportunities for the understanding and enjoyment of National Parks by the public.

We have done so and consider that no different or additional conditions in the Permit are required.

9.2.12 Environment Act 2021

Section 110(10) requires that we must have regard to a protected site's strategy, which Natural England has prepared and published in relation to improving the conservation and management of a protected site, and managing the impact of plans, projects or other activities (wherever undertaken) on the conservation and management of the protected site, where relevant to exercise of our duties under Conservation of Habitats and Species Regulations 2017, sections 28G to 28I Wildlife and Countryside Act 1981 or Marine and Coastal Access Act 2009.

We have had regard to this in our assessments.

9.3 National secondary legislation

9.3.1 Conservation of Habitats and Species Regulations 2017

We have assessed the Application in accordance with our guidance and concluded that there will be no likely significant effects on any European Site.

The Habitats Regulations Assessment is summarised in greater detail in section 6.2 of this document. A copy of the Habitats Regulations Assessment can be found on the public register.

We have also considered our general duties under Regulation 9(3) to have regard to the requirements of the Habitats Directive in the exercise of our powers and under Regulation 10 in relation to wild bird habitat to take such steps in the exercise of their functions as they consider appropriate so far as lies within our powers to secure preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds.

We considered whether we should impose any additional or different requirements in the permit in terms of these duties but concluded that we should not.

9.3.2 Water Environment (Water Framework Directive) Regulations 2017

Consideration has been given to whether any additional requirements should be imposed in terms of the Environment Agency's duty under regulation 3 to secure compliance with the requirements of the Water Framework Directive, Groundwater Directive and the EQS Directive through, amongst other things, environmental permits, and its obligation in regulation 33 to have regard to the river basin management plan (RBMP) approved under regulation 31 and any supplementary plans prepared under regulation 32. However, it is felt that existing conditions are sufficient in this regard and no other appropriate requirements have been identified.

We are satisfied that granting this application with the conditions proposed would not compromise the achievement of the objectives in WER 2017, specifically but not limited to: will not cause the current status of the surface water and groundwater body to deteriorate and will not compromise the objective to reverse any significant and upwards trend within the groundwater body.

9.3.3 The Persistent Organic Pollutants Regulations 2007

We have explained our approach to these Regulations, which give effect to the Stockholm Convention on POPs and the EU's POPs Regulation, above.

9.5 Other relevant legal requirements

9.5.1 Duty to Involve

Section 23 of the Local Democracy, Economic Development and Construction Act 2009 require us where we consider it appropriate to take such steps as we consider appropriate to secure the involvement of interested persons in the exercise of our functions by providing them with information, consulting them or involving them in any other way. Section 24 requires us to have regard to any Secretary of State guidance as to how we should do that.

The way in which the Environment Agency has consulted with the public and other interested parties is set out in section 2.4 Consultation on the Application and section 2.5 Engagement of this document. The way in which we have taken account of the representations we have received is set out in section 10 Consultation Responses. Our public consultation duties are also set out in the EP Regulations, and our statutory Public Participation Statement, which implement the requirements of the Public Participation Directive. In addition to meeting our consultation responsibilities, we have also taken account of our guidance in Environment Agency Guidance Note RGS6.

10 · Consultation Reponses

10.1 Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with the Environment Agency's Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex. Copies of consultation responses have been placed on the Environment Agency public register.

The Application was advertised on the Environment Agency website from 16/07/2025 to 19/09/2025.

The following statutory and non-statutory bodies were consulted:

- Environmental Protection Department
- Local Council
- Local Authority Planning
- UK Health and Safety Agency UKHSA
- Mineral Planning Authority

The consultation responses received were wide ranging and a number of the issues raised were outside the Environment Agency's remit in reaching its permitting decisions. Specifically, questions were raised which fall within the jurisdiction of the planning system, both on the development of planning policy and the grant of planning permission.

Guidance on the interaction between planning and pollution control is given in the National Planning Policy Framework. It says that the planning and pollution control systems are separate but complementary. We are only able to consider those issues which fall within the scope of the EPR.

10.2 Consultation Responses from Statutory and Non-Statutory Bodies

Response received from North Yorkshire Council, Environmental Health Services
Summary of issue(s) raised Based on the information provided North Yorkshire Council (NYC) highlighted that they were previously consulted at the planning pre-application stage for this proposed development on the 22.10.2024. NYC have supplied details of the planning requirements that will be implemented for noise and vibration, lighting, dust control, groundwater and surface water contamination risk and odour management.
Summary of actions taken or show how this has been covered None required.

Response received from UK Health Security Agency (UKHSA)
Summary of issue(s) raised The UKHSA sought assurance that the Environment Agency is satisfied with the proposed groundwater discharge activities in relation to the protection of drinking water sources. And that the permit holder will implement all appropriate pollution prevention and control measures in line with sector guidance and best practice.
Summary of actions taken or show how this has been covered These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 2, 4, & 6 below under the Public Consultation Response Section.

10.3 Representations from local MPs, assembly members, councillors and parish/town community councils

Response received from Newby and Scalby Town Council
Summary of issue(s) raised (boxes 1, 2, 4, 16, 18) • Local environmental concerns Surface Water Management Plan lacking detail. Potential groundwater contamination. The site's proximity to local residents. Concerns about toxic emissions and fire hazards from flare stacks, especially in light of recent moorland fires. Odour monitoring is reactive rather than proactive. Lack of baseline air quality data
Summary of issue(s) raised- (boxes 4, 6, 15, 16) • Risk of seismic damage The Applicant has not provided deep geological structure data, contrary to local planning requirements. Proppant Squeeze process involves four high-pressure treatments, raising seismic risk. New information not disclosed in original planning application.
Summary of issue(s) raised – (boxes 1, 7) • Underground Mining Waste Facility Concerns that the underground waste facility will store 50–70% of contaminated fluid indefinitely. Not included in original planning application; should be treated as a separate development.
Summary of actions taken or show how this has been covered These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 2, 4, 6, 7, 15, 16 and 19 below under the Public Consultation Response Section. Odour management is discussed in section 7.3 of the main decision document above.

Response received from Cloughton Parish Council
Summary of issue(s) raised– (boxes 1, 2, 4, 16, 18) • Local environmental concerns Surface Water Management Plan lacking detail. Potential groundwater contamination. The site's proximity to local residents. Concerns about toxic emissions and fire hazards from flare stacks, especially in light of recent moorland fires. Odour monitoring is reactive rather than proactive. Lack of baseline air quality data
Summary of issue(s) raised - (boxes 4, 6, 15, 16) • Risk of seismic damage The Applicant has not provided deep geological structure data, contrary to local planning requirements. Proppant Squeeze process involves four high-pressure treatments, raising seismic risk. New information not disclosed in original planning application.
Summary of issue(s) raised– (boxes 7, 16) • Underground Mining Waste Facility Concerns that the underground waste facility will store 50–70% of contaminated fluid indefinitely. Not included in original planning application; should be treated as a separate development. Council argues for designation requiring multi-agency off-site safety planning.
Summary of actions taken or show how this has been covered These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 2, 4, 6, 7, 15, 16 and 18 below under the Public Consultation Response Section. Odour management is discussed in section 7.3 of the main decision document above.

Response received from Burniston Parish Council
Summary of issue(s) raised – (boxes 1, 2, 10, 11, 12, 16, 18) • Local environmental concerns

Surface Water Management Plan lacking detail.
Potential groundwater contamination.
The site's proximity to local residents, businesses, recreational and tourism assets and ecological habitats and wildlife corridors.

Summary of issue(s) raised – (boxes 4, 5)

- Risk of seismic damage

  Europa has not provided deep geological structure data, contrary to local planning requirements.
  Proppant Squeeze process involves four high-pressure treatments, raising seismic risk.
  New information not disclosed in original planning application.

Summary of issue(s) raised - (boxes 1, 7)

- Underground Mining Waste Facility

  Concerns that the underground waste facility will store 50–70% of contaminated fluid indefinitely.

  Not included in original planning application; should be treated as a separate development with own planning and permit process.

Summary of issue(s) raised - (boxes 12,16,18)

- Flaring of gas, air quality and odours

  Concern about toxic emissions, fire and explosion risk and lack of emergency planning
  Requests for BAT, monitoring and reporting for flare volumes and a restriction to flare during daytime only.
  Concern that no baseline air quality data collected
  for odours from storing of fluids used in the process.

Summary of actions taken or show how this has been covered

These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 2, 4, 5, 7,10, 11, 12, 16 ,8, 18 and 22 below under the Public Consultation Response Section.

Odour management is discussed in section 7.3 of the main decision document above.

10.4 Representations from community and other organisations

Response received from: Green Farming Limited
Summary of issue(s) raised – (boxes 1, 2, 8, 8, 10, 12,18) • Soil, Crops & Livestock Risks from contamination, emissions, noise and lighting; threat to productivity, welfare, land value and farm viability.
Summary of issue(s) raised – (boxes 1, 2, 8, 16) • Groundwater & Drainage Risk Sole borehole dependency; high pollution risk from spills, runoff, drainage sensitivity, and weak hydrogeological evidence.
Summary of issue(s) raised – (box 20) • Ecology & Stewardship Impacts on protected species, stewardship habitats, pollinators and wildlife from industrial disturbance.
Summary of issue(s) raised – (boxes 12, 18) • Food Safety & Processing Inadequate separation from grain facility; risk to food standards from dust, VOCs and odours.
Summary of issue(s) raised (boxes 3, 4, 5, 6, 7) Geological & Coastal Stability Peak Fault seismic risk; uncertainty from underground waste; potential impacts on cliffs, land and infrastructure.
Summary of issue(s) raised - (boxes 13, 21) • Landscape & Public Interest Industrialisation incompatible with sensitive coastal setting, tourism, food production and community use.
Summary of actions taken or show how this has been covered

These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 3, 4, 5, 6, 7, 8, 10, 12, 13, 16, 18, 19, and 21 below under the Public Consultation Response Section.

Response received from: Mundaka Tree Care

Summary of issue(s) raised

- Fracking is unsustainable and unnecessary given the availability of renewable alternatives.
- The development would force relocation, disrupting local residents and small business.
- Local residents strongly oppose the plan, concern that the Applicant is exploiting loopholes to advance it.

Summary of actions taken or show how this has been covered

These comments are noted. To avoid repeated responses on similar matters, see the response boxes 9, 12, 13, 14, 15, 18 and 21 below under the Public Consultation Response Section.

Response received from: Scarborough & Ryedale Astronomical Society

Summary of issue(s) raised

- The proposal provides no meaningful benefit to national energy supply and is driven purely by profit.
- It is located just outside the Dark Sky Reserve, the unregulated lighting from the site would introduce significant night-time light pollution, eliminating astronomical visibility in this otherwise naturally dark area.

Summary of actions taken or show how this has been covered

These comments are noted. To avoid repeated responses on similar matters, see the response boxes 21 below under the Public Consultation Response Section.

Response received from: Scarborough Sea Pool Project

Summary of issue(s) raised

- Objection to the proposal, stating that all forms of fracking have proven to pollute the environment, with particular impact on water courses.

Summary of actions taken or show how this has been covered

These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 2, 3, 6, 8, 12, and 13 below under the Public Consultation Response Section.

Response received from: West Newton Said No

Summary of issue(s) raised – (boxes 4, 5, 6, 7)

- Geological Unsuitability and Seismic Risk

  Concerns that the Kirkham Abbey Formation's uncertain fluid pathways create a risk that pressure changes from hydraulic fracturing or gas operations could cause uncontrolled fluid migration or seismic activity, making such techniques unsafe and unsuitable at this site.

Summary of issue(s) raised – (boxes 3, 8)

- Chemical Storage and Mixing Hazards

  Concerns that storage and mixing of chemicals on site presents risks to air quality and surface water, any accidental release, spill or mismanagement of chemicals could pose dangers to human health and the local environment.

Summary of issue(s) raised – (boxes 1, 2, 12)

- Risks to Human Health

  Concerns that location of site will result in elevated risk of cancer. Additional studies show evidence strongly indicates that this proposal poses a proven threat to public health.

Summary of issue(s) raised - (boxes 1, 2, 20)

- Threats to Ecology and Sensitive Habitats

  Concern that contamination or habitat disturbance could cause long-lasting and potentially irreversible damage to local wildlife and ecosystems.

Summary of issue(s) raised – (box 20)

- Financial Scrutiny and Regulatory Responsibility

  Concerns exist regarding the financial resilience of the operator, and the EA must not rely on assessments carried out by other regulators, expectation that EA to independently verify Europa's financial competence.

Summary of actions taken or show how this has been covered

These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 2, 3, 4, 5, 6, 7, 8, 12, 19 & 20 below under the Public Consultation Response Section.

Concerns were raised that additional studies indicate the proposal poses a proven threat to public health. In reaching our determination, we have carefully considered all information submitted as part of the application, together with any relevant supporting evidence. The Environment Agency's assessment is based on the information we consider material to the environmental risk posed by the proposed activities, including the operator's risk assessments, technical submissions, and any consultation responses received.

We are satisfied that the information submitted demonstrates that, subject to the conditions of the permit, the activities can be operated in a manner that will not give rise to significant pollution or harm to human health. Our decision is therefore based on a robust assessment of the available evidence and in accordance with the relevant legal and policy framework.

Response received from Weald Action Group

Summary of issue(s) raised

- Proppant Squeeze equals Fracking
- UK law defines fracking by fluid volume, meaning activities that would be considered fracking elsewhere may not fall under UK fracking controls.
- Environmental and community impacts are comparable to fracking.
- Claim that the operator is introducing the technology under the radar while regulation lags behind.

Summary of actions taken or show how this has been covered

These comments are noted but are generalised statements and not specific to the Cloughton 2 permit application.

Risks from permitted activities to the natural environment including water quality and human health were considered during determination of the permit. We have

reviewed the application and concluded the proposed activities do not present a significant risk to the environment or human health.

The North Sea Transition Authority (NSTA) are the regulator responsible for induced seismicity and have an interest in any proposals that include a deliberate intention to fracture (break) the rock formation. To avoid repeated responses on similar matters, see the response boxes 4, 8, 12 below under the Public Consultation Response Section.

Summary of issue(s) raised

- Wastewater, Flowback, and Radioactivity
  - No named waste disposal facility for formation or flowback water.
  - Flowback water may contain heavy metals, chemical additives, and NORM e.g., Radium-226
  - Concerns about insufficient UK capacity to treat and dispose of radioactive waste.
  - Reinjection of wastewater may induce earthquakes and damage well integrity.

There are no re-injection wells. The application does not propose the reinjection of wastewater.

Management of naturally occurring radioactive material (NORM) waste produced on site is regulated under separate radioactive substance regulation (RSR) permit.

Flowback fluid following the well test has the potential to contain low levels of NORM. Samples of the flowback fluid will be sent to a laboratory holding the appropriate accreditations for radionuclide analysis by gamma spectrum. Depending on the outcome of radionuclides analysis, the flowback fluid will be transported via a licenced haulier to either an Environment Agency permitted wastewater treatment works facility where it will be processed, treated and discharged in accordance with the permitted controls of the water treatment facility, or to a bespoke RSR (radioactive substances regulation) permitted waste treatment facility for treatment and disposal.

Once at surface, fluids will be diverted by temporary pipework to a three-phase separator, which will separate out oil, gas and produced fluids. Oil and produced fluids will be diverted via temporary pipework to dedicated storage tanks onsite for subsequent offsite removal for sale and disposal respectively.

The treatment and disposal of any radioactive waste is therefore controlled through the environmental permitting framework, which ensures that waste is only accepted at appropriately permitted facilities with the capacity and capability to manage it in accordance with regulatory requirements.

Summary of issue(s) raised

- Production testing phase risks
- Well Clean-Up and extended testing phases may produce significant emissions, requiring stricter controls.
- Gas incineration during testing could exceed 10 tonnes/day.
- Regulators should require, emissions control plans, limits on testing duration and reporting of all gas (captured, vented, flared)

Summary of actions taken or show how this has been covered

The permit application includes the activity of incineration by flaring of hazardous waste, namely natural gas above 10 tonnes per day, as an activity listed in Part 2 Schedule S5.1 A(1)(a).of the Environmental Permitting (England and Wales) Regulations 2016. The permit includes limits for substances for the flare along with monitoring of parameters and reporting in line BAT, see sections 8.2, 8.3 and 8.4 above.

Section 4.1 of the application, supported by the Waste Gas Management Plan (WGMP), sets out the controls applicable to well clean-up and the extended well testing phase.

Summary of issue(s) raised – (boxes 8, 13, 19)

- Air quality and emissions
- Greenhouse gas impacts are materially understated through outdated carbon-budget comparisons, failure to quantify methane and hazardous VOC emissions (including benzene), and disregard for methane's high short-term climate potency.

Summary of issue(s) raised – (boxes 8, 12, 16, 18, 22)

- Accident prevention / Emissions control

  The Waste Gas Management Plan is inadequate, relying on vague future intentions rather than firm commitments to capture or beneficially use all produced gas, with flaring inappropriately treated as acceptable.

We have included a pre-operational condition PO 02 which requires the operator to submit an updated Waste Gas Management Plan to demonstrate that they will be using the best available techniques to utilise the gas and minimise environmental impact.

Accident prevention is covered in section 5.4.1 Accident Management Plan and we have included pre-operational condition PO 05 which requires the operator to submit a Leak Detection and Repair Plan to demonstrate regular inspections of

wellhead connections, pipes and storage areas for leaks, failures or signs of degradation.

We have included monitoring requirements, see section 8.3 Monitoring, and have included emission limits as measures of control, see section 7.1 Emissions to air.

Summary of issue(s) raised – (box 16)

- Operator competence

  The submission is incomplete and misleading, failing to demonstrate compliance with current regulatory expectations or the use of Best Available Techniques, with vague BAT claims that permit avoidable and excessive pollution.

Summary of actions taken or show how this has been covered -

These comments are noted. To avoid repeated responses on similar matters, see the response boxes 8, 12, 13, 16 & 18 below under the Public Consultation Response Section.

We have considered the potential greenhouse gas emissions arising from the proposed activities, including emissions associated with flaring, and are satisfied that these have been assessed in accordance with relevant guidance and using appropriate methodologies. The permit requires that emissions are minimised through the application of Best Available Techniques (BAT), including the use of a Waste Gas Management Plan (WGMP) to ensure that waste gas is managed and emissions reduced wherever practicable.

The Environment Agency's role is to assess whether the activity meets the requirements of the Environmental Permitting (England and Wales) Regulations 2016 and to ensure that appropriate controls are in place to prevent or minimise pollution and protect the environment. The Environment Agency is not responsible for setting national carbon budgets or climate change policy. Matters relating to the UK's carbon budgets, including their development and application, fall within the remit of Government and other national policy-making bodies rather than the environmental permitting process.

Accordingly, while greenhouse gas emissions have been considered as part of the determination, concerns regarding the adequacy or currency of national carbon budget comparisons are outside the scope of this permitting decision.

Methane is recognised as a greenhouse gas with a higher global warming potential than carbon dioxide over the short term. The principal control measure is to ensure that waste gas is effectively combusted via flare, as efficient combustion converts methane to carbon dioxide and water vapour, thereby reducing its overall climate impact.

We have assessed the competence of the operator in accordance with the requirements of the Environmental Permitting (England and Wales) Regulations 2016. Operator competence is not determined solely on the basis of formal qualifications, but on the operator's ability to demonstrate that appropriate

management systems, procedures and personnel are in place to operate the activity in compliance with the permit conditions.

The operator has provided information demonstrating that they have access to suitably experienced personnel and have established management systems to manage environmental risks associated with the activity. We are satisfied that these arrangements are sufficient to ensure the permit can be complied with.

The permit also includes conditions requiring the activity to be operated using appropriate management systems and controls. Compliance with these requirements is subject to ongoing regulatory oversight, including inspection and enforcement where necessary.

Response received from: Frack Free Coastal Communities (FFCC)
Summary of issue(s) raised – (boxes 1, 2, 12, 14, 15, 16, 18, 21) • Regulatory Requirements and Technical Safeguards The consultation process was flawed: missing documents, misinformation, poor communication with residents, and inadequate public engagement. Monitoring plans are deemed insufficient for Air Quality, Groundwater and Environmental Risk.
Summary of issue(s) raised – (boxes 10, 11, 12, 23) • Impact on local population, businesses, tourism Health impacts from pollution, noise, and light. Mental health deterioration due to anxiety and stress. Disruption to peaceful living conditions.
Summary of issue(s) raised – (boxes 1, 2, 4, 5, 6, 16) • Hydraulic Fracturing (Proppant Squeeze) Concerns regarding inadequate data and the unpredictability and risks of induced seismicity. Lack of fault mapping before permit approval. Groundwater contamination risks from fracking fluids and methane. Surface water pollution and drainage disruption.
Summary of issue(s) raised – (boxes 10, 12, 18, 22)

- Flaring of gas from shrouded flare

  Concern that Europa admits enclosed flares are more environmentally beneficial but opts for cheaper shrouded flares.
  Health risks from pollutants.
  Noise and light pollution from flaring.

Summary of actions taken or show how this has been covered

The permit application includes the activity of the incineration by flaring of hazardous waste, namely natural gas above 10 tonnes per day, as an activity listed in Part 2 Schedule 5.1 of the Environmental Permitting (England and Wales) Regulations 2016. The permit includes limits for substances emitted from the flare, together with monitoring and reporting requirements, in line with BAT; see sections 8.2, 8.3 and 8.4 above.
The flare has been assessed in line with BAT and considered suitable for the purposes of the well test proposed. Whilst enclosed flares are generally regarded as the preferred option, our guidance recognises that shrouded flares may also be appropriate where they can demonstrate a high level of environmental performance. Having assessed the information provided by the operator, we are satisfied that the proposed shrouded flare is capable of operating efficiently across the range of anticipated gas flow rates and will achieve the performance standards expected for this activity.
Further details are provided in section 4.1 of the main decision document above.

Summary of issue(s) raised – (boxes 1, 2, 3, 6, 7)

- Underground Waste Facility

  Objection to the area becoming an underground waste storage site.
  Potential contamination of aquifers supplying drinking water
  Waste will be dispersed across multiple depths

Summary of issue(s) raised – (boxes 1, 2, 8, 10, 12,18, 19)

- Environmental Impact

  Risks to soil health, crop productivity, and livestock welfare from chemical spills, emissions, and noise/light pollution.
  Potential harm to pollinators and wildlife habitats, coastal cliffs, farmland, and infrastructure.
  Risks to food safety standards and contamination of grain intended for human consumption.

Summary of issue(s) raised – (boxes 1, 2, 10, 11, 12, 18)

• Noise and Odour from Traffic Concerns about underestimated pollution and noise levels. Inadequate baseline noise data and monitoring locations.
• **Summary of issue(s) raised – (boxes 4, 5, 6, 16)** Missing, inadequate and inconsistent information Lack of geological fault data. Inconsistent depth measurements and fluid volumes. Missing maps and borehole locations. Misleading descriptions of the mining waste facility dimensions. Gaps in documentation despite deadline extensions.
Summary of actions taken or show how this has been covered These comments are noted. To avoid repeated responses on similar matters, see the response boxes 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 18, 19, 21 & 23 below under the Public Consultation Response Section. The submitted information includes indicative dimensions for the mining waste facility which are yet to be confirmed. The final depths of the mining waste facility will therefore be specified and controlled through the issued permit.

10.5 Representations from individual members of the public

The consultation responses received from individual members of the public were wide ranging and a number of the issues raised were outside the Environment Agency's remit in reaching its permitting decisions. Specifically, questions were raised which fall within the jurisdiction of the planning system. Guidance on the interaction between planning and pollution control is given in the National Planning Policy Framework. It says that the planning and pollution control systems are separate but complementary. We are only able to take into account those issues which fall within the scope of our regulatory powers.

The responses raised many of the same issues. All concerns raised are addressed below.

Box	
1	Groundwater / Surface Water / Drinking Water / Aquifer
2	Surface Water
3	Chemicals
4	Seismic Risk / Earthquakes / Fault Lines / Explosions

5 Hydraulic Fracturing Plan (HFP)
6 Proppant Squeeze Retained in Target Formation
7 Waste Facility Objection
8 Storage and mixing of chemicals on site
9 Banned Activity in the UK
10 Noise
11 Traffic
12 Harm To Human Health
13 Climate Change / Fossil Fuels / Finch Case (June 2024)
14 Public Information Events / Accessibility
15 Extend Consultation
16 Lack of Information / Detail
17 Site Regulation
18 Air Quality and Emissions
19 Habitats
20 Financial
21 Energy Policy
22 Flaring of natural gas

1. Groundwater / Surface Water / Drinking Water / Aquifer
Summary of issue(s) raised There were several concerns that surface water and groundwater may be contaminated by the proposed hydraulic fracturing activities.
Summary of actions taken or show how this has been covered We are satisfied that potential risks to groundwater of all process chemicals including those used in the drilling muds have been adequately assessed in the Applicant's hydrogeological risk assessment (HRA) along with a chemical inventory. The hydrogeological risk assessment has evaluated any risks to groundwater, and associated receptors, from substances used or released from the activities that take place at the surface, or from drilling the well and any subsequent well stimulation. We have reviewed the Environmental Risk Assessment and the Hydrogeological Risk Assessment provided by the applicant against our information and conceptual understanding of the location. We are satisfied that the well stimulation activities, which are controlled by this permit, will not pose a risk to groundwater or surface water given the mitigation measures required. We are satisfied that drinking water supplies are not at risk.

It is unlikely that the fracturing fluids, which remain in the ground after the operations are complete, could migrate any distance from the fractures created by the hydraulic fracturing process within the target formation. In order for fluids to move in the rock a driving head would be required to produce a gradient to cause fluid movement. Once the hydraulic fracturing stage is complete the pressure is released to allow the fluid and gas to return to the extraction well and the pressure gradient will be from the rock towards the well.

This permit does not allow reinjection of water at the site. All produced and flow back water will be transported off site to an Environment Agency licensed disposal site.

The fluid used for hydraulic fracturing will contain only additives that have been assessed by the Environment Agency, this limitation applies at all times and is enforced through a condition in the permit. The proposed fracturing will be a one-off activity.

We are satisfied that measures can be taken to ensure that the fracturing fluids do not migrate from the target formation. We have included a pre-operational condition that requires that the hydraulic fracturing shall not commence until we have approved, in writing, the hydraulic fracturing plan. A stepped approach will allow the geo-mechanical properties of the reservoir to be understood and the hydraulic fracturing programme to be tailored accordingly.

The operations will be continually monitored, reviewed and modified to ensure that the programme is carried out in the safest and most effective way.

It is expected that up to 50% of the injected fracturing fluid will return to the surface as part of the flow back fluid. Fracturing fluid left behind will have nothing to ‘push’ it further into the formation, therefore this will limit potential for fluids to migrate further into the rocks.

When wells come to the end of their useful life, they will be either suspended or plugged and decommissioned; this process ensures that there is no pressure gradient remaining that could continue to push fluid away from the well locations.

The operator is required to carry out groundwater monitoring and periodic monitoring of soil and groundwater as specified in the permit and report monitoring results to the Environment Agency which forms a part of ongoing compliance assessment.

In the Key Issues section we have explained how we have assessed the risks to groundwater and surface water. We are satisfied that we have fully

assessed the risk and that there will be no unacceptable impact or risk of pollution.

We are confident that the risks can be controlled by good operational practice, reinforced through effective, robust regulation. We are committed to ensuring that people and the environment are protected.

2. Surface Water

The applicant has provided a site management and a monitoring plan and in order to demonstrate that the activities are not causing pollution, we have included this monitoring in the permit.

The surface water management system will prevent uncontrolled release of contaminated water and will be managed in compliance with the environmental permit conditions and arrangements. There will be no discharge from the site to surface water.

Incorporated into the design of the wellsite is an impermeable membrane constructed using fully welded HDPE, protected above and below with non-needle punch geotextile. The impermeable membrane prevents surface fluids (mainly rainwater) penetrating the underlying subsoils. Surface fluids will migrate along the surface of the impermeable membrane to a perimeter ditch, where it will be contained.

All water contained within the perimeter containment ditches will be removed via road tanker and disposed at an Environment Agency licenced waste facility.

Daily inspections of the permitted ditch will be undertaken to ensure the level does not exceed the maximum containment of the ditch. Surface run-off water contained within the perimeter ditch will be tested prior to being transported offsite by a licensed road haulier to an Environment Agency licensed waste water treatment / waste water disposal facility. If the results of the tests identify that the surface run-off water is contaminated from any site spillages, arrangements will be made for the surface run-off water to be transported offsite by a licensed road haulier to a relevant Environment Agency permitted waste treatment facility / waste water disposal facility.

In the Key Issues section we have explained how we have assessed the risks to groundwater and surface water. We are satisfied that we have fully assessed the risk and that there will be no unacceptable impact or risk of pollution.

3. Chemicals / MO-IV Breaker

Summary of issue(s) raised

Concerns were raised that the Applicant had not declared fully the nature of some chemicals proposed for use and that we have not fully assessed the proposed chemicals.

Summary of actions taken or show how this has been covered

The Applicant made no claim for commercial confidentiality. However, we did receive a confidentiality claim by the manufacturer for the process chemical/product NUT PLUG, ECF-1882, FORM-A-BLOK AS, Glydril MC, Safe-Cor, Safe-Scav-NA, ULTRAFREE and SAFE-SURF EU 18/09/2025. Subsequently, the manufacturer confirmed that they would be withdrawing the product Duo-Vis from the permitting process.

We have assessed all the chemicals to be used as part of the activity using the determination under new Groundwater Directive 2006/118/E which is followed by JAGDAG. The permit will limit the composition of the fluids to those disclosed in the Waste Management Plan (WMP) and approved by the Environment Agency. We do not consider that the approved chemicals will cause any environmental harm at the rates and levels of use proposed.

The approved chemicals are disclosed in the approved WMP which contains safety data sheets of proppant carrier fluid. The approved WMP is available on our public register. We requested that the applicant provide information on the degradation, bioaccumulation and toxicity to aquatic life and human health for all chemicals proposed for use. We assessed all the information provided and we have approved their use. We are satisfied that the potential risks to groundwater have been adequately identified and addressed through mitigation measures and monitoring conditions specified in the permit.

4. Seismic risk / Earthquakes / Fault lines

Summary of issue(s) raised

A number of concerns were raised about the tremors and earthquakes associated with similar activities and the potential for the on site activities to induce tremors. Some of the respondents pointed to previous earth tremors and aftershocks that were experienced in Lancashire at Preston New Road as a result of hydraulic fracturing. Concerns were also raised that the operator was planning to drill straight through a fault and hydraulically fracture close to it.

Summary of actions taken or show how this has been covered

Low level hydraulic well stimulation / fracturing (also known as proppant squeeze) can generate micro seismicity, however, the proposed activities pose a very low risk with respect to seismic risk. Low level reservoir stimulation has no past record of causing seismicity which has only been associated with large scale, high volume hydraulic fracturing of shale gas formations, which uses far higher injection volumes compared to what is being considered here.

The North Sea Transition Authority (NSTA) are the regulator responsible for induced seismicity and have an interest in any proposals that include a deliberate intention to fracture (break) the rock formation.

Precautions against seismic activity are addressed by conditions on permissions for hydraulic fracturing that are granted by the NSTA. NSTA oversee the implementation of precautions to prevent the occurrence of earth tremors as a result of hydraulic fracturing. The proposed mitigation measures will be built into the hydraulic fracturing plan (HFP).

We have requested that Applicant confirms faults within the vicinity of the well prior to the proppant squeeze.

The Applicant will be required to submit a HFP which will need to be approved by the North Sea Transition Authority and the Environment Agency prior to any operations taking place. (See pre-operational condition PO 08). The HFP shall include but is not limited to: a map showing faults near the well and along the well path, with a summary assessment of faulting and formation stresses in the area and the risk that the operations could reactivate existing faults.

Seismicity and the requirement for seismic monitoring are assessed and regulated by the North Sea Transition Authority.

Our view is that there is not a risk of explosion from this activity.

See HFP comments below in Box 5.

5. Hydraulic Fracturing Plan (HFP)
Summary of issue(s) raised Concern that a HFP has not yet been submitted
Summary of actions taken or show how this has been covered We have also considered the risk to the environment from seismicity, though the North Sea Transition Authority is responsible for seismicity. The proposed

activities are at the lowest end of the pressure spectrum associated with conventional hydraulic fracturing and are therefore unlikely to induce any seismic movements in the area.

The North Sea Transition Authority (NSTA) is responsible for ensuring that operators put in place measures to control the level of induced seismicity from hydraulic fracturing. Operators must carry out prior geological analysis to identify natural faulting, background monitoring of seismicity before operations start and on-going monitoring during operations. Operators must also submit a HFP to the NSTA for approval.

While high-volume hydraulic fracturing requires use of the traffic-light system to manage and respond to induced seismicity, NSTA guidance recognises that small-volume hydraulic stimulation of a conventional target requires less information and a proportionate level of control.

The Environment Agency (EA) is responsible for regulating environmental impacts and Operators must satisfy the EA that they have appropriate safeguards in place to avoid impacts on geological structure and infrastructure where this could put the environment at risk.

The hydraulic fracture plan is submitted independently from the permit application. It was agreed within the pre-application advice that the HFP can be provided as part of a pre-operational condition (reference PO 08). The Applicant references the HFP in both the Non-Technical Summary (NTS) and Waste Management Plan (WMP) but in each instance it is noted that an HFP will be submitted and stated specific elements will be included in it. Within the pre-application advice, the EA recognised that 'not all information is available to formalise at this stage.' Finalisation of specific details of the operation have yet to be agreed and will be submitted to both the NSTA and the EA in advance of the operation being conducted, this is standard practice for onshore oil and gas applications.

The HFP will contain information on:

- the historical seismicity and assessment of the risk of induced seismicity;
- summary of the planned operations, including stages, pumping pressures and volumes;
- an assessment of the anticipated extent of fracturing resulting from injection and proposed method for confirming the validity of the model;
- a comparison of proposed activity to any previous operations and relationship to historical seismicity;
- proposed measures to monitor local seismicity during the operations; and
- proposed methods for limiting fracture height.

Pre-operational condition (PO 08) means that the activity cannot commence until they have agreement from both the NSTA and the EA. See pre-operational condition section above for further information.

PO 08 is detailed as follows:

At least 2 months prior to commencement of activities referenced AR4 in Table S1.1 the Operator shall submit to the Environment Agency for approval a written Hydraulic Fracturing Plan and obtain both the North Sea Transition Authority (NSTA) and the Environment Agency's written approval to it. The plan shall include but is not limited to:

1. *A map showing faults near the well and along the well path, with a summary assessment of faulting and formation stresses in the area and the risk that the operations could reactivate existing faults;*
2. *Information on the historical seismicity and assessment of the risk of induced seismicity;*
3. *Summary of the planned operations, including stages, pumping pressures and volumes;*
   by IC/PO
4. *The processes and procedures that will be put in place before or during hydraulic fracturing to identify the vertical and horizontal extents of the fractures within the target formation and ensure that they are not near the permitted boundary;*
5. *In the event that the fractures extend beyond the permit boundary, the steps that would be taken to assess and if necessary, mitigate the effect and limit further propagation outside the target rocks;*
6. *A comparison of proposed activity to any previous operations and relationship to historical seismicity;*
7. *Proposed measures to monitor local seismicity during the operations;*
8. *Proposed reporting during hydraulic fracturing and your proposals for post fracturing reporting of the location, orientation and extent of the induced fractures to demonstrate that the permit has been complied with.*

6. Proppant Squeeze Retained in Target Formation

Summary of issue(s) raised

Concerns raised that the remaining 50% to 70% of Proppant Carrier Fluid that will be retained in the target formation. As such the target formation will be

classified as a waste facility under Schedule 20 (2)(1) of EPR2016. Objections raised that the site is being turned into a waste facility.

Summary of actions taken or show how this has been covered

The proposed low level well stimulation / fracturing (also known as proppant squeeze) is limited in vertical and lateral extent to up to 4 stages at Cloughton 2. As a consequence, the mining waste facility is also limited in vertical and lateral extent within each of the named target zones. We have reviewed the application and agree that there is very low potential for the mining waste facility to extend beyond the permitted extent of the hydraulic fracturing activity. We note that over time the residual proppant carrier fluid will be drawn towards the well, and therefore the amount of fluid will reduce over time in the target zone. The proppant is not a waste as it fulfils a function.

The application included supporting documents which have been reviewed for the environmental impacts to the formation and surrounding areas. We agree that the risk to any receptor beyond the formation is not significant and is limited because of the depth of target formation and its hydraulic isolation . The Waste Management Plan (WMP) confirms zones of influence that the stimulation is designed to impact in the table below. This leads to a mining waste facility with a total volume of 100,531m^3.

Stage	Formation	Group	Depth TVDSS (m)	Radius (m)	Height (m)
1		Yordale /Dinantian	2618 -2736	263	65
2	Sabden		1947-2292	130	75
3	Sabden		1947-2292	130	80
4	Namurian		1935 -1947	250	65

As such, even if the well is never brought onstream, we agree that the reservoir stimulation fluid will not lead to a significant impact on the environment.

7. Waste Facility Objection

Summary of issue(s) raised

Concerns over this activity on site.
Summary of actions taken or show how this has been covered The Applicant has submitted a Waste Management Plan (WMP), which we consider to be satisfactory. However, clarification has been requested in relation to the gas lifting process as part of the pre-operational condition PO 02. The WMP is a key operational document for the management of extractive wastes arising from oil and gas exploration and production and is therefore incorporated into the operating techniques listed in Table S1.2 of the permit. The WMP is discussed further in Section 5.4 above. The proppant squeeze process will by default require a mining waste facility to be included under activity AR3 because whilst proppant carrier fluid will be returned to surface via the well clean-up equipment, some of the proppant carrier fluid will be retained in the target formation. As such, the target formation will be classified as a waste facility under Schedule 20 (2)(1) of EPR2016 which defines a mining waste operation as being the management of extractive waste, whether or not it involves a waste facility The quantity of each waste will be recorded as it is removed from site. All records of waste movements (extractive and non-extractive wastes) will be retained by the Operator and made available for inspection by the Environment Agency on request. It is estimated that approximately 30% to 50% of the proppant carrier fluid will be recovered to surface via the well clean-up equipment and stored on site for subsequent offsite transfer to an Environment Agency approved waste treatment facility for disposal. (Therefore 50% to 70% of proppant carrier fluid will be retained in the target formation). See section 4.2.5 above for further details. Flowback fluid following the stimulation has the potential to contain low levels of Naturally Occurring Radioactive Materials (NORM). Samples of the flowback fluid will be sent to a laboratory holding the appropriate accreditations for radionuclide analysis by gamma spectrum. Depending on the outcome of radionuclides analysis, the flowback fluid will be transported via a licenced haulier to either an Environment Agency permitted wastewater treatment works facility, or to a bespoke RSR (radioactive substances regulation) permitted waste treatment facility. Once at surface, fluids will be diverted by temporary pipework to a three phase separator, which will separate out oil, gas and produced fluids. Oil and produced fluids will be diverted via temporary pipework to dedicated storage tanks onsite for subsequent offsite removal for sale and disposal respectively. Oil, which is not considered a waste, will be transported by a licenced haulier to a permitted refinery for sale.

Formation water produced under the Extended Well Test (EWT) has the potential to contain low levels of NORM. A competent Radiation Protection Supervisor (RPS) and/or Radioactive Waste Advisor (RWA) has been appointed to ensure that NORM is managed correctly. Formation water cannot be reused onsite due to unknown components within the formation water and high salinity. Formation water will be tested at a laboratory and its components determined and will be transported by a licenced haulier to an Environment Agency permitted water treatment facility.

Water, if present, will be diverted via pipework to dedicated storage tanks onsite for subsequent offsite removal by a licenced haulier to an Environment Agency permitted water treatment facility.

8. Storage and mixing of chemicals on site

Summary of issue(s) raised

Concerns over this activity on site.

Summary of actions taken or show how this has been covered

Incorporated into the design of the wellsite is a fully welded HDPE impermeable membrane. This membrane prevents surface fluids, primarily rainwater, from penetrating the underlying subsoils. Surface fluids migrate across the membrane to a perimeter containment ditch, where they are contained. Spill kits are provided on site and are located close to potential pollution sources, such as fuel storage areas. Refuelling is carried out using drip trays, and daily visual inspections of containers, tanks and vehicles are undertaken. In addition, emergency response plans include specific procedures for spill management.

The Environment Agency and CIRIA (Construction Industry Research and Information Association) provide guidance on the design and construction of bunds for tanks containing liquids, particularly those that could harm the environment if spilled. CIRIA C736 guidance and the Oil Storage Regulations 2001, offer detailed recommendations for secondary containment systems, including bund design, construction, and maintenance. The Environment Agency also emphasizes the need for appropriate measures to prevent pollution from storage tanks and bunds.

All chemicals are known and have been assessed, see box 3 above.

9. Banned Activity in the UK
Summary of issue(s) raised Statements made that this activity is banned by the UK government
Summary of actions taken or show how this has been covered In the UK, there remains a moratorium on associated hydraulic fracturing. The application is not for hydraulic fracturing as defined by the infrastructure act. The Infrastructure Act 2015 defines associated hydraulic fracturing as "hydraulic fracturing of shale or strata encased in shale which- (a) Is carried out in connection with the use of the relevant well to search or bore for or get petroleum, and (b) Involves or is expected to involve the injection of (i)more than 1,000 cubic metres of fluid at each stage, or expected stage of the hydraulic fracturing, or (ii) more than 10,000 cubic metres of fluid in total. The proposal from the Applicant does not take place in shale or strata encased in shale and is below these thresholds. The proposed reservoir stimulation involves injection of fluid into the rock (geological formation) at a pressure above the fracture pressure of the formation. It is not associated hydraulic fracturing due to the smaller quantity of fluid involved. In England, reservoir stimulation is allowed because it involves much lower volumes of fluid (and chemicals) which represent a significantly lower risk to the environment and can be appropriately mitigated and managed. Wider issues of government policy are outside of the remit of this determination.

10. Noise
Summary of issue(s) raised Concern over noise at the site
Summary of actions taken or show how this has been covered We are satisfied that there will be no significant impact from noise due to measures that will be used. Noise is considered in more detail in section 7.2 entitled, 'Noise and Vibration Management' of this decision document. The noise from this activity comes purely from the equipment and processes located on the surface. There are no 'explosions' associated with this activity.

11. Traffic and planning issues
Summary of issue(s) raised Concern over traffic movements at the site
Summary of actions taken or show how this has been covered The local planning authority is responsible for determining land use through the planning application process, including matters such as transport and traffic. Consideration of increased traffic movements beyond the regulated facility boundary is therefore outside the scope of the Environment Agency's determination of the application. On-site noise is relevant to our determination and has been considered, see box 10 and section 7.2 above. An environmental permit and planning permission are separate regulatory controls and are determined by different authorities. The planning authority considers whether the proposed activity represents an acceptable use of the land, including issues such as visual impact, traffic, and access. These matters do not form part of the Environment Agency's environmental permitting decision-making process, although the Environment Agency acts as a statutory consultee to the planning application. The operator will require both permissions in order to operate and must comply with any conditions attached to each. Concerns relating to traffic impacts are therefore matters for consideration under the planning regime and do not form part of the environmental permit determination, except in circumstances where there are established high background concentrations of pollutants and an increase in traffic could result in a significant deterioration in local air quality. This is not the case at this location. Section 3.4 of the permit controls noise and vibration and requires that emissions are minimised. In the unlikely event that activities give rise to pollution outside the site boundary due to noise or vibration, the Environment Agency may require the submission of a Noise and Vibration Management Plan for approval prior to its implementation. The reduction in property values is outside of the remit of the Environment Agency.

12. Harm to Human Health
Summary of issue(s) raised

A number of comments have raised concerns that the activities will cause harm to health and stress to the local community.
Summary of actions taken or show how this has been covered We are satisfied that the appropriate controls are in place and that activities will be properly regulated and not cause pollution or harm to human health. On the permit, we have imposed condition 3.5 which requires the operator to monitor and submit monitoring reports on groundwater quality, point source emissions to air and process emissions. The permit conditions allow us to take regulatory action if we note that the activities are causing environmental pollution.

13. Climate Change / Fossil fuels / Finch Case (June 2024)
Brief summary of issue(s) raised Concerns were raised about the impacts of the activities on climate change.
Summary of actions taken or show how this has been covered Policy is made by the government. Government policy states “We aim to maximise the economic recovery of oil and gas from the UK’s oil and gas reserves, taking full account of environmental, social and economic objectives”. The "Finch v Surrey County Council" case involved a challenge to a planning permission for oil production at a site in Surrey, arguing that the environmental impact assessment (EIA) failed to adequately consider the "downstream" greenhouse gas (GHG) emissions resulting from burning the extracted oil. The Supreme Court ruled in favour of Sarah Finch, deciding that these downstream emissions must be included in the EIA. We have assessed the environmental impacts of the proposed activities falling under the Environmental Permitting Regulations, 2016 SI 1154 (EPR) within this permit application. Wider issues of government policy are outside of the remit of this determination. Our role in EPR permitting is to ensure that any regulated facility does not cause significant pollution or harm to human health. We are satisfied that this facility will not cause significant pollution or harm and that it will provide a high level of protection for the environment as a whole, as such it fits with these aims.

The Environment Agency recognises and supports the objectives of the UK Methane Action Plan and its role in reducing methane emissions at a national and international level. At present there is no specific regulatory guidance or operational framework setting out how the Action Plan should be implemented through the Environmental Permitting regime. In the absence of such guidance, the Agency continues to regulate protectively in accordance with existing legislation, policy, and permit-specific risk assessment, applying a proportionate and evidence-based approach on a site-by-site basis.

14. Public Information Events / Accessibility

Summary of issue(s) raised

Greater accessibility to information events open to the public.

Summary of actions taken or show how this has been covered

We consider this application to be of high public interest and so we have carried out extra engagement.

- We made the Application available online via our Citizen Space page where the public were able to provide comments. This contained all the information required by the Industrial Emissions Directive (IED), including telling people where and when they could see a copy of the Application.

- We wrote to 400+ residents and other interested parties, including the local MP, councillor and parish councils to inform them that we had received an application and inviting them to comment. The link to the consultation web page was provided in this letter.

- We held a public engagement event at Burniston Village Hall on 2nd September 2025 (12-4pm) to discuss the permit application from Europa Oil and Gas Limited.

  The objective of the event was to answer questions on:
  - what the application is for
  - what the technique is
  - what we (EA) look at during our permitting process
  - how we regulate the site/checks we make
  - what the consultation is for
  - how to participate in the consultation
  - We produced a frequently asked question sheet for use at the public event

- We issued a press release on 7th August 2025 to help bring attention to the application consultation, and to provide the link to the consultation page on our website inviting comments about this permit application in order to understand any concerns.

- We made a copy of the Application and all other documents relevant to our determination available to view on our Public Register. Anyone wishing to see these documents could do so and arrange for copies to be made.

- We printed a hard copy of the application and installed it at Newby and Scalby Library, 450 Scalby Rd, Scarborough, YO12 6EE for individuals who did not have access to the internet.

We are satisfied that appropriate steps were taken to inform the public about the Application and how they could submit comments.

It is acknowledged that this is a complex application. However, the non-technical summary provides a clear explanation of the permit being applied for and the activities proposed at the site.

A public engagement event was also held to allow individuals to ask questions about the proposed activities and to provide clarification on the application.

15. Extend Consultation
Summary of issue(s) raised Requests made to extend the consultation period
Summary of actions taken or show how this has been covered We advertised the Application by a notice placed on our website, including telling people where and when they could see a copy of the Application. The application was publicised on the GOV.UK website at YO13 0DB, Europa Oil & Gas Limited: environmental permit application advertisement - EPR/YP3623LC/A001 - GOV.UK between 16th July and 19th September 2025 for a period of 9 weeks, instead of the usual 4 weeks, to allow the public to review and then provide comment on additional information requested from the applicant, see section 2.6 for full details of the additional information requested. Any comments that have been received after the close of the consultation and prior to issue have also been taken into consideration as part of our determination process.

16. Lack of Information / Detail
Summary of issue(s) raised Lack of detail in the application
Summary of actions taken or show how this has been covered Comments were received regarding a lack of detail in certain aspects of the application. In particular, these related to air quality data, emergency planning arrangements, geological fault data, and the Surface Water Management Plan (SWMP). This Decision Document explains that a Hydraulic Fracture Plan (HFP) will be submitted to the regulator prior to any drilling activity, as detailed in Box 5 above. Where further detail was required to inform our decision-making, additional information was requested from the applicant through the issue of a Schedule 5 notice and subsequent follow-up questions see section 2.6 requests for further information. In cases where further information is required before activities can commence, this will be secured through pre-operational conditions. In relation to the above, pre-operation condition PO 06 specifies that the Surface Water Management Plan (SWMP) must be updated and approved prior to the commencement of operations. Emergency planning arrangements are in place for the proposed site. An Emergency Response Plan has been prepared and is referenced throughout the Environmental Risk Assessment as a key mitigation and control measure. The plan provides a framework for responding to potential emergency scenarios, including spillages, loss of containment, fire, gas release, flooding, and vehicle-related incidents. These arrangements are supported by site-specific procedures, trained personnel, and coordination with the relevant emergency services. These documents will also form part of the Operator's Environmental Management System (EMS). The Operator is expected to liaise with the Local Authority, emergency services, and Local Resilience Forum partners to ensure that appropriate off-site emergency arrangements are in place. These should be informed by credible worst-case scenarios and enable effective coordination, communication, and the protection of human health and the environment beyond the site boundary. We expect evidence of ongoing engagement with the relevant authorities to support the development and maintenance of these off-site emergency plans.

The ‘Emissions to Air’ section 7.1 of this decision document provides further detail. It sets out our assessment of the air quality data submitted, which was considered satisfactory.

We have included pre-operational conditions requiring the submission of additional groundwater information to address uncertainties in the hydrogeological assessment. These include a requirement for boreholes to be installed and baseline groundwater data to be collected prior to the commencement of the groundwater activity, as well as an update to the depth of the target horizons. These measures will ensure that sufficient site-specific data is available to address the alleged weakness in the hydrogeological evidence.

We are satisfied that we have sufficient relevant information upon which to make our decision.

17. Site Regulation
Summary of issue(s) raised Concern over how the Environment Agency will regulate the site
Summary of actions taken or show how this has been covered We are independent from those we regulate and will regulate the site in an appropriate manner in accordance with our legal duties and our Enforcement and Sanctions policy. We will be as robust as the situation requires. We will regulate the site assessing operations and the environmental performance. This will include the following: • The Operator must monitor emissions and report the results to us. • We will regularly inspect the regulated facility reviewing techniques and assessing monitoring results to measure the performance of the plant. We will review operating techniques and management systems and plans. • We will carry out on-site audits of Operator monitoring • The Operator must inform us within 24 hours of any breach of the emissions limits, followed by a fuller report of the size of the release, its impact and how they propose to avoid this happening in the future.

- The Operator's monitoring results will be placed on the public registers. If there is a breach, then we will take appropriate enforcement action.
- If we receive any complaint, we will assess the complaint and investigate it as appropriate.

18. Air Quality and Emissions

Summary of issue(s) raised

Concern over air quality and emissions from the flaring of gas and associated activities and concern over how the air dispersion modelling was carried out including:

- Modelling parameters such as terrain, surface roughness
- The weather data that was used is;
  - not local
  - is not recent
  - including local weather conditions
  - is subject to temperature inversions
  - Background pollution levels are not representative
- Concern that impacts at all receptors were not considered, including:
  - Schools
  - Businesses
  - Other residential areas
  - Tourist sites

Summary of actions taken or show how this has been covered

We audited the Applicant's dispersion modelling. As part of the audit, we checked that the modelling parameters. The weather data and background levels used by the Applicant were appropriate.

The 'Emissions to Air' section 7.1 of this decision document has further details.

We are satisfied that there will not be a significant impact from emissions to air, based on the maximum concentrations that represent the worst-case predictions. Impacts at individual receptors will be lower than the maximum and we are satisfied there will not be an unacceptable impact at any receptor.

19. Habitats
Summary of issue(s) raised Concern over the impact at habitat sites and other ecological sites and the impact on wildlife, plants and protected species.
Summary of actions taken or show how this has been covered Our assessment at ecological sites is described in section 6, 'Nature conservation, landscape and heritage…' of this decision document. We are satisfied that there will not be a significant impact.

20. Financial
Summary of issue(s) raised Concerns about the financial backing of the Applicant.
Summary of actions taken or show how this has been covered The core EPR guidance states at 9.22 we should only consider financial solvency explicitly in cases where we have doubts as to the financial viability of the activity. We have no doubts as to the general financial viability of this activity. Based on this we have no reason to consider that the Applicant will not be financially competent. Furthermore, given the conditions in the permit - if the operator cannot discharge any of the pre-operational conditions, they will not be able to commence activities, and so they can only get to the operational stage if they are financially competent.

21. Energy Policy
Summary of issue(s) raised Objections to the Government's energy policy for the UK.
Summary of actions taken or show how this has been covered The Environment Agency (EA) has no role in setting or influencing national energy policy. The EA is a statutory consultee whose remit is limited to advising on and determining whether an application is technically sound and fit for purpose within the existing legislative and policy framework. In doing so, the EA's role is to ensure that appropriate measures are in place

to protect the environment, prevent pollution, manage environmental risks, and avoid harm to human health. Wider objections relating to the principle of energy policy or strategic decisions about the UK's energy mix fall outside the EA's responsibilities and must therefore be considered by the relevant policy-making bodies rather than through the environmental permitting or regulatory process.

22. Flaring of natural gas
Summary of issue(s) raised Concerns about the risk of the flaring of gas, the use of a shrouded flare or an enclosed flare, health risk from pollutants and the noise and light.
Summary of actions taken or show how this has been covered The Waste Gas Management Plan (WGMP) must comprehensively assess all feasible options for the beneficial use of all gases generated by the activities, including currently unused gas and gas vented from storage and transfer operations. Where beneficial use is not practicable, the plan must evaluate all available combustion and non-combustion abatement options, such as flaring, vapour recovery, scrubbing, and adsorption, to minimise environmental impacts in line with best available techniques. We have completed a review of the submitted WGMP and are satisfied that it adequately addresses these requirements. However, to ensure continued compliance and that waste gas is managed using best available techniques, we have included a pre-operation condition PO-02 requiring the operator submits an updated WGMP, this will ensure that waste gas is managed using the best available techniques to minimise environmental impact before any further well testing or production occurs.

23. Planning vs Permitting
Summary of issue(s) raised Information differs between that submitted for the planning application and permitting application

Summary of actions taken or show how this has been covered

It is recognised that planning and environmental permitting are separate regulatory regimes with distinct objectives, assessment criteria, and information requirements. Planning considers the acceptability of development in land-use terms, whereas permitting assesses operational controls and associated environmental risks. Consequently, differences in the level and type of information provided across the two processes are expected. The permit application has therefore been assessed on its own merits, in accordance with relevant environmental legislation and guidance, and any variations from the planning submission do not undermine the robustness of the permitting assessment.

The Environment Agency is satisfied that the application includes sufficient and appropriate detail to enable determination independently of the planning process, and that any differences do not affect the ability to regulate the activity effectively.

Extent of local opposition

It is acknowledged that there is a high level of local opposition. We have to make our decision based on the risks to the environment and human health from any proposal. We carefully considered all representations made on this basis. We can only refuse the application if we consider the risks to the environment and / or human health are unacceptable, and for this application, given the safeguards in place, we do not consider this to be the case.

Annex 1. Glossary of acronyms used in this document

AMC	Accident Management Plan
APC	Air Pollution Control
AQS	Air Quality Strategy
BAT	Best Available Technique(s)
BAT-AEL	BAT Associated Emission Level
BREF BAT C	Best Available Techniques (BAT) Reference Documents for Waste Incineration BAT conclusions
CCW	Countryside Council for Wales
CROW	Countryside and rights of way Act 2000
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DD	Decision document
EAL	Environmental assessment level
EIAD	Environmental Impact Assessment Directive (85/337/EEC)
ELV	Emission limit value
EMAS	EU Eco Management and Audit Scheme
EMS	Environmental Management System
EPR	Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No. 1154) as amended
EQS	Environmental Quality Standard
ES	Environmental standard
FSA	Food Standards Agency
GWP	Global Warming Potential
HHRAP	Human Health Risk Assessment Protocol

HPI	High public interest
|HRA	Human Rights Act 1998
HW	Hazardous waste
IED	Industrial Emissions Directive (2010/75/EU)
LADPH	Local Authority Director(s) of Public Health
LNR	Local nature reserve
MCERTS	Monitoring Certification Scheme
NOx	Oxides of nitrogen (NO plus NO_2 expressed as NO_2)
PC	Process Contribution
PEC	Predicted Environmental Concentration
PHE	Public Health England (now UKHSA – UK Health Security Agency)
PPS	Public participation statement
PR	Public register
RGN	Regulatory Guidance Note
SAC	Special Area of Conservation
SHPI(s)	Site(s) of High Public Interest
SPA(s)	Special Protection Area(s)
SSSI(s)	Site(s) of Special Scientific Interest
TGN	Technical guidance note
TOC	Total Organic Carbon
UKHSA	UK Health Security Agency
WFD	Waste Framework Directive (2008/98/EC)