



Frack Free Coastal Communities (FFCC) Submission to Environment Agency

Consultation on Environmental Permit Draft Decision EPR/YP3623LC/A001

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1. Executive Summary

1.1 Frack Free Coastal Communities (“FFCC”) welcomes the opportunity to comment on the Environment Agency’s Draft Decision to grant Environmental Permit EPR/YP3623LC/A001 in respect of the proposed Cloughton-2 Wellsite at Burniston, North Yorkshire.

1.2 FFCC recognises the important statutory role performed by the Environment Agency under the Environmental Permitting (England and Wales) Regulations 2016 (“the EPR”). We acknowledge that the Agency must determine permit applications independently, objectively and in accordance with its statutory duties to prevent pollution, protect human health and secure a high level of protection for the environment.

1.3 This submission has been prepared following a detailed review of:

- the Environment Agency’s Draft Decision Document;
- the permit application and supporting technical documentation;
- the consultation responses submitted by statutory consultees, local councils, community organisations and members of the public; and
- the additional technical information referred to throughout the Draft Decision.

The submission is confined to matters that fall within the Environment Agency’s regulatory responsibilities. It does not seek to revisit issues that properly belong within the planning system, nor does it invite the Agency to determine wider questions of Government energy policy.

1.4 Having considered the Draft Decision in detail, FFCC submits that the Environment Agency has not yet demonstrated that the statutory requirements for granting the proposed environmental permit have been satisfied.

Our principal concern is not that the Environment Agency has necessarily identified the wrong environmental risks. Rather, it is that the Agency repeatedly concludes that those risks have been adequately assessed whilst simultaneously acknowledging that significant elements of the environmental evidence remain unavailable and will only be provided after the permit has been granted through a series of pre-operational conditions.

1.5 Throughout the Draft Decision, the Environment Agency states that it is satisfied that risks to groundwater, surface water, geological integrity, air quality and human health can be adequately controlled.

However, the same document acknowledges that numerous important matters remain outstanding, including:

- the Hydraulic Fracturing Plan;
- further geological verification and fault assessment;
- baseline groundwater monitoring and additional hydrogeological information;
- an updated Surface Water Management Plan;
- an updated Waste Gas Management Plan;
- a Leak Detection and Repair Plan;
- confirmation of the dimensions and extent of the underground mining waste facility; and
- further operational information required to demonstrate compliance with Best Available Techniques (“BAT”).

These are not matters of administrative detail. They relate directly to the environmental risks that the permit is intended to regulate.

1.6 FFCC accepts that pre-operational conditions are an established and valuable feature of the environmental permitting regime. They enable regulators to secure final operational details before activities commence.

However, FFCC submits that such conditions should not be used to postpone the assessment of matters that are fundamental to determining whether the statutory tests for granting a permit have been met.

Where important geological information, groundwater investigations, environmental monitoring arrangements or operational safeguards remain incomplete, those deficiencies should ordinarily be resolved before—not after—a permit is granted.

1.7 The Draft Decision also contains a number of internal inconsistencies.

In several places, the Environment Agency expresses confidence that environmental risks have been satisfactorily assessed whilst elsewhere acknowledging uncertainties that have yet to be resolved through future submissions by the operator.

For example, the Agency concludes that groundwater risks are acceptable whilst simultaneously requiring additional groundwater monitoring and hydrogeological information before operations may commence. Similarly, it concludes that geological risks are acceptable whilst acknowledging that detailed fault mapping and verification can only be completed following drilling and the submission of a future Hydraulic Fracturing Plan.

FFCC submits that these examples illustrate a broader concern that the Draft Decision sometimes relies upon anticipated future information rather than evidence currently available for independent scrutiny.

1.8 FFCC is also concerned that the consultation process does not always demonstrate meaningful engagement with the substance of many technical representations submitted by statutory consultees, parish councils, community organisations and members of the public.

Detailed submissions have frequently been summarised before being addressed through generic response boxes. Whilst this approach may assist administrative efficiency, it does not always explain why particular technical evidence has been accepted or rejected, nor does it consistently demonstrate how that evidence has informed the Agency's assessment.

1.9 Particular concern also arises in relation to the proposed underground mining waste facility.

The Draft Decision acknowledges that between approximately fifty and seventy per cent of the injected proppant carrier fluid may remain permanently within the geological formation. Although the Environment Agency concludes that the environmental risks associated with this waste facility are acceptable, important uncertainties remain regarding the final extent of the waste facility, geological structures, fracture propagation and long-term containment.

FFCC submits that these matters warrant further assessment before any permit is granted.

1.10 This submission further examines the adequacy of the Draft Decision in relation to:

- geological uncertainty and fault mapping;
- groundwater protection;
- surface water management;
- mining waste management;
- air quality and flaring;
- Best Available Techniques;
- environmental monitoring;
- human health; and
- the Environment Agency's response to consultation representations.

In each case, FFCC considers whether the evidence presently available is sufficient to satisfy the statutory requirements of the Environmental Permitting regime.

1.11 FFCC fully recognises that environmental permitting and planning are separate regulatory regimes with distinct statutory purposes. This submission does not invite the Environment Agency to reconsider matters that properly fall within the planning system.

However, where inconsistencies exist between planning and permitting information, where environmental assessments depend upon information that has not yet been produced, or where important operational safeguards remain incomplete, those matters fall squarely within the Environment Agency's own statutory responsibilities.

1.12 The purpose of this submission is therefore not to challenge the principle of environmental regulation by the Environment Agency.

Rather, it is to examine whether the evidential threshold required before an environmental permit may lawfully be granted has, on the material presently available, been met.

FFCC submits that it has not.

1.13 Accordingly, FFCC requests that the Environment Agency:

1. withdraw the current Draft Decision;
2. require the applicant to provide the outstanding technical information identified throughout the Draft Decision;
3. undertake a full reassessment of that information before determining the application;
4. make all material technical documents publicly available; and
5. provide a further opportunity for public consultation where additional information materially affects the environmental assessment.

1.14 In FFCC's respectful submission, such an approach would more fully reflect the objectives of the Environmental Permitting regime, reinforce public confidence in the integrity of the regulatory process and ensure that any final determination is based upon a complete, transparent and evidence-based assessment of environmental risk rather than information that remains to be provided after the permit has already been granted.

2. Introduction

2.1 About Frack Free Coastal Communities

Frack Free Coastal Communities (FFCC) was formed by residents of the coastal villages north of Scarborough in late 2024. Its initial purpose was to give voice to local concerns about proposals to drill and hydraulically fracture for gas on Yorkshire's Heritage Coast. As part of the Friends of the Earth Action Network, we are committed to the wider vision of a socially just society living within the ecological limits of our shared planet. We believe that extracting more fossil fuels is not just locally inappropriate – it is indefensible in an era where climate change threatens humanity itself.

FFCC grew from a series of public meetings and discussions in late 2024 in response to Europa Oil and Gas Limited's intention to drill for gas on the edge of Burniston, to the north of Scarborough. The group was formally constituted as an unincorporated association in November 2024 with the aim 'to stop plans by the oil and gas industry to develop a gas field under our coastal communities'. Over 160 local people have signed up as members through the Action Network. Members established a Steering Group to progress actions on behalf of the association.

Our immediate task was to raise public awareness about Europa's proposals among local residents and businesses. We have done this through leaflet drops, open meetings, social media, engaging with local and regional media and lobbying at meetings of North Yorkshire Council. We wanted to encourage the submission of as many well-informed objections to the proposal as possible. Working groups have researched and disseminated potential planning reasons for objections and we have commissioned experts to help us. Since Europa submitted their application in February 2025, we have scrutinised the planning documents in detail. We have identified significant inconsistencies, gaps and misinformation in the application and encouraged residents to make use of these in their individual representations. Our efforts have contributed to the high volume and quality of objections already submitted in response to the application and contributed to the decision by North Yorkshire Council to reject the planning application.

Our overriding concern throughout has been the undeniable evidence that the burning of fossil fuels has led to global heating and climate change. This view is shared by virtually all major national and international scientific organisations including the Intergovernmental Panel on Climate Change, the World Meteorological Organisation and the World Health Organisation. The official position of the UK government is that human-caused climate change is real, dangerous, and requires urgent action. This view is formally shared, researched, and acted upon by a network of public bodies, statutory advisers and departments including the Climate Change Committee, the Government Office for Science and the Environment Agency which warns that climate change is already driving severe weather, droughts and rising flood risks¹.

This representation is submitted on behalf of FFCC in response to the Environment Agency's Draft Decision to grant Environmental Permit **EPR/YP3623LC/A001** for the proposed Cloughton-2 Wellsite.

¹ Adapt or die, says Environment Agency 13th October 2021, National Flood Risk Assessment (NAFRA 2 - Environment Agency press release 17th December 2024.

2.2 Purpose of this Submission

This submission has been prepared following a detailed examination of the Environment Agency's Draft Decision Document, the permit application and supporting technical documentation, together with the consultation responses submitted by statutory consultees, local councils, community organisations, businesses and members of the public. Its purpose is to assist the Environment Agency in determining whether the statutory requirements for granting an Environmental Permit have been satisfied.

FFCC fully recognises that the Environment Agency performs an independent regulatory function and that its decisions must be based upon evidence, technical assessment and the requirements of the Environmental Permitting (England and Wales) Regulations 2016. Accordingly, this submission is intended to provide a reasoned, evidence-based analysis of the Draft Decision rather than a general objection to the proposed development.

2.3 Scope of this Representation

FFCC recognises that environmental permitting and land-use planning are separate regulatory regimes serving different statutory purposes. This submission does not seek to revisit matters that fall exclusively within the jurisdiction of the planning authority, nor does it invite the Environment Agency to determine questions of national energy policy or the wider merits of fossil fuel extraction.

Instead, the submission is confined to matters falling within the Environment Agency's own regulatory responsibilities, including:

- protection of groundwater and surface water;
- management of extractive waste;
- control of emissions to air;
- protection of human health;
- compliance with Best Available Techniques (BAT);
- adequacy of environmental monitoring;
- geological risk assessment;
- environmental management systems;
- the application of the precautionary principle; and
- whether the statutory requirements for granting an Environmental Permit have been satisfied.

2.4 The Central Issue

The principal issue raised by this submission is not whether the Environment Agency has identified the correct environmental risks. Rather, it is whether the Agency has demonstrated, on the basis of the evidence presently available, that those risks have been sufficiently understood and assessed to justify the grant of an Environmental Permit.

Throughout the Draft Decision the Environment Agency repeatedly states that it is satisfied that the proposed activities can be undertaken without giving rise to unacceptable pollution or harm to human health. However, the same document also acknowledges that significant technical information remains outstanding and will only be provided after the permit has been granted through a series of pre-operational conditions.

FFCC submits that this creates an inherent tension within the Draft Decision.

The issue is therefore not whether those future documents may ultimately demonstrate that the activities can be undertaken safely.

The issue is whether the Environment Agency presently possesses sufficient information to lawfully reach that conclusion.

2.5 A Consistent Pattern of Outstanding Information

One of the most striking features of the Draft Decision is the number of important environmental matters that remain unresolved.

These include, amongst other matters:

- the Hydraulic Fracturing Plan;
- updated geological fault mapping and assessment;
- additional hydrogeological investigations;
- baseline groundwater monitoring;
- an updated Surface Water Management Plan;
- an updated Waste Gas Management Plan;
- a Leak Detection and Repair Plan;
- confirmation of the dimensions and extent of the underground mining waste facility; and
- further operational information intended to demonstrate compliance with Best Available Techniques.

Many of these documents are intended to address matters that lie at the heart of the Environment Agency's environmental assessment. FFCC submits that the repeated reliance upon future information is a recurring theme throughout the Draft Decision and forms one of the principal issues considered in this submission.

2.6 Structure of this Submission

The chapters that follow examine the principal issues arising from the Draft Decision under a series of thematic headings.

These include:

- the statutory framework governing environmental permitting;
- the consultation process and the Environment Agency's treatment of consultation responses;
- reliance upon missing information and pre-operational conditions;
- geological uncertainty and the proposed Hydraulic Fracturing Plan;
- groundwater and surface water protection;
- the proposed underground mining waste facility;
- air quality, emissions and flaring;
- Best Available Techniques;
- operator competence and environmental management;
- the precautionary principle; and
- FFCC's conclusions and recommendations.

Each chapter considers the relevant evidence contained within the Draft Decision before identifying those matters which, in FFCC's opinion, require further consideration before any permit determination is made.

2.7 The Approach Adopted

Throughout this submission FFCC has sought to adopt an objective and evidence-based approach. Where the Draft Decision is considered to have correctly identified environmental risks or applied appropriate regulatory principles, this is acknowledged.

However, where the evidence appears incomplete, inconsistent or insufficient to support the conclusions reached, those matters are identified together with the reasons why FFCC considers further assessment to be necessary. This submission is therefore not based upon opposition for its own sake.

Rather, it reflects the view that decisions concerning environmentally sensitive activities should be founded upon complete evidence, transparent reasoning and rigorous scientific assessment.

2.8 Conclusion

FFCC recognises the importance of the Environment Agency's statutory role in protecting the environment and human health and appreciates the considerable work undertaken in assessing this complex application. Nevertheless, and for the reasons set out in the chapters that follow, FFCC submits that the evidential basis for the proposed permit remains incomplete.

The Environment Agency is invited to reconsider the Draft Decision in light of the outstanding matters identified within this submission and to require the applicant to provide the necessary technical information before any final permit determination is made.

3. The Statutory Framework and the Legal Test

3.1 Introduction

The Environment Agency's determination of Environmental Permit **EPR/YP3623LC/A001** is governed by a comprehensive statutory framework designed to ensure that activities capable of causing pollution are properly assessed before permission is granted.

The purpose of that framework is preventative rather than reactive. The Environmental Permitting regime exists to ensure that environmental risks are identified, assessed and controlled before potentially polluting activities commence.

Accordingly, the question before the Environment Agency is not whether environmental problems can be managed if they arise, but whether the applicant has demonstrated, through sufficient evidence, that the proposed activities are capable of being undertaken without giving rise to unacceptable risks to the environment or to human health.

Throughout this submission FFCC submits that this fundamental distinction is critical.

3.2 The Environmental Permitting (England and Wales) Regulations 2016

The proposed activities fall to be determined under the Environmental Permitting (England and Wales) Regulations 2016 (“the EPR”). The Regulations establish the legal framework under which environmentally regulated activities may only be carried out where an Environmental Permit has first been granted by the Environment Agency.

In determining an application, the Environment Agency must be satisfied that the operator has demonstrated compliance with the requirements of the Regulations and that appropriate measures are in place to prevent or minimise pollution.

The burden rests upon the applicant to demonstrate that the statutory requirements have been satisfied.

It is not for objectors to prove that pollution will occur.

Rather, it is for the applicant to demonstrate, to the satisfaction of the regulator, that unacceptable pollution will not occur.

3.3 The Preventative Nature of Environmental Regulation

Environmental permitting is based upon prevention. The regulatory framework is intended to prevent pollution before it occurs rather than relying upon enforcement after environmental harm has arisen.

This preventative approach is reflected throughout the Draft Decision itself, which repeatedly refers to the Environment Agency’s statutory duty to prevent pollution, protect groundwater, safeguard human health and ensure that Best Available Techniques are applied. The preventative purpose of the legislation necessarily requires that environmental risks are properly understood before a permit is granted.

Where significant uncertainties remain, further evidence should normally be obtained before determination rather than afterwards.

3.4 Best Available Techniques (BAT)

One of the central principles underpinning the Environmental Permitting regime is the requirement that regulated activities are carried out using **Best Available Techniques (BAT)**.

BAT is not simply a technical aspiration. It is a legal requirement intended to ensure that pollution is prevented wherever reasonably practicable and, where prevention is not possible, reduced to the lowest achievable level.

Demonstrating BAT requires more than a statement of intent. The operator must provide sufficient technical information to enable the Environment Agency to determine whether the techniques proposed genuinely represent the best available means of preventing or minimising environmental harm. This assessment must be undertaken before a permit is granted.

FFCC is concerned that, in several areas of the Draft Decision, important aspects of BAT assessment have effectively been postponed through pre-operational conditions requiring

revised management plans and further operational information after the permit has already been issued.

3.5 Groundwater Protection

Groundwater protection occupies a central position within the Environmental Permitting regime. The Draft Decision itself recognises the importance of protecting groundwater through the Environmental Permitting Regulations, the Water Framework legislation and the Groundwater Directive. The objective of these provisions is clear. Activities must not result in pollution of groundwater nor create unacceptable risks to groundwater resources used for public water supply, agriculture or the wider environment.

Groundwater protection therefore requires a robust understanding of:

- the existence of historical landfill sites in the immediate vicinity²;
- geological conditions;
- hydrogeology;
- pollution pathways;
- fracture behaviour;
- groundwater receptors;
- monitoring arrangements; and
- the effectiveness of proposed mitigation measures.

FFCC submits that where uncertainties remain regarding any of these matters, caution should be exercised before concluding that groundwater risks have been adequately assessed.

3.6 Mining Waste and Long-Term Environmental Protection

The Draft Decision confirms that the retained carrier fluid will constitute an underground mining waste facility regulated under the Environmental Permitting Regulations. The long-term management of extractive waste is therefore an integral part of the permit application rather than an incidental consequence of the proposed activities.

The Environment Agency must therefore be satisfied that:

- the extent of the waste facility has been properly defined;
- the waste will remain environmentally contained;
- the geological formation will remain stable;
- there will be no unacceptable migration of contaminants; and
- long-term environmental risks have been adequately assessed.

Where uncertainty remains regarding fracture extent, geological structures or the final dimensions of the waste facility, FFCC submits that these matters require careful scrutiny before a permit is granted.

² One historic Landfill Site (Old Scalby landfill site) has not been acknowledged by either the Developer or the Planning and regulatory authorities.

3.7 Protection of Human Health

The Environmental Permitting regime is concerned not only with protection of the natural environment but also with the protection of human health. Throughout the Draft Decision the Environment Agency concludes that the proposed activities will not give rise to significant pollution or harm to human health.

Those conclusions depend upon assessments of:

- emissions to air;
- groundwater protection;
- waste management;
- chemical storage;
- noise;
- odour;
- environmental monitoring; and
- operational controls.

FFCC does not dispute that these matters fall within the Agency's expertise. However, where important technical information remains outstanding, the evidential basis for those conclusions necessarily becomes less certain.

3.8 Public Participation and Transparent Decision-Making

Environmental permitting legislation places considerable emphasis upon public participation. Consultation is intended to ensure that regulators receive all relevant environmental information before determining an application. Meaningful consultation requires more than recording objections.

It requires that substantive technical evidence submitted by consultees is genuinely considered and, where rejected, accompanied by clear reasons explaining why the regulator has reached a different conclusion.

Public confidence in environmental regulation depends not only upon the quality of regulatory decisions but also upon the transparency of the reasoning supporting those decisions. This issue is considered in detail in Chapter 4.

3.9 The Precautionary Principle

The precautionary principle has long formed one of the guiding principles of environmental regulation. Its purpose is to ensure that scientific uncertainty does not result in avoidable environmental harm. Where credible uncertainty exists regarding potentially serious or irreversible environmental impacts, the absence of complete scientific certainty should not be used as a reason for proceeding without adequate safeguards.

The proposed activities involve:

- hydraulic stimulation of deep geological formations;
- permanent underground retention of extractive waste;
- handling of hazardous substances;
- emissions to air;
- protection of groundwater resources; and

- activities within an environmentally sensitive coastal location.

FFCC submits that where uncertainties remain regarding these matters, the precautionary principle supports obtaining the necessary information before granting a permit rather than relying upon future submissions to resolve outstanding questions.

3.10 The Burden of Proof

An important feature of environmental regulation is that the burden of demonstrating environmental acceptability rests upon the applicant. The Environment Agency's role is to evaluate the evidence submitted and determine whether the statutory tests have been satisfied.

Accordingly, uncertainty should not normally be resolved by assuming that future information will confirm the safety of the proposed activities. Instead, the applicant should provide sufficient evidence at the determination stage to demonstrate that the environmental risks have been adequately characterised and can be effectively controlled.

Where significant information remains outstanding, FFCC submits that the evidential threshold required for granting a permit has not yet been met.

3.11 The Legal Question Raised by this Draft Decision

Having examined the Draft Decision in detail, FFCC considers that a single question runs throughout the document:

Can the Environment Agency lawfully conclude that the statutory requirements for granting an Environmental Permit have been satisfied while simultaneously acknowledging that important environmental information has yet to be provided through future plans, further investigations and pre-operational conditions?

This is not simply a procedural issue. It goes to the heart of whether the statutory purpose of the Environmental Permitting regime has been fulfilled.

The remaining chapters examine that question by reference to the principal technical and regulatory issues arising from the Draft Decision.

3.12 Conclusion

The statutory framework governing environmental permitting requires the Environment Agency to be satisfied, on the basis of sufficient evidence, that the proposed activities can be undertaken without giving rise to unacceptable pollution or harm to human health.

FFCC submits that this standard has not yet been demonstrated. While the Draft Decision contains extensive technical analysis, it also acknowledges that significant information remains outstanding and that many important environmental safeguards will only be developed after the permit has been granted.

The chapters that follow explain why FFCC considers that this approach is inconsistent with the preventative purpose of the Environmental Permitting regime and why the application should not proceed to permit determination until the outstanding evidence has been obtained, independently assessed and, where appropriate, made available for further public consultation.

4. The Consultation Process and Failure to Properly Address Consultation Responses

4.1 Introduction

FFCC welcomes the public consultation undertaken by the Environment Agency in relation to the Cloughton-2 permit application.

The Agency received representations from statutory consultees, parish and town councils, local authorities, businesses, environmental organisations, community groups and a substantial number of individual members of the public. The volume and consistency of those responses demonstrate the exceptional public interest in this proposal and the significant environmental concerns it has generated.

The purpose of consultation is not merely to provide an opportunity for the public to express views. It is to assist the regulator by identifying matters that may materially affect its assessment of environmental risk and, where appropriate, lead to further investigation or changes to the proposed decision.

FFCC submits that, although the consultation process was extensive, the Draft Decision does not consistently demonstrate that the detailed technical evidence submitted by consultees has been individually evaluated or adequately addressed.

4.2 Consultation Must Be a Genuine Part of Decision-Making

Meaningful consultation is a fundamental component of environmental decision-making. Its purpose is to improve the quality of regulatory decisions by ensuring that the regulator has access to all relevant information before determining an application.

Where consultees identify inconsistencies within an application, highlight omissions in technical evidence, or provide information that calls into question aspects of the environmental assessment, those matters should be examined on their individual merits.

A regulator is not required to agree with every representation received. However, where concerns are rejected, the reasons for doing so should be clearly explained and supported by evidence. This is particularly important where the concerns relate to matters within the regulator's own statutory responsibilities.

4.3 A Consistent Pattern within the Draft Decision

Section 10 of the Draft Decision adopts a common approach to the majority of consultation responses. Individual submissions are summarised before being directed to a series of standardised "response boxes" dealing with broad topics such as groundwater, seismicity, air quality, human health, waste management and geological information.

In many cases the Agency states: "These comments are noted." or "To avoid repeated responses on similar matters, see Box..."

This approach undoubtedly reduces duplication within the Decision Document. However, it also has the effect of treating substantially different technical submissions as though they raised identical issues.

The consequence is that consultees who submitted detailed evidence often receive the same generic response as those who submitted much shorter or more general observations.

FFCC submits that this does not always demonstrate that the specific evidence submitted by individual consultees has been fully evaluated.

4.4 The Treatment of FFCC's Consultation Response

FFCC submitted detailed representations addressing numerous aspects of the permit application.

These included concerns regarding:

- geological uncertainty;
- fault mapping;
- the Hydraulic Fracturing Plan;
- groundwater protection;
- baseline environmental monitoring;
- the proposed underground mining waste facility;
- air quality assessment;
- the Waste Gas Management Plan;
- Best Available Techniques;
- inconsistencies between planning and permitting documents;
- environmental risk assessment; and
- the reliance upon future information.

The Draft Decision summarises these matters in only a relatively small number of paragraphs before referring almost every issue to generic responses elsewhere in the document. The Decision rarely explains why FFCC's specific technical reasoning is considered incorrect or why the evidence submitted is insufficient to alter the Agency's conclusions. Instead, many responses simply restate the Agency's existing assessment.

FFCC submits that this does not amount to a substantive engagement with the evidence presented.

4.5 The Consistency of Independent Consultation Responses

One of the most significant features of the consultation is the remarkable consistency of the concerns raised by different organisations.

Submissions from Newby and Scalby Town Council, Burniston Parish Council, Cloughton Parish Council, Green Farming Limited, West Newton Said No, Weald Action Group, FFCC and numerous members of the public repeatedly identified similar issues, including:

- uncertainty regarding geological fault structures;
- incomplete groundwater information;
- deficiencies in baseline monitoring;
- uncertainty concerning the underground mining waste facility;
- inadequacies in the Surface Water Management Plan;
- concerns regarding the Waste Gas Management Plan;
- questions concerning Best Available Techniques;
- shortcomings in air quality assessment;

- uncertainty regarding long-term environmental monitoring; and
- reliance upon information that had not yet been produced.

The consistency of these independently prepared submissions is itself significant. Rather than representing isolated objections, they reveal a broad consensus that important elements of the application remained incomplete.

FFCC submits that this consistent pattern of concern should have prompted closer regulatory scrutiny rather than largely uniform responses.

4.6 Reliance upon Future Information Does Not Answer Present Concerns

A recurring feature of the consultation responses is the Environment Agency's reliance upon information that will be provided at a later stage. In response to numerous concerns, the Draft Decision explains that further information will be supplied through:

- the Hydraulic Fracturing Plan;
- revised geological assessments;
- updated groundwater monitoring;
- the Surface Water Management Plan;
- the Waste Gas Management Plan;
- the Leak Detection and Repair Plan;
- additional operational procedures; and
- further environmental monitoring.

While these future submissions may ultimately improve the environmental controls applied to the site, they do not address the concern raised during consultation. The concern is that these documents were not available when the permit application was assessed.

Accordingly, consultees were unable to examine or comment upon information that the Environment Agency now considers important enough to require before operations commence.

4.7 Consultation on an Incomplete Application

The Draft Decision itself demonstrates that substantial elements of the operational and environmental assessment remain subject to further work. This raises an important procedural issue:

The public consultation was undertaken on the basis of the application as submitted. However, many of the documents now regarded as essential to environmental protection had not yet been prepared. Consequently, consultees were invited to comment upon an application that the Environment Agency subsequently concluded required significant additional information before operations could lawfully begin.

FFCC submits that this creates an inherent difficulty.

The public has been consulted on one version of the proposal, whereas the activities ultimately authorised may depend upon a series of revised documents that have never themselves been subject to public scrutiny.

4.8 The Difference Between Acknowledging and Addressing Concerns

Throughout Section 10, the Environment Agency frequently states that comments have been “noted”. There is, however, an important distinction between acknowledging that concerns have been raised and demonstrating why those concerns have been rejected.

For example, where consultees questioned:

- the adequacy of geological information;
- inconsistencies within the application;
- deficiencies in groundwater assessment; or
- the absence of baseline environmental data,

the Draft Decision often responds by confirming that additional work will be undertaken in future. This response implicitly accepts that further information is required. However, it does not explain why the absence of that information does not affect the present determination.

4.9 Public Confidence in Environmental Regulation

Environmental regulation depends upon public confidence as well as technical competence.

Where consultation responses identify legitimate technical issues, the reasoning adopted by the regulator should be sufficiently transparent to demonstrate that those issues have genuinely informed the decision-making process. The present Draft Decision undoubtedly contains substantial technical analysis.

Nevertheless, FFCC considers that the repeated use of generic responses, together with reliance upon future information, risks creating the impression that consultation has become primarily an administrative exercise rather than an integral component of environmental assessment.

Greater transparency in explaining why detailed technical objections have been rejected would strengthen confidence in both the permitting process and the eventual decision.

4.10 The Relationship Between Consultation and the Precautionary Principle

The consultation process revealed a number of recurring areas of scientific uncertainty.

These included:

- geological faulting;
- fracture propagation;
- groundwater protection;
- long-term waste containment;
- environmental monitoring; and
- operational controls.

The existence of these uncertainties should not automatically lead to refusal of a permit.

However, where independent consultees consistently identify areas requiring further evidence, the precautionary principle suggests that those uncertainties should be resolved before rather than after a permit is granted.

In FFCC's submission, the Draft Decision adopts the opposite approach by relying upon future submissions to address matters that were repeatedly identified during consultation.

4.11 Conclusion

FFCC recognises the considerable effort undertaken by the Environment Agency in conducting an extended consultation and reviewing a substantial volume of representations.

Nevertheless, the Draft Decision does not consistently demonstrate that the detailed technical evidence submitted by consultees has been individually evaluated or adequately answered. Instead, many responses rely upon generic explanations, repeated references to standardised response boxes and assurances that further information will be provided before operations commence. While this approach may simplify the presentation of the Decision Document, it does not fully address the central concern raised by many consultees: that important elements of the environmental assessment remain incomplete.

FFCC therefore submits that the consultation process has identified significant unresolved issues that merit further investigation before any final permit determination is made.

5. Reliance on Missing Information and Pre-operational Conditions

5.1 Introduction

One of the most significant features of the Draft Decision is the extent to which it relies upon information that is not currently available.

Throughout the Decision Document the Environment Agency concludes that the proposed activities satisfy the requirements of the Environmental Permitting (England and Wales) Regulations 2016 and that the risks to groundwater, surface water, air quality, geological integrity and human health are acceptable.

However, the same Decision Document repeatedly acknowledges that important technical information remains outstanding and will only be provided after the permit has been granted through a series of pre-operational conditions.

FFCC fully accepts that pre-operational conditions are a recognised feature of the Environmental Permitting regime and can be an appropriate mechanism for addressing operational matters before activities commence.

However, FFCC submits that they should not be used to defer matters that are fundamental to determining whether the statutory tests for granting a permit have been met.

5.2 The Purpose of Pre-operational Conditions

Pre-operational conditions exist to ensure that specified actions are completed before a permitted activity begins.

They are intended to deal with matters of implementation rather than to remedy fundamental deficiencies in an application. They should not be used to postpone the assessment of issues that are central to the Environment Agency's determination of environmental risk. Where information is essential to understanding the nature or significance of environmental impacts, that information should ordinarily be available before the permit decision is made.

Otherwise, the regulator is required to determine the application on the basis of assumptions rather than evidence.

5.3 An Unusually Large Number of Outstanding Matters

The Draft Decision identifies no fewer than **nine pre-operational measures**, several of which require the applicant to prepare entirely new or substantially revised technical documents.

These include requirements for:

- groundwater monitoring boreholes and baseline monitoring (PO01);
- an updated Waste Management Plan (PO02);
- an updated Environmental Risk Assessment (PO03);
- an updated Odour Management Plan (PO04);
- a new Leak Detection and Repair Plan (PO05);
- an updated Surface Water Management Plan (PO06);
- a future Waste Gas Management Plan review (PO07);
- a Hydraulic Fracturing Plan (PO08); and
- confirmation of the final dimensions of the underground mining waste facility (PO09).

Individually, these requirements are significant.

Collectively, they indicate that substantial elements of the environmental assessment remain incomplete.

5.4 Fundamental Information Remains Outstanding

Many of the documents required under the pre-operational conditions are not peripheral operational details. They relate directly to the principal environmental risks associated with the proposal.

For example:

- the Hydraulic Fracturing Plan addresses fault mapping, fracture propagation, induced seismicity and monitoring;
- groundwater monitoring establishes baseline environmental conditions against which future contamination may be assessed;
- the Surface Water Management Plan addresses containment, drainage and pollution prevention;

- the Waste Gas Management Plan concerns emissions control, methane management and Best Available Techniques;
- the Environmental Risk Assessment is intended to incorporate revised operational procedures;
- the Leak Detection and Repair Plan is designed to identify and minimise fugitive emissions.

Each of these documents informs the assessment of whether the proposed activities are environmentally acceptable. Their absence therefore raises an important question.

How can the Environment Agency conclude that environmental risks have already been adequately assessed when much of the evidence required to support that conclusion has yet to be produced?

5.5 Reliance upon Future Assurances

Throughout the consultation responses, the Environment Agency frequently responds to technical objections by explaining that additional information will be supplied before operations commence.

Examples include:

- fault mapping will be provided through the Hydraulic Fracturing Plan;
- groundwater uncertainties will be addressed through additional investigations;
- surface water controls will be revised;
- waste gas management will be updated;
- operational procedures will be amended;
- further environmental monitoring will be introduced.

While these commitments may ultimately improve environmental protection, they do not answer the fundamental question raised during the permit determination.

The issue is not whether further information may become available in future.

The issue is whether sufficient information exists now to justify granting the permit.

5.6 Baseline Groundwater Monitoring

One of the clearest examples concerns groundwater monitoring.

The Draft Decision requires monitoring boreholes to be installed and baseline groundwater data to be collected before groundwater activities commence. FFCC supports the collection of baseline environmental information.

However, the need for this pre-operational condition demonstrates that such information was not available when the permit application was determined. Baseline monitoring is not merely a compliance exercise. It provides the essential reference point against which future changes can be measured.

Without reliable baseline information:

- contamination may be difficult to identify;
- pollution pathways may be more difficult to understand;

- responsibility for any future contamination may be harder to establish; and
- regulatory enforcement may become more complicated.

If baseline data is sufficiently important to require a dedicated pre-operational condition, FFCC submits that it is also sufficiently important to inform the permit determination itself.

5.7 The Hydraulic Fracturing Plan

Perhaps the most significant omission is the absence of the Hydraulic Fracturing Plan.

The Draft Decision confirms that this future document will include:

- geological fault mapping;
- assessment of formation stresses;
- historical seismicity;
- pumping pressures and injection volumes;
- fracture propagation assessment;
- monitoring proposals;
- reporting arrangements; and
- contingency measures should fractures extend beyond the intended area.

These are not matters of routine operational detail. They are central to understanding the environmental consequences of the proposed stimulation activities. The Environment Agency itself acknowledges that detailed geological information cannot be confirmed until drilling has taken place.

FFCC therefore submits that the Draft Decision reaches conclusions regarding geological risk before the evidence necessary to support those conclusions has been obtained.

This issue is considered further in Chapter 6.

5.8 Best Available Techniques Cannot Be Demonstrated Retrospectively

The Draft Decision repeatedly concludes that Best Available Techniques (BAT) will be achieved. However, several of the documents intended to demonstrate BAT have yet to be produced.

For example:

- the revised Waste Gas Management Plan;
- updated environmental operating procedures;
- revised odour controls;
- leak detection procedures; and
- revised surface water controls.

BAT is a legal requirement that informs the decision whether a permit should be granted. It is not something that should be demonstrated retrospectively after approval has already been given.

FFCC submits that the Environment Agency should be satisfied that BAT has been demonstrated before issuing a permit rather than relying upon future revisions to operational documents.

5.9 Regulatory Conditions Cannot Replace Evidence

Throughout the Draft Decision there appears to be an assumption that uncertainty can be resolved through permit conditions.

FFCC submits that there is an important distinction between controlling an identified risk and compensating for an absence of evidence. Permit conditions are valuable regulatory tools. They can require operators to monitor emissions, report results, inspect equipment and comply with approved procedures.

However, they cannot replace the evidence necessary to establish whether an activity is environmentally acceptable in the first place.

For example:

- a monitoring condition cannot substitute for missing baseline information;
- an operational procedure cannot replace geological understanding;
- a reporting obligation cannot compensate for an incomplete environmental assessment;
- a future management plan cannot establish that current proposals satisfy BAT.

Conditions regulate activities. They do not remove uncertainty arising from incomplete evidence.

5.10 The Effect upon Public Participation

The reliance upon pre-operational conditions also has implications for public participation. Many of the documents that consultees repeatedly requested during the consultation process have still not been produced.

As a consequence:

- the Hydraulic Fracturing Plan has not been available for public examination;
- revised groundwater assessments have not been consulted upon;
- revised Waste Gas Management proposals have not been scrutinised;
- updated Surface Water Management arrangements have not been reviewed by consultees.

Members of the public have therefore been asked to comment on an application that the Environment Agency itself subsequently concluded required substantial further information.

FFCC submits that this undermines the transparency of the permitting process.

5.11 The Precautionary Principle

The Draft Decision recognises that uncertainties remain in relation to geology, groundwater monitoring, operational procedures and environmental management.

Rather than delaying determination until those uncertainties have been resolved, the Decision proposes to rely upon future submissions by the operator.

FFCC submits that this approach is difficult to reconcile with the precautionary principle.

Where significant uncertainty remains regarding activities involving:

- hydraulic stimulation of geological formations;
- permanent underground retention of extractive waste;
- hazardous substances;
- groundwater protection; and
- emissions to air,

the appropriate regulatory response is to require the necessary information before determining the application.

5.12 Conclusion

The extensive use of pre-operational conditions throughout the Draft Decision demonstrates that important aspects of the environmental assessment remain incomplete.

While FFCC accepts that pre-operational conditions are an established feature of environmental permitting, they should not be used to defer matters that are fundamental to determining whether the statutory requirements for granting a permit have been satisfied.

The Environment Agency has concluded that the proposed activities are environmentally acceptable whilst simultaneously requiring the applicant to provide significant additional geological, hydrogeological, operational and environmental information before those activities can begin.

FFCC submits that this reverses the normal sequence of environmental regulation. The applicant should demonstrate, before a permit is granted, that the proposed activities satisfy the statutory tests. The role of permit conditions is to regulate approved activities, not to provide the evidence upon which approval itself depends.

Accordingly, FFCC submits that the permit should not be granted until the outstanding information required by the pre-operational conditions has been provided, independently assessed and, where appropriate, made available for public consultation.

The Agency repeatedly concludes that geological risks are acceptable whilst simultaneously acknowledging that it **does not yet know**:

- the precise geological structure;
- the location of faults near the well;
- whether faults may be reactivated;
- the actual depths of the target formations;
- the true extent of fracture propagation; or
- the final dimensions of the underground mining waste facility.

Those matters all depend upon a **Hydraulic Fracturing Plan (HFP) that has not yet been prepared**.

6. Geological Uncertainty, Fault Mapping and the Hydraulic Fracturing Plan

6.1 Introduction

The proposed proppant squeeze operations involve the deliberate injection of fluid into deep geological formations at pressures sufficient to create or extend fractures within the target reservoir.

Although the Environment Agency concludes that the proposed operations present a low environmental risk, the Draft Decision repeatedly acknowledges that important geological information remains unavailable and will only become available following drilling and the preparation of a future Hydraulic Fracturing Plan (HFP). FFCC submits that this creates one of the most significant evidential weaknesses within the Draft Decision.

The Agency has concluded that geological risks are acceptable whilst accepting that much of the information necessary to reach that conclusion has yet to be obtained.

6.2 Geological Understanding is Fundamental to Environmental Protection

Unlike many industrial activities, the principal environmental risks associated with well stimulation occur below ground.

The ability to assess those risks depends upon an accurate understanding of:

- geological formations;
- structural geology;
- natural faults;
- fracture networks;
- formation stresses;
- hydraulic connectivity;
- groundwater pathways; and
- the behaviour of injected fluids.

These matters are not secondary engineering considerations. They determine whether injected fluids remain confined within the intended formation or whether pathways exist that could permit unexpected migration.

Accordingly, geological characterisation is central to the Environment Agency's statutory responsibility to protect groundwater and prevent pollution.

6.3 The Environment Agency Acknowledges that Important Geological Information is Missing

The Draft Decision expressly recognises that detailed geological information is currently unavailable.

In explaining the need for **Pre-operational Condition PO08**, the Environment Agency states that site-specific information concerning faults and fractures is absent because this is a new wellsite and no detailed 3D seismic survey extends across the site.

The Decision goes on to acknowledge that:

- the precise depth of geological formations cannot presently be confirmed;
- local faults and fractures must be verified during drilling;
- geological information will only become available after drilling;
- the conceptual geological model may require verification; and
- a Hydraulic Fracturing Plan must subsequently be prepared before stimulation activities are authorised.

These statements are important. They demonstrate that the Agency itself accepts that significant geological uncertainties remain.

6.4 Reliance upon Regional Geological Information

The Draft Decision explains that, in the absence of detailed site-specific geological information, reliance has been placed upon:

- regional two-dimensional seismic surveys;
- a three-dimensional survey undertaken elsewhere;
- geological interpretation; and
- experience obtained from the Cloughton-1 exploration well.

FFCC does not dispute that these sources provide valuable regional information. However, regional geological interpretation cannot necessarily predict the detailed structural geology immediately surrounding a new borehole.

By definition, local geological structures may differ from broader regional models. Indeed, the Environment Agency itself recognises this by requiring verification during drilling.

If verification remains necessary before stimulation activities can commence, FFCC submits that it is difficult to conclude that geological risks have already been fully characterised.

6.5 Fault Mapping is Central to the Environmental Assessment

The future Hydraulic Fracturing Plan is required to include:

- maps showing faults near the well and along the well path;
- assessments of formation stresses;
- evaluation of the likelihood of fault reactivation;
- anticipated fracture geometry;
- monitoring arrangements; and
- contingency measures if fractures extend beyond the intended zone.

These are not matters of routine operational detail. They form the principal evidence upon which environmental risk is assessed.

Faults may influence:

- fracture propagation;
- fluid migration;
- pressure transmission;
- hydraulic connectivity;

- well integrity; and
- groundwater protection.

The absence of confirmed fault mapping at the time of determination therefore represents a significant evidential limitation.

6.6 The Hydraulic Fracturing Plan is not an Administrative Document

Throughout the Draft Decision, the Hydraulic Fracturing Plan is treated as a future regulatory requirement. FFCC submits that this understates its significance.

The HFP is the document that will ultimately describe:

- the geological model;
- fracture design;
- injection pressures;
- stimulation stages;
- monitoring methodology;
- induced seismicity assessment;
- fracture containment measures; and
- post-operation reporting.

In effect, it is the principal technical document explaining how the stimulation operation will actually be undertaken. It is therefore difficult to regard it as merely an operational document. Rather, it forms an essential part of the environmental assessment itself.

6.7 The Sequence of Decision-Making

The Draft Decision adopts the following sequence:

1. conclude that geological risks are acceptable;
2. grant the permit;
3. require drilling;
4. obtain site-specific geological information;
5. prepare the Hydraulic Fracturing Plan;
6. verify the geological model;
7. approve the stimulation programme.

FFCC submits that this sequence is the reverse of what would ordinarily be expected.

A more precautionary approach would be:

1. obtain site-specific geological information;
2. verify the geological model;
3. prepare the Hydraulic Fracturing Plan;
4. assess the environmental implications;
5. determine whether the statutory tests are satisfied;
6. decide whether to grant the permit.

The current approach effectively requires the Environment Agency to conclude that the activity is environmentally acceptable before all the relevant geological evidence has been obtained.

6.8 Fracture Propagation

One of the principal environmental safeguards relied upon by the Environment Agency is that induced fractures will remain confined within the intended geological formation. However, the Draft Decision also acknowledges that the actual extent of fractures cannot be confirmed until the operations have been undertaken.

The future Hydraulic Fracturing Plan is therefore required to include:

- methods for determining fracture height;
- methods for determining fracture length;
- monitoring arrangements;
- reporting procedures; and
- actions to be taken should fractures extend beyond the intended zone.

These requirements demonstrate that fracture behaviour remains uncertain. FFCC accepts that predictive modelling is an important engineering tool.

However, where the actual behaviour of induced fractures remains to be confirmed, it is difficult to regard fracture containment as an established fact rather than an assumption requiring verification.

6.9 Relationship to the Underground Mining Waste Facility

The geological uncertainties also have direct implications for the proposed underground mining waste facility.

The extent of that facility depends upon:

- the location of induced fractures;
- the volume of retained stimulation fluid;
- fracture propagation;
- geological containment; and
- hydraulic connectivity.

The Draft Decision itself requires confirmation of the final dimensions of the mining waste facility after drilling. Accordingly, the Environment Agency presently proposes to approve a waste facility whose precise dimensions have not yet been established.

FFCC submits that this illustrates the broader concern identified throughout this submission: namely, that important environmental information is being deferred until after the permit decision.

6.10 Seismicity

The Draft Decision states that induced seismicity falls primarily within the regulatory responsibilities of the North Sea Transition Authority (NSTA).

FFCC accepts that the NSTA has responsibility for regulating induced seismicity.

However, geological faulting is relevant to more than seismic risk.

Faults may also influence:

- groundwater pathways;
- fracture propagation;
- containment of stimulation fluids;
- migration of extractive waste; and
- long-term environmental integrity.

These matters fall directly within the Environment Agency's statutory responsibilities. Accordingly, the existence of another regulator does not remove the need for the Environment Agency to possess sufficient geological information to discharge its own statutory duties.

6.11 The Precautionary Principle

The Draft Decision accepts that:

- important geological information remains outstanding;
- site-specific fault mapping has yet to be completed;
- geological interpretation requires verification;
- fracture behaviour will be confirmed later;
- the Hydraulic Fracturing Plan has not yet been prepared.

Taken together, these matters demonstrate continuing scientific uncertainty.

The precautionary principle does not require absolute certainty before regulatory decisions are made. However, where uncertainties relate directly to groundwater protection, underground waste containment and geological integrity, they should ordinarily favour obtaining further evidence before rather than after granting permission.

FFCC submits that the Draft Decision adopts the opposite approach.

6.12 Conclusion

The Environment Agency has undertaken a detailed assessment of the geological information currently available.

Nevertheless, the Draft Decision repeatedly acknowledges that important aspects of the geological model remain uncertain and will only be confirmed following drilling and the preparation of a future Hydraulic Fracturing Plan.

FFCC submits that fault mapping, geological verification, fracture propagation and the final configuration of the underground mining waste facility are not matters of routine operational detail.

They are fundamental components of the environmental assessment upon which the permit determination depends. Accordingly, FFCC considers that the evidential basis for concluding that geological risks have been adequately characterised remains incomplete.

The Environment Agency should therefore require the outstanding geological information to be obtained, independently assessed and incorporated into a completed Hydraulic Fracturing Plan before determining whether the statutory tests for granting an Environmental Permit have been satisfied.

7. Groundwater, Surface Water and Protection of Controlled Waters

7.1 Introduction

The protection of groundwater and controlled waters is one of the principal statutory responsibilities of the Environment Agency under the Environmental Permitting (England and Wales) Regulations 2016 (“the EPR”), Schedule 22 to the EPR, the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, the Groundwater Directive, and the Environment Act 1995.

The proposed activities at the Cloughton-2 Wellsite involve drilling, hydraulic stimulation of deep geological formations, storage and handling of hazardous substances, management of extractive waste, retention of significant volumes of stimulation fluid underground and the generation of contaminated flowback fluids. Each of these activities has the potential, if not properly understood and controlled, to affect groundwater, surface water and other controlled waters.

The Environment Agency concludes throughout the Draft Decision Document that these risks are acceptable and that groundwater will be adequately protected. However, FFCC submits that those conclusions are not fully supported by the evidence currently available.

Instead, the Draft Decision repeatedly acknowledges uncertainties regarding groundwater conditions, hydrogeology and monitoring, whilst proposing to resolve those uncertainties through future investigations and pre-operational conditions after the permit has already been issued.

FFCC submits that this approach is inconsistent with the preventative purpose of environmental permitting.

7.2 The Statutory Duty to Protect Groundwater

Groundwater protection occupies a special position within environmental legislation.

Unlike many forms of pollution control, groundwater contamination may remain undetected for years and, once contamination has occurred, remediation is frequently technically difficult, prohibitively expensive or impossible.

For this reason the Environmental Permitting regime is designed to prevent pollution before it occurs rather than respond after damage has been caused.

Schedule 22 of the Environmental Permitting Regulations requires the Environment Agency to ensure that:

- hazardous substances are prevented from entering groundwater;
- non-hazardous pollutants are strictly controlled;
- groundwater quality objectives are protected;
- deterioration of groundwater status is prevented.

Similarly, the Water Framework Directive requires decision-makers to prevent deterioration in the status of groundwater bodies and to protect existing and future

drinking water resources. These obligations require more than confidence that risks can probably be managed. They require sufficient evidence to demonstrate that pollution pathways have been adequately understood before authorisation is granted.

7.3 Incomplete Hydrogeological Information

One of the most significant concerns arising from the Draft Decision is the Environment Agency's acknowledgement that additional groundwater information remains outstanding.

The Decision confirms that pre-operational conditions will require:

- installation of groundwater monitoring boreholes;
- collection of baseline groundwater information;
- further hydrogeological investigations;
- additional groundwater monitoring before operations commence.

These requirements demonstrate that the Agency accepts that important hydrogeological information is presently unavailable. FFCC submits that this raises an obvious question:

If additional investigations are necessary before operations may lawfully commence, why is the permit capable of being granted before those investigations have taken place?

The need for further investigation suggests that the existing Hydrogeological Risk Assessment has not completely characterised the groundwater environment surrounding the site. That uncertainty should be resolved before the permit is determined rather than afterwards.

7.4 Baseline Groundwater Monitoring

The Environment Agency places considerable reliance upon future groundwater monitoring.

However, monitoring and baseline assessment are not the same. Monitoring is intended to identify future changes. Baseline assessment establishes existing environmental conditions against which future changes may be measured.

Without comprehensive baseline information:

- deterioration may not be capable of reliable identification;
- pollution events may be difficult to attribute;
- regulatory enforcement becomes more difficult;
- restoration objectives become uncertain.

The Draft Decision confirms that additional baseline groundwater information will only be collected after the permit has been granted.

FFCC submits that this reverses the normal sequence of environmental assessment. Baseline information should inform the permit decision itself. It should not become part of the permit implementation process.

7.5 The Hydrogeological Risk Assessment

The Environment Agency states that it has reviewed the Hydrogeological Risk Assessment submitted by the operator and is satisfied that risks to groundwater are acceptable.

However, the Draft Decision simultaneously recognises continuing uncertainty regarding:

- geological structures;
- groundwater pathways;
- fault mapping;
- target horizon depths;
- groundwater monitoring.

Those matters are directly relevant to the conclusions reached within the Hydrogeological Risk Assessment. A hydrogeological model is only as reliable as the geological information upon which it is based. Where geological uncertainty remains—as discussed in Chapter 6—the reliability of the hydrogeological assessment must inevitably be affected.

FFCC therefore submits that the Agency has expressed greater confidence in the Hydrogeological Risk Assessment than the available evidence presently justifies.

7.6 Retained Stimulation Fluid

The Draft Decision accepts that approximately 50–70% of the injected stimulation fluid will remain permanently within the geological formation.

The Agency concludes that the retained fluid presents negligible environmental risk because pressure dissipates following stimulation and residual fluids are expected to remain hydraulically isolated.

While this conclusion may ultimately prove correct, it remains dependent upon assumptions concerning:

- fracture geometry;
- geological continuity;
- fault behaviour;
- permeability;
- long-term groundwater pathways.

Many of these matters remain incompletely characterised. Indeed, the Draft Decision itself acknowledges that further geological information and a Hydraulic Fracturing Plan remain outstanding.

Accordingly, FFCC submits that confidence regarding the long-term behaviour of retained stimulation fluids is presently greater than the available evidence fully supports.

7.7 Groundwater Pathways and Geological Uncertainty

Environmental risk depends not simply upon the presence of hazardous substances but upon the existence of credible pathways between pollution sources and environmental receptors.

The Draft Decision repeatedly states that groundwater pathways are adequately understood.

However, elsewhere it requires:

- additional geological assessment;
- confirmation of fault mapping;
- updated geological interpretation;
- further hydrogeological investigations.

These requirements indicate that important uncertainties remain regarding subsurface conditions. Where geological structures have not yet been fully characterised, confidence regarding groundwater pathways should necessarily be more cautious.

FFCC submits that the Environment Agency has underestimated the implications of those uncertainties.

7.8 Surface Water Protection

Surface water protection forms an equally important part of the permitting assessment.

The proposed operations involve:

- chemical storage;
- drilling fluids;
- produced water;
- flowback fluids;
- fuel storage;
- vehicle movements;
- waste storage;
- rainfall management across a heavily engineered site.

The Environment Agency relies heavily upon:

- impermeable HDPE membranes;
- perimeter drainage ditches;
- tanker removal of contaminated water;
- routine inspection;
- spill response procedures.

FFCC recognises that these represent important pollution prevention measures. However, the Draft Decision also requires an updated Surface Water Management Plan through pre-operational condition PO06. This requirement demonstrates that the existing Surface Water Management Plan was not considered sufficiently complete.

If further revisions are necessary before operations may begin, FFCC submits that the Agency cannot simultaneously conclude that the current assessment fully demonstrates environmental acceptability.

7.9 Pollution Prevention Measures

The Draft Decision describes a comprehensive range of pollution prevention measures including:

- impermeable site membranes;
- secondary containment;
- bunded storage;
- spill kits;
- drainage controls;
- routine inspections;
- emergency response procedures.

FFCC does not dispute the value of these controls. However, pollution prevention measures reduce risk; they do not eliminate uncertainty.

Effective regulation requires both:

- robust engineering controls; and
- a complete understanding of the environmental system being protected.

Where geological understanding remains incomplete, engineering controls alone cannot provide complete assurance regarding long-term groundwater protection.

7.10 Drinking Water Resources

The Draft Decision concludes that drinking water supplies are not at risk.

This conclusion is significant. Public confidence in groundwater protection depends upon the robustness of the evidence supporting such statements.

FFCC submits that where:

- additional groundwater investigations remain outstanding;
- baseline monitoring has not yet been completed;
- geological uncertainty persists;
- fracture behaviour remains subject to future assessment,

the conclusion that drinking water resources are fully protected should be expressed with greater caution. Environmental confidence should arise from complete evidence rather than assumptions that future investigations will confirm present expectations.

7.11 Controlled Waters and the Precautionary Principle

Controlled waters include groundwater, inland waters and other protected water bodies.

The legal framework governing environmental permitting adopts a preventative approach because contamination of controlled waters frequently has irreversible consequences. The precautionary principle therefore assumes particular importance.

Where uncertainty remains regarding:

- groundwater pathways;
- fracture propagation;
- retained stimulation fluids;
- hydrogeological characterisation;
- long-term monitoring,

the appropriate regulatory response is not to postpone investigation through permit conditions but to require that uncertainty be resolved before authorisation is granted.

FFCC submits that the Draft Decision does not adequately reflect this precautionary approach.

7.12 Overall Assessment

Taken individually, each outstanding groundwater issue might be regarded as manageable.

Taken collectively, however, they demonstrate that significant elements of the groundwater assessment remain incomplete.

These include:

- incomplete baseline monitoring;
- further hydrogeological investigations;
- outstanding geological assessment;
- future fault mapping;
- revised Surface Water Management Plan;
- future Hydraulic Fracturing Plan.

The cumulative effect is that the Environment Agency has concluded that groundwater risks are acceptable while simultaneously acknowledging that essential evidence remains to be gathered.

FFCC submits that this approach places too much reliance upon future regulatory controls and insufficient emphasis upon the evidential requirements that should be satisfied before a permit is granted.

7.13 Conclusions

FFCC submits that the Draft Decision has not yet demonstrated, on the evidence currently available, that the statutory obligations relating to the protection of groundwater and controlled waters have been fully satisfied.

While the Environment Agency has proposed a range of engineering controls, monitoring requirements and pre-operational conditions, these measures cannot compensate for the absence of fundamental environmental information at the point of determination.

In particular, the Draft Decision acknowledges that further groundwater investigations, baseline monitoring, geological assessment and revisions to the Surface Water Management Plan remain necessary before operations can commence. These are not matters of operational refinement; they are central to understanding whether the proposed activities present an acceptable environmental risk.

FFCC therefore submits that the precautionary and preventative objectives of the Environmental Permitting regime require these outstanding matters to be resolved before any environmental permit is issued.

7.14 Key Findings – Chapter 7

- The Environment Agency accepts that further hydrogeological investigations and baseline groundwater monitoring are still required.
- Important geological uncertainties remain that directly affect confidence in groundwater risk assessment.
- The Surface Water Management Plan is acknowledged to require further revision through a pre-operational condition.
- The assessment of retained stimulation fluids depends upon assumptions that have not yet been fully verified.
- The Draft Decision relies upon future monitoring and future information rather than a complete environmental assessment at the point of determination.

FFCC's conclusion: The Environment Agency has not yet demonstrated, on the evidence currently available, that the statutory test for protecting groundwater and controlled waters has been fully satisfied. The permit should not be granted until the outstanding hydrogeological information, baseline monitoring and surface water management arrangements have been completed, independently assessed and, where appropriate, subjected to further public scrutiny.

8. The Underground Mining Waste Facility and Long-Term Waste Management

8.1 Introduction

One of the most significant aspects of the proposed Cloughton-2 development is the creation of a permanent underground mining waste facility resulting from the proposed low-volume hydraulic stimulation (proppant squeeze³) operations.

The Environment Agency accepts that between approximately 50% and 70% of the injected proppant carrier fluid will remain permanently within the geological formation following completion of the stimulation programme. As a consequence, the target formation is classified as a mining waste facility under Schedule 20 of the Environmental Permitting (England and Wales) Regulations 2016.

The Draft Decision concludes that this waste facility presents no significant environmental risk and that the retained fluids will remain hydraulically isolated within the target formation. FFCC submits that this conclusion has been reached prematurely and before all of the information necessary to support such a conclusion has been obtained.

The long-term management of extractive waste is not a minor operational issue. It lies at the heart of the Environmental Permitting regime and requires a robust understanding of geology, hydrogeology, fracture behaviour, containment mechanisms and long-term environmental performance. In FFCC's view, the evidence presently available does not yet justify the confidence expressed by the Environment Agency.

³ FFCC agrees with the written opinion of Estelle Dehon KC that the process described as a proppant squeeze is hydraulic fracturing.

8.2 Classification as a Mining Waste Facility

The Draft Decision correctly recognises that the proposed activity gives rise to a mining waste facility because a substantial proportion of the injected stimulation fluid will remain underground after completion of operations.

The Environment Agency explains that:

- approximately 30–50% of the injected fluid is expected to return to the surface;
- approximately 50–70% will remain within the stimulated formation;
- the retained proppant carrier fluid therefore constitutes extractive waste;
- the stimulated formation consequently becomes a mining waste facility under Schedule 20 of the EPR.

This represents a significant regulatory conclusion. Unlike temporary waste storage, the proposed facility is intended to retain waste permanently within the geological formation, potentially for many decades or longer. The decision therefore authorises not merely an exploratory drilling activity but the long-term disposal of extractive waste beneath the ground.

Such an authorisation requires a particularly high degree of confidence regarding long-term environmental protection.

8.3 Long-Term Behaviour of Retained Waste

The Environment Agency concludes that retained stimulation fluids present little environmental risk because:

- pressure dissipates following stimulation;
- remaining fluids have no continuing driving force;
- fluids are expected to remain within the target formation;
- geological isolation prevents migration.

While these assumptions may ultimately prove correct, they remain dependent upon a number of important factors that have not yet been fully characterised.

These include:

- the true geometry of induced fractures;
- the extent of fracture propagation;
- the location and nature of nearby faults;
- long-term permeability changes;
- natural pressure variations;
- the hydraulic properties of surrounding formations.

Indeed, the Draft Decision itself requires further geological assessment and a Hydraulic Fracturing Plan before operations may commence.

FFCC submits that where the long-term environmental safety of a permanent waste facility depends upon geological information that has yet to be provided, the permit determination is necessarily premature.

8.4 Uncertainty Regarding the Extent of the Waste Facility

One of the more striking passages within the Draft Decision acknowledges that the final dimensions of the underground mining waste facility have not yet been confirmed.

The Decision states that the dimensions currently provided are **indicative** and that the final extent of the facility will be specified through permit controls at a later stage. This gives rise to an important concern:

The size, geometry and extent of a waste facility are fundamental characteristics that influence:

- environmental risk;
- monitoring requirements;
- groundwater assessment;
- geological containment;
- long-term liability.

FFCC submits that these characteristics should be known before a permit is granted rather than determined afterwards. A permit cannot properly authorise a waste facility whose final dimensions remain uncertain.

8.5 Dependence upon the Hydraulic Fracturing Plan

The Environment Agency relies heavily upon the future Hydraulic Fracturing Plan to demonstrate that fracture propagation will remain within acceptable limits. However, the Hydraulic Fracturing Plan has not yet been produced.

Consequently, the Environment Agency has not yet assessed:

- final fracture dimensions;
- verified fracture modelling;
- actual pumping pressures;
- confirmed fault interactions;
- operational fracture monitoring.

Yet these matters directly determine the ultimate size and behaviour of the mining waste facility. FFCC submits that the environmental acceptability of the waste facility cannot be separated from the information that will ultimately appear within the Hydraulic Fracturing Plan.

Until that information has been assessed, the long-term environmental behaviour of the waste facility remains uncertain.

8.6 Waste Management Throughout the Facility's Lifetime

The Mining Waste Directive requires waste facilities to be managed throughout their entire lifecycle.

This includes:

- operation;
- monitoring;

- closure;
- aftercare;
- prevention of pollution;
- protection of groundwater.

The Draft Decision largely concentrates upon the operational phase of the proposed activities. Less attention is given to the very long-term behaviour of the retained stimulation fluids after completion of operations.

The retained waste will remain underground long after:

- drilling has ceased;
- monitoring programmes have ended;
- equipment has been removed;
- commercial operations have concluded.

FFCC submits that greater consideration should be given to the long-term environmental performance of the waste facility over timescales extending well beyond the operational life of the well.

8.7 Reliance upon Waste Management Plans

The Environment Agency concludes that the Waste Management Plan is satisfactory, while simultaneously requiring additional clarification through pre-operational conditions.

Again, this illustrates a recurring theme throughout the Draft Decision. Where clarification remains necessary before activities may commence, the underlying assessment cannot reasonably be regarded as complete.

Waste management documentation should demonstrate:

- the nature of the waste;
- quantities;
- environmental risks;
- monitoring arrangements;
- contingency measures;
- closure proposals.

Where material elements remain subject to future clarification, FFCC submits that the evidential basis for permit determination remains incomplete.

8.8 Naturally Occurring Radioactive Material (NORM)

The Draft Decision recognises that produced water and flowback fluids may contain Naturally Occurring Radioactive Material (NORM).

The Environment Agency explains that:

- samples will be analysed;
- radioactive content will determine disposal routes;
- specialist permitted facilities will receive radioactive waste where necessary.

FFCC recognises that radioactive waste management is regulated under separate legislation. Nevertheless, the presence of potential NORM reinforces the need for a robust and precautionary approach to waste management.

The long-term environmental assessment of the underground waste facility should consider not only the injected stimulation fluids but the broader interaction between retained materials, formation water and naturally occurring contaminants.

8.9 Monitoring and Long-Term Verification

The Environment Agency places considerable reliance upon future monitoring. Monitoring undoubtedly provides an important safeguard. However, monitoring cannot itself demonstrate that the waste facility will remain environmentally secure over the very long term.

Effective monitoring depends upon:

- clearly defined monitoring objectives;
- established baseline conditions;
- appropriate monitoring locations;
- sufficient duration;
- reliable interpretation of results.

Several of these matters remain subject to future approval through pre-operational conditions. FFCC therefore submits that the proposed monitoring arrangements cannot presently provide complete assurance regarding the long-term environmental performance of the underground waste facility.

8.10 The Precautionary Principle

Permanent underground disposal of extractive waste is inherently different from temporary operational activities.

Once stimulation has taken place and waste has been left underground, the process cannot realistically be reversed. Accordingly, regulatory decisions authorising permanent waste disposal require a particularly cautious approach.

The precautionary principle is especially relevant where uncertainties remain regarding:

- geological containment;
- fracture propagation;
- fault interactions;
- groundwater pathways;
- long-term waste behaviour.

Rather than relying upon future operational information, the precautionary principle requires those uncertainties to be resolved before irreversible activities are authorised.

8.11 Overall Assessment

The Draft Decision concludes that the underground mining waste facility will not result in significant environmental harm.

FFCC submits that this conclusion depends upon several assumptions that have not yet been fully demonstrated.

These include assumptions concerning:

- geological isolation;
- fracture containment;
- long-term fluid behaviour;
- hydraulic connectivity;
- groundwater protection;
- final facility dimensions.

The Environment Agency has accepted that additional geological information, monitoring and operational documentation remain outstanding.

Taken together, these outstanding matters demonstrate that the environmental assessment of the proposed waste facility is not yet complete.

8.12 Conclusions

The proposed underground mining waste facility represents one of the most significant environmental consequences of the Cloughton-2 proposal. It will authorise the permanent retention of substantial volumes of extractive waste within deep geological formations, with potential implications extending far beyond the operational life of the well.

FFCC does not dispute that the Environmental Permitting regime allows for the regulation of mining waste facilities. However, before such a facility can lawfully be authorised, the Environment Agency must be satisfied, on the basis of complete and robust evidence, that the waste will remain permanently contained, that there are no unacceptable pathways to groundwater or other environmental receptors, and that the long-term environmental performance of the facility has been adequately characterised.

The Draft Decision itself demonstrates that important elements of that assessment remain incomplete. The final extent of the waste facility has not yet been confirmed, the Hydraulic Fracturing Plan has not yet been submitted, additional geological information remains outstanding, and further operational controls will be required before activities can commence.

In these circumstances, FFCC submits that the statutory test for granting an environmental permit has not yet been met. The Environment Agency should require the outstanding information to be provided, independently assessed and, where appropriate, subjected to further public consultation before any permit is issued.

8.13 Key Findings – Chapter 8

- The proposal authorises the creation of a permanent underground mining waste facility through the long-term retention of 50–70% of injected stimulation fluid.
- The Environment Agency accepts that the final dimensions and characteristics of the waste facility have not yet been confirmed.
- Long-term environmental safety depends upon geological information and fracture behaviour that remain subject to future assessment.

- The Waste Management Plan and related documentation continue to require clarification through pre-operational conditions.
- The environmental assessment relies upon assumptions regarding long-term containment that have not yet been fully verified.

FFCC's conclusion: The Environment Agency has not yet demonstrated, on the evidence currently available, that the proposed underground mining waste facility satisfies the high standard of environmental protection required by the Environmental Permitting regime. The permit should not be granted until the long-term characteristics and environmental performance of the waste facility have been fully established and independently assessed.

9. Air Quality, Emissions, Flaring and Best Available Techniques

9.1 Introduction

The proposed Cloughton-2 wellsite includes activities that will give rise to emissions to air during drilling, well clean-up, extended well testing and the management of waste gas. These emissions include combustion products from flaring together with volatile organic compounds (VOCs), methane, oxides of nitrogen, carbon monoxide and other pollutants associated with hydrocarbon production.

Throughout the Draft Decision Document, the Environment Agency concludes that these emissions can be adequately controlled through the application of Best Available Techniques (BAT), permit conditions and monitoring requirements. It further concludes that the proposed shrouded flare, together with the Waste Gas Management Plan, is capable of ensuring that emissions will not cause significant pollution or harm to human health.

FFCC submits that these conclusions have been reached before sufficient evidence has been provided to demonstrate that BAT has been fully applied or that emissions have been comprehensively characterised. As with several other aspects of the application, the Draft Decision relies heavily upon future revisions to operational documents rather than the information currently before the Agency.

9.2 The Statutory Requirement to Apply Best Available Techniques

The Industrial Emissions Directive, incorporated through the Environmental Permitting (England and Wales) Regulations 2016, requires operators to use Best Available Techniques to prevent or, where that is not practicable, minimise emissions and their environmental impact.

BAT is not simply a matter of imposing permit conditions after a permit has been granted. It requires the Environment Agency to be satisfied, before granting a permit, that the operator has demonstrated that the proposed techniques represent the best available means of controlling pollution. The burden therefore rests upon the applicant to demonstrate that BAT has been achieved.

FFCC submits that, in several important respects, the Draft Decision relies upon future assurances rather than present evidence that BAT has been fully demonstrated.

9.3 The Proposed Waste Gas Management Strategy

The management of waste gas lies at the heart of the proposed operations.

During well clean-up and extended well testing, natural gas produced from the well must either be:

- beneficially utilised;
- recovered;
- treated;
- flared; or
- otherwise managed using appropriate abatement techniques.

The Draft Decision acknowledges that the submitted Waste Gas Management Plan required further clarification and accordingly imposes a pre-operational condition requiring the submission of a revised plan before activities may commence. This requirement is significant. The need for a revised Waste Gas Management Plan demonstrates that the Environment Agency was not satisfied that the original document fully demonstrated compliance with BAT.

FFCC submits that where the principal pollution control strategy for managing waste gas remains incomplete, the Agency cannot properly conclude that BAT has already been demonstrated.

9.4 Continued Reliance upon Future Information

The revised Waste Gas Management Plan is expected to address matters including:

- beneficial use of produced gas;
- options for reducing flaring;
- vapour recovery;
- combustion efficiency;
- emissions reduction techniques;
- alternative waste gas management options.

These matters are not peripheral operational details. They form the principal mechanism through which emissions to air are to be controlled. Accordingly, the Draft Decision effectively concludes that emissions satisfy BAT before the final BAT strategy has been produced.

FFCC submits that this reverses the normal sequence of environmental permitting.

9.5 The Choice of Shrouded Rather Than Enclosed Flaring

One of the principal concerns raised during consultation related to the proposed use of a shrouded flare. Numerous consultees argued that enclosed flares generally provide superior environmental performance by reducing:

- visible flame;
- light pollution;
- combustion variability;
- noise;

- uncontrolled emissions.

The Environment Agency accepts within the Draft Decision that enclosed flares are generally regarded as the preferred option. Nevertheless, it concludes that the proposed shrouded flare is acceptable because it is considered capable of achieving appropriate environmental performance.

FFCC submits that this conclusion is not fully explained. Where the preferred BAT option has not been selected, the operator should clearly demonstrate why an alternative provides an equivalent level of environmental protection.

The Draft Decision contains relatively little detailed analysis explaining why the proposed flare should be regarded as equivalent to the recognised preferred technique.

9.6 Air Quality Assessment

The Draft Decision concludes that emissions to air will not cause significant pollution. This conclusion is based upon air dispersion modelling submitted by the applicant and audited by the Environment Agency.

During consultation, numerous respondents questioned aspects of that modelling, including:

- meteorological data;
- local weather conditions;
- temperature inversions;
- background pollution assumptions;
- receptor locations;
- cumulative impacts.

The Agency states that it audited the modelling and found it satisfactory. However, the Draft Decision provides relatively limited explanation of the basis upon which alternative interpretations of the evidence were rejected.

Where substantial technical concerns have been raised, greater transparency regarding the audit process would improve confidence in the conclusions reached.

9.7 Baseline Air Quality Monitoring

Several consultees highlighted the absence of comprehensive baseline air quality monitoring.

Baseline environmental information serves two essential purposes. First, it enables regulators to assess existing environmental conditions before operations commence. Secondly, it allows any subsequent deterioration to be identified with confidence. Without comprehensive baseline information it becomes more difficult to distinguish between pre-existing conditions and pollution arising from regulated activities.

FFCC submits that robust baseline monitoring should precede permit determination wherever emissions to air form a significant component of the proposed activity.

9.8 Methane and Volatile Organic Compounds

The Draft Decision recognises methane as an important greenhouse gas and identifies flaring as the principal mechanism for reducing methane emissions through combustion.

While combustion undoubtedly reduces methane emissions compared with venting, combustion efficiency itself depends upon:

- flare performance;
- gas composition;
- operating conditions;
- maintenance;
- monitoring.

Similarly, volatile organic compounds are subject to emission limits and monitoring requirements. The effectiveness of these controls depends upon the final operational arrangements, several of which remain subject to future approval.

FFCC therefore submits that confidence regarding methane and VOC control should be proportionate to the level of information presently available.

9.9 Leak Detection and Repair

The Draft Decision requires the operator to submit a Leak Detection and Repair Plan before operations commence.

The Plan will address:

- fugitive emissions;
- inspection procedures;
- monitoring standards;
- maintenance arrangements;
- storage integrity.

Again, this demonstrates that a significant component of the overall emissions control strategy has yet to be completed.

FFCC submits that fugitive emissions form an important part of any assessment of environmental performance and should be fully characterised before a permit is granted.

9.10 Monitoring Cannot Replace Demonstration of BAT

The Draft Decision places considerable reliance upon future monitoring.

Monitoring is undoubtedly essential. However, monitoring serves to verify environmental performance after operations have commenced. It cannot replace the requirement to demonstrate, before permitting, that Best Available Techniques have already been selected and justified. The distinction is important.

Environmental permitting is intended to prevent pollution rather than merely detect it after operations begin.

9.11 Human Health Considerations

Many consultation responses expressed concern regarding the potential effects of emissions upon nearby residents, schools, businesses and agricultural activities.

The Environment Agency concludes that permit controls will ensure that human health is protected. FFCC recognises that the Agency has statutory expertise in assessing pollution risks. However, the confidence placed in that conclusion depends upon the completeness of the emissions assessment.

Where elements of the emissions control strategy remain subject to future revision, it becomes correspondingly more difficult to conclude that all relevant health risks have been fully characterised.

9.12 The Precautionary Principle

The proposed operations involve prolonged management of waste gas and controlled combustion through flaring.

Where uncertainty remains regarding:

- final waste gas management techniques;
- combustion arrangements;
- fugitive emissions;
- methane control;
- monitoring arrangements;
- BAT compliance,

the precautionary principle supports resolving those uncertainties before environmental authorisation is granted. The Draft Decision instead proposes to resolve many of these matters through pre-operational conditions.

FFCC submits that this approach reduces the evidential threshold that should apply before a permit is issued.

9.13 Overall Assessment

The Draft Decision concludes that emissions to air will be adequately controlled through BAT, permit conditions and monitoring.

However, the same document also acknowledges that:

- the Waste Gas Management Plan requires revision;
- the Leak Detection and Repair Plan has yet to be submitted;
- operational details remain incomplete;
- further information will be required before activities commence.

These matters collectively indicate that the emissions control strategy has not yet been fully developed.

The Environment Agency therefore appears to have concluded that BAT has been demonstrated before the supporting documentation is complete.

9.14 Conclusions

The management of emissions to air is one of the principal environmental considerations arising from the proposed Cloughton-2 operations. The Environment Agency concludes that emissions can be adequately controlled through Best Available Techniques and permit conditions. However, the Draft Decision also demonstrates that important elements of the emissions control strategy remain outstanding and will only be provided after the permit has been granted.

The revised Waste Gas Management Plan, Leak Detection and Repair Plan and other operational documentation are central to demonstrating compliance with BAT. Their absence at the time of determination creates an evidential gap that cannot be filled simply by imposing future permit conditions.

FFCC submits that the Environment Agency should require the completion and independent assessment of these documents before reaching a final permitting decision. Only then can it be satisfied that the statutory requirement to apply Best Available Techniques has been fully met and that emissions to air will not give rise to unacceptable environmental impacts or harm to human health.

9.15 Key Findings – Chapter 9

- Compliance with Best Available Techniques (BAT) must be demonstrated before, not after, a permit is granted.
- The Waste Gas Management Plan, Leak Detection and Repair Plan and related emissions controls remain incomplete.
- The Draft Decision accepts a shrouded flare despite recognising that enclosed flares are generally the preferred BAT option, without fully explaining why equivalent environmental protection has been demonstrated.
- Baseline air quality information and aspects of the emissions assessment remain contested.
- Future monitoring is important but cannot substitute for a complete demonstration that BAT has been achieved at the time of permit determination.

FFCC's conclusion: The Environment Agency has not yet demonstrated, on the evidence presently available, that the proposed emissions control strategy fully satisfies the requirements of Best Available Techniques. The outstanding technical documentation should be completed, independently assessed and, where appropriate, made available for public scrutiny before any environmental permit is granted.

10. Environmental Monitoring, Baseline Data and Regulatory Control

10.1 Introduction

Throughout the Draft Decision Document, the Environment Agency places considerable reliance upon environmental monitoring, reporting requirements and future regulatory oversight as evidence that the proposed activities can be undertaken without causing unacceptable environmental harm.

The permit requires monitoring of groundwater, emissions to air, flare performance, volatile organic compounds, oxides of nitrogen, carbon monoxide and other environmental parameters. It also requires the operator to submit a number of additional monitoring plans and to report environmental performance throughout the operational life of the well.

FFCC recognises that monitoring is an essential component of effective environmental regulation. Monitoring enables regulators to verify compliance, identify unexpected environmental effects and, where necessary, take enforcement action.

However, monitoring is not a substitute for a complete environmental assessment before a permit is granted. It cannot compensate for missing information, incomplete risk assessments or unresolved scientific uncertainty. The purpose of the Environmental Permitting regime is to prevent pollution before it occurs, not merely to detect pollution after operations have commenced.

FFCC submits that the Draft Decision places disproportionate reliance upon future monitoring and regulatory control in circumstances where the underlying environmental assessment remains incomplete.

10.2 The Purpose of Environmental Monitoring

Environmental monitoring serves several important functions within the permitting regime.

These include:

- establishing environmental baseline conditions;
- demonstrating compliance with permit conditions;
- identifying changes in environmental quality;
- detecting pollution incidents;
- informing regulatory enforcement; and
- improving understanding of environmental performance.

Monitoring therefore plays an important role in verifying whether a permitted activity is operating as expected. It does not, however, establish whether the activity should have been permitted in the first place. That question must be answered before the permit is issued.

The Draft Decision frequently blurs this distinction by relying upon future monitoring as reassurance that current uncertainties can be managed.

10.3 Baseline Environmental Information

Effective monitoring depends upon reliable baseline information. Baseline data provide the reference point against which future environmental changes can be measured.

Without robust baseline conditions it becomes significantly more difficult to determine:

- whether contamination has occurred;
- whether emissions have increased;
- whether groundwater quality has deteriorated;
- whether changes result from natural variation or regulated activities.

The Draft Decision acknowledges that additional groundwater monitoring boreholes must be installed and that baseline groundwater data must be collected before the commencement of groundwater activities. This requirement is secured through Pre-operational Conditions PO01a and PO01b.

FFCC submits that this requirement illustrates a fundamental weakness in the current application. If baseline groundwater conditions have not yet been established, then the Environment Agency cannot reasonably conclude that the long-term risks to groundwater have already been fully assessed. Baseline information is not merely an operational requirement; it is a fundamental component of environmental risk assessment.

10.4 Groundwater Monitoring

Groundwater protection is one of the principal statutory responsibilities of the Environment Agency.

The Draft Decision proposes extensive groundwater monitoring throughout both the operational and post-decommissioning phases of the development.

The monitoring programme is expected to include:

- dedicated monitoring boreholes;
- groundwater sampling;
- monitoring frequencies;
- trigger levels;
- investigation procedures;
- interpretation of monitoring results.

FFCC welcomes the inclusion of these safeguards. However, their necessity also demonstrates that important aspects of the hydrogeological assessment remain unresolved. The Environment Agency has effectively acknowledged that additional site-specific information is still required before operations commence.

This reinforces FFCC's broader concern that the permit determination has been made before the environmental assessment has been completed.

10.5 Air Quality Monitoring

The Draft Decision imposes monitoring requirements for:

- oxides of nitrogen;
- carbon monoxide;
- volatile organic compounds;
- flare gas composition;
- flare combustion temperature;
- hydrogen sulphide concentrations;
- methane content.

These requirements are intended to demonstrate compliance with emission limits and Best Available Techniques.

Again, FFCC does not dispute the importance of monitoring. However, the existence of comprehensive monitoring requirements should not be interpreted as evidence that

environmental risks have already been fully characterised. Monitoring provides confirmation of operational performance.

It cannot compensate for uncertainty regarding:

- flare design;
- combustion efficiency;
- waste gas management;
- baseline air quality;
- cumulative environmental effects.

10.6 Monitoring Does Not Eliminate Risk

One of the recurring themes throughout the Draft Decision is that environmental monitoring will provide assurance that unacceptable impacts do not occur. While monitoring undoubtedly reduces regulatory uncertainty, it does not eliminate environmental risk.

Pollution may occur:

- before it is detected;
- between monitoring events;
- in locations that are not routinely monitored;
- through pathways that were not originally anticipated.

Some environmental effects may also develop gradually over extended periods before becoming apparent. Consequently, monitoring should be regarded as one element of environmental protection rather than a substitute for robust environmental assessment.

10.7 Reliance on Future Regulatory Oversight

Section 10 of the Draft Decision repeatedly states that the Environment Agency will regulate the site through:

- routine inspections;
- audits;
- review of monitoring data;
- enforcement powers;
- incident reporting;
- compliance assessment.

FFCC recognises and supports the important role of regulatory oversight. Nevertheless, the existence of future enforcement powers does not justify granting a permit where significant uncertainty remains regarding the environmental acceptability of the activity itself. Environmental permitting is preventative.

Regulation after operations begin cannot fully remedy environmental harm that may already have occurred.

10.8 Trigger Levels and Corrective Action

The proposed monitoring programmes include trigger levels intended to identify unexpected changes in environmental conditions. Where trigger levels are exceeded,

further investigation or corrective action may be required. While this represents good regulatory practice, trigger levels are inherently reactive. They identify problems after environmental change has occurred. They do not prevent those changes from occurring.

FFCC submits that greater emphasis should be placed upon preventing uncertainty through comprehensive pre-permit assessment rather than relying upon post-permit intervention.

10.9 Transparency and Public Confidence

The Draft Decision states that monitoring information will be reported to the Environment Agency and, where appropriate, placed on the public register.

Public access to environmental monitoring data is an important component of transparent regulation. However, transparency after a permit has been granted cannot compensate for uncertainty before the permit is issued. Public confidence is strengthened when the environmental assessment itself is complete before regulatory approval is given.

Where important technical information remains outstanding, publication of future monitoring data cannot address concerns regarding the adequacy of the original determination.

10.10 Regulatory Capacity and Practical Enforcement

The Draft Decision emphasises the Environment Agency's intention to regulate the site robustly through inspections and enforcement where necessary.

FFCC fully accepts that the Environment Agency possesses extensive statutory enforcement powers.

However, effective regulation depends not only upon legal powers but also upon practical implementation. Inspection frequencies, available resources and operational priorities inevitably influence the level of regulatory oversight that can be achieved in practice. For this reason, the permitting process itself must ensure that only activities supported by complete and robust environmental evidence are authorised.

The effectiveness of future enforcement should not become a substitute for a thorough assessment before permission is granted.

10.11 The Relationship Between Monitoring and the Precautionary Principle

The precautionary principle requires decision-makers to act cautiously where scientific uncertainty remains and the potential consequences of environmental harm may be significant or irreversible.

Monitoring has an important role within that framework, but it is a secondary safeguard. Its purpose is to confirm that assumptions made during the permitting process prove correct.

Where the assumptions themselves remain uncertain, monitoring cannot justify proceeding with the activity.

The Draft Decision frequently relies upon future monitoring to provide reassurance regarding:

- groundwater protection;
- fracture behaviour;
- emissions;
- waste management;
- environmental performance.

FFCC submits that the precautionary principle requires those uncertainties to be resolved before the permit is granted rather than afterwards.

10.12 Overall Assessment

The Draft Decision proposes a comprehensive programme of environmental monitoring supported by reporting requirements, inspections and regulatory oversight.

FFCC welcomes these safeguards. However, the extensive monitoring requirements also demonstrate that significant environmental uncertainties remain.

The Environment Agency has acknowledged the need for:

- additional baseline groundwater data;
- revised monitoring plans;
- further operational information;
- updated management plans;
- continued environmental verification.

Taken together, these requirements indicate that the environmental assessment remains incomplete. Monitoring is an essential regulatory tool, but it cannot replace the need for a complete and evidence-based assessment before authorisation is granted.

10.13 Conclusions

Environmental monitoring is an essential component of modern environmental regulation, and FFCC supports the inclusion of robust monitoring, reporting and enforcement requirements within any environmental permit.

However, monitoring is designed to verify compliance with a permit, not to compensate for deficiencies in the evidence supporting the permit itself. The Draft Decision repeatedly relies upon future monitoring and regulatory oversight to provide reassurance regarding matters that remain uncertain at the time of determination.

This approach risks reversing the preventative purpose of the Environmental Permitting regime. The statutory question is whether the Environment Agency is presently satisfied, on the basis of complete and reliable evidence, that the proposed activities can be undertaken without causing unacceptable environmental harm. That question should not be answered by reference to information that will only become available after the permit has been granted.

FFCC submits that the outstanding baseline information, monitoring arrangements and environmental assessments should be completed before a final permitting decision is reached. Monitoring should confirm the safety of an already well-characterised activity,

not provide the evidence that ought to have been available before the permit was determined.

10.14 Key Findings – Chapter 10

- Environmental monitoring is an essential safeguard but cannot substitute for a complete environmental assessment.
- Baseline groundwater information remains incomplete, yet is fundamental to assessing future environmental impacts.
- Monitoring verifies compliance; it does not establish that a permit should be granted.
- The Draft Decision relies heavily on future inspections, reporting and enforcement to address present uncertainty.
- The precautionary principle requires uncertainty to be resolved before irreversible activities are authorised.

FFCC's conclusion: While the proposed monitoring regime is comprehensive, it reinforces rather than resolves FFCC's principal concern: the Environment Agency is seeking to authorise the Cloughton-2 activities before all of the evidence necessary to demonstrate their environmental acceptability has been obtained and assessed. Monitoring should support a sound permitting decision, not compensate for an incomplete one.

11. Planning, Permitting and Inconsistencies Between the Two Regimes

11.1 Introduction

Throughout the Draft Decision Document, the Environment Agency repeatedly states that the planning and environmental permitting systems are separate but complementary regulatory regimes with distinct statutory functions.

FFCC accepts this proposition. It is well established that planning authorities and environmental regulators exercise different legal responsibilities and apply different statutory tests. The planning system is principally concerned with whether a development represents an acceptable use of land, while the Environmental Permitting regime focuses upon whether the proposed activities can be carried out without causing unacceptable pollution or harm to human health.

However, the existence of separate regulatory regimes does not permit relevant environmental evidence to be disregarded simply because it first emerged during the planning process. Nor does it allow inconsistencies between planning and permitting documents to be overlooked where those inconsistencies are directly relevant to the Environment Agency's own statutory responsibilities.

FFCC submits that the Draft Decision places undue reliance upon the distinction between planning and permitting without fully addressing the environmental significance of several material inconsistencies identified during consultation.

11.2 Separate Regimes, Shared Evidence

The Environment Agency correctly observes that planning and pollution control are intended to operate as complementary systems rather than duplicate one another. This principle, reflected in the National Planning Policy Framework and associated guidance, is designed to avoid unnecessary duplication of regulatory effort. However, complementary regulation does not mean that each regulator operates in isolation.

Both planning authorities and the Environment Agency consider evidence relating to:

- groundwater protection;
- geological conditions;
- environmental risk;
- pollution pathways;
- emissions to air;
- waste management;
- environmental monitoring.

Although the legal consequences of that evidence may differ, the factual evidence itself remains relevant to both regimes. Accordingly, where information submitted during the planning process identifies deficiencies, inconsistencies or uncertainties directly affecting environmental protection, the Environment Agency cannot dismiss those matters merely because they were also considered by the planning authority.

11.3 The Significance of the Planning Refusal

The Draft Decision records that North Yorkshire Council refused planning permission for the Cloughton-2 proposal and confirms that the Environment Agency considered:

- the Environmental Statement;
- the planning officer's report;
- the decision notice;
- the planning authority's reasons for refusal.

The Environment Agency concludes that the reasons for refusal are matters of planning policy and therefore do not affect the permit determination. FFCC agrees that questions of planning policy are matters for the local planning authority. However, several concerns raised during the planning process extended beyond land-use planning and related directly to environmental matters that also fall within the Environment Agency's remit, including:

- geological uncertainty;
- groundwater protection;
- the adequacy of environmental information;
- surface water management;
- emissions;
- waste management.

The existence of a planning refusal should not determine the outcome of the permit application.

Nevertheless, where the planning process has identified deficiencies in the underlying environmental evidence, those deficiencies should be independently examined rather than dismissed as planning matters.

11.4 Inconsistencies Between Planning and Permitting Documents

One of the recurring themes throughout the consultation process was the existence of differences between information submitted for planning purposes and information submitted in support of the environmental permit.

The consultation responses referred to matters including:

- differing descriptions of the proposed operations;
- revised geological interpretations;
- changes to stimulation volumes;
- different descriptions of the underground mining waste facility;
- revised operational procedures;
- additional technical information supplied after the original application.

The Environment Agency responds by stating that differences between planning and permitting documents are expected because the two regimes have different purposes. While this is true to a limited extent, it does not explain why material technical differences should automatically be regarded as insignificant.

Where revised information materially affects the assessment of environmental risk, those changes should be examined on their merits.

11.5 The Evolution of the Application

The Draft Decision itself demonstrates that the permit application evolved substantially during the determination process.

The Environment Agency:

- issued Schedule 5 requests for further information;
- required numerous clarifications;
- secured revised technical documentation;
- imposed nine pre-operational conditions;
- required further management plans before operations may commence.

This evolution indicates that the original application did not contain all of the information necessary to support a final determination. FFCC submits that where an application changes materially during the permitting process, the Environment Agency should carefully consider whether those changes affect the adequacy of the original consultation.

If significant environmental information is supplied after public consultation has concluded, there is a risk that interested parties are denied a meaningful opportunity to comment upon material evidence.

11.6 The Environment Agency's Independent Duty

The Draft Decision repeatedly emphasises that certain matters fall outside the Environment Agency's remit.

FFCC fully accepts that issues such as:

- visual impact;
- traffic;
- property values;
- broader energy policy;
- land-use planning

are matters for other authorities.

However, the Environment Agency retains an independent statutory responsibility to assess:

- groundwater protection;
- pollution prevention;
- waste management;
- emissions to air;
- mining waste facilities;
- Best Available Techniques;
- environmental risk.

Where consultation responses identify inconsistencies or uncertainties affecting these matters, the Agency must address them directly rather than relying solely upon the distinction between planning and permitting.

The existence of another regulatory regime cannot diminish the Agency's own statutory responsibilities.

11.7 Public Confidence and Regulatory Consistency

One consequence of maintaining separate planning and permitting systems is that the public expects both regulators to reach conclusions based upon consistent and transparent evidence.

Where different technical descriptions of the same proposal appear in different regulatory processes, uncertainty inevitably arises.

The Draft Decision acknowledges that the permitting application has been assessed independently of the planning process.

Independence is important. However, independence should not be confused with isolation. Where inconsistencies arise between different versions of the applicant's technical submissions, public confidence requires those inconsistencies to be clearly identified, explained and resolved.

The Draft Decision does not always demonstrate that this has occurred.

11.8 The Need for Consistent Environmental Information

The Environment Agency concludes that any differences between planning and permitting documents do not undermine the robustness of the permitting assessment.

FFCC submits that this conclusion requires fuller explanation.

Where the assessment of environmental risk depends upon:

- geological interpretation;
- operational procedures;
- waste quantities;
- stimulation design;
- emissions modelling;
- groundwater pathways,

consistency of technical information is fundamental.

Significant revisions to those matters should not simply be characterised as normal differences between regulatory regimes. Instead, they should be treated as potential indicators that the environmental assessment itself has evolved.

Where that evolution is material, further scrutiny may be required before a permit is granted.

11.9 The Importance of Transparency

Transparency is one of the central objectives of modern environmental regulation.

The Environmental Permitting regime relies upon public confidence that decisions are based upon complete, accurate and internally consistent information. Where substantial technical revisions occur after an application has been submitted, transparency requires that interested parties understand:

- what has changed;
- why it has changed;
- how the changes affect environmental risk;
- whether previous assessments remain valid.

The repeated use of pre-operational conditions and revised operational documentation demonstrates that important aspects of the proposal continue to evolve.

FFCC submits that these developments strengthen the case for further public consultation before a final permit determination is made.

11.10 Overall Assessment

The Environment Agency is correct to distinguish between the legal functions of the planning and permitting regimes.

However, that distinction does not relieve the Agency of its responsibility to evaluate all evidence relevant to environmental protection. The consultation process identified

numerous inconsistencies between planning and permitting documentation together with significant revisions to the application during determination.

Rather than demonstrating that these matters are irrelevant because they arose within another regulatory process, the Environment Agency should explain why those changes do not affect its own assessment of environmental risk.

The Draft Decision does not always provide that explanation.

11.11 Conclusions

FFCC accepts that planning permission and environmental permitting serve different statutory purposes and are determined by different public authorities applying different legal tests. Nothing in this submission seeks to blur those distinct functions or invite the Environment Agency to determine matters that properly belong within the planning system.

However, the separation of regulatory regimes does not justify disregarding evidence that is directly relevant to the Environment Agency's own statutory responsibilities. Where inconsistencies exist between planning and permitting documents, where technical information has evolved during the determination process, or where new environmental evidence has emerged, those matters require independent consideration as part of the permitting decision.

The Draft Decision frequently relies upon the proposition that planning and permitting are separate regimes without fully explaining why the identified inconsistencies do not affect the environmental assessment. FFCC submits that this approach risks giving insufficient weight to evidence that bears directly upon groundwater protection, geological integrity, waste management and pollution prevention.

Accordingly, FFCC submits that the Environment Agency should undertake a fuller examination of the material differences between the planning and permitting submissions and should satisfy itself that the environmental assessment remains complete, internally consistent and supported by all relevant evidence before any environmental permit is granted.

11.12 Key Findings – Chapter 11

- FFCC accepts that planning and environmental permitting are separate statutory regimes, but they frequently rely upon the same underlying environmental evidence.
- Material inconsistencies between planning and permitting documents cannot be dismissed simply because they arise in different regulatory processes.
- The application evolved significantly during determination through Schedule 5 requests, revised documentation and multiple pre-operational conditions, indicating that the original submission was incomplete.
- The Environment Agency retains an independent duty to evaluate all evidence relevant to pollution prevention and environmental protection, regardless of whether it first arose in the planning process.
- Greater transparency and, where appropriate, further public consultation are warranted where material technical information changes during the permitting process.

FFCC's conclusion: The distinction between planning and permitting does not remove the Environment Agency's obligation to ensure that its decision is based upon complete, consistent and robust environmental evidence. Before granting the permit, the Agency should satisfy itself that all material inconsistencies have been resolved and that any significant changes to the technical evidence have been properly assessed and subjected to appropriate public scrutiny.

12. Application of the Precautionary Principle

12.1 Introduction

The Environmental Permitting regime is fundamentally preventative in nature. Its purpose is not merely to regulate pollution once it occurs, but to ensure that activities capable of causing pollution are not authorised unless the regulator is satisfied that they can be undertaken without giving rise to unacceptable environmental harm.

This preventative approach reflects one of the central principles of environmental regulation: where there is credible scientific uncertainty regarding the potential for serious or irreversible environmental damage, regulatory decisions should proceed with caution rather than assumption.

FFCC submits that the Draft Decision does not consistently apply this approach. Instead, it frequently reaches definitive conclusions regarding environmental safety whilst acknowledging that important technical information remains outstanding and will only become available after the permit has been granted.

The cumulative effect is that uncertainty has been managed procedurally rather than resolved evidentially.

12.2 The Preventative Purpose of Environmental Permitting

The Environmental Permitting (England and Wales) Regulations 2016 require the Environment Agency to determine whether regulated activities can be undertaken without causing unacceptable pollution or harm to human health.

The permitting process is therefore intended to establish environmental acceptability before operations commence.

It follows that the burden rests upon the applicant to demonstrate that:

- environmental risks have been adequately characterised;
- pollution pathways have been properly understood;
- receptors have been identified;
- mitigation measures have been demonstrated to be effective; and
- Best Available Techniques have been applied.

The regulator's role is not to assume that these matters will be satisfactorily addressed later, but to determine whether they have already been demonstrated by the evidence submitted.

12.3 The Precautionary Principle in Environmental Decision-Making

The precautionary principle has long informed environmental regulation within the United Kingdom and internationally. Although its precise legal formulation varies according to context, its practical application is well understood.

Where there is scientific uncertainty regarding potentially significant environmental effects, the absence of complete certainty should not be treated as a reason for assuming that the activity is environmentally acceptable. Equally, where the consequences of error could be serious, irreversible or difficult to remedy, regulators should exercise increased caution before authorising the activity. The principle does not require absolute certainty. Nor does it prohibit innovation or industrial development.

Instead, it requires that uncertainty should be reduced before consent is granted where that uncertainty relates to matters fundamental to environmental protection.

12.4 Uncertainty Identified Within the Draft Decision

Throughout the Draft Decision the Environment Agency identifies areas where additional information remains necessary before operations may commence.

Examples include:

- the Hydraulic Fracturing Plan;
- geological fault characterisation;
- fracture propagation assessment;
- additional groundwater investigations;
- baseline groundwater monitoring;
- revised Surface Water Management Plan;
- revised Waste Gas Management Plan;
- Leak Detection and Repair Plan;
- confirmation of the final underground mining waste facility;
- further operational controls and monitoring.

These are not peripheral matters. Each relates directly to the assessment of environmental risk.

The Draft Decision therefore accepts that material uncertainty remains whilst simultaneously concluding that the permit should nevertheless be granted.

12.5 Geological Uncertainty

Perhaps the clearest example concerns geological uncertainty.

The Draft Decision acknowledges that the precise geological conditions beneath the site cannot be confirmed until drilling has taken place.

It further requires the submission of a Hydraulic Fracturing Plan containing:

- fault mapping;
- geological stress analysis;
- historical seismicity assessment;
- fracture modelling;

- monitoring proposals.

These requirements recognise that the geological understanding presently available is incomplete.

FFCC submits that where the behaviour of induced fractures depends upon geological conditions that remain uncertain, a precautionary approach requires that those uncertainties should first be resolved before regulatory approval is given.

12.6 Groundwater Protection

Groundwater protection represents one of the principal objectives of the Environmental Permitting regime.

The Draft Decision nevertheless requires:

- installation of monitoring boreholes;
- collection of baseline groundwater data;
- further hydrogeological assessment;
- confirmation of groundwater monitoring arrangements.

These measures acknowledge that important hydrogeological information has yet to be obtained. Without reliable baseline information it becomes significantly more difficult to determine:

- whether contamination has occurred;
- when contamination occurred;
- its likely source;
- the effectiveness of mitigation measures.

Groundwater contamination may be difficult or impossible to reverse.

Accordingly, precaution requires that uncertainty should be resolved before operations begin.

12.7 The Underground Mining Waste Facility

The proposal includes permanent underground retention of a substantial proportion of the injected proppant carrier fluid. The Draft Decision concludes that this constitutes a mining waste facility regulated under the Environmental Permitting regime.

At the same time, it accepts that:

- the final dimensions remain to be confirmed;
- fracture behaviour requires further assessment;
- geological information requires updating;
- operational controls remain to be finalised.

Because the retained waste may remain underground indefinitely, the consequences of any incorrect assumptions may also be permanent.

This strengthens, rather than weakens, the case for a precautionary approach.

12.8 Air Quality and Emissions

The Draft Decision concludes that emissions from flaring can be adequately controlled.

However, it also requires:

- revisions to the Waste Gas Management Plan;
- further demonstration of Best Available Techniques;
- additional emissions monitoring;
- updated operational procedures.

Where important elements of emissions control remain subject to future approval, it is difficult to conclude that environmental impacts have already been fully characterised.

A precautionary approach would require those matters to be resolved before the permit determination.

12.9 The Relationship Between Precaution and Pre-operational Conditions

Throughout the Draft Decision uncertainty is addressed by imposing pre-operational conditions.

FFCC recognises that permit conditions are an important regulatory mechanism. However, conditions cannot substitute for evidence. Conditions regulate activities. Evidence justifies permitting those activities. The two perform different functions.

Where important technical information has yet to be produced, pre-operational conditions may ensure that the information is eventually supplied.

They do not demonstrate that the statutory tests for granting the permit have already been satisfied.

12.10 The Risk of Irreversible Consequences

Several elements of the proposed activities have the potential to produce consequences that may be difficult or impossible to reverse.

These include:

- permanent underground disposal of extractive waste;
- alteration of geological formations through hydraulic stimulation;
- potential impacts upon groundwater;
- emissions associated with gas flaring;
- contamination arising from operational failure.

Environmental regulation places particular emphasis upon preventing such consequences rather than attempting to remedy them after they occur.

The precautionary principle therefore has particular importance where irreversible environmental change is possible.

12.11 Public Confidence and Regulatory Credibility

The Cloughton-2 proposal has generated exceptional public interest.

The Environment Agency has undertaken an extensive consultation process reflecting that public concern. Public confidence in environmental regulation depends not only upon technical competence but also upon transparent decision-making. Where the regulator acknowledges that important information remains outstanding yet nevertheless concludes that the permit should be granted, there is a risk that public confidence may be undermined.

Conversely, requiring the outstanding information to be completed before determination would reinforce confidence that the regulatory process is genuinely evidence-led and precautionary.

12.12 Applying the Precautionary Principle to the Present Application

FFCC does not suggest that every uncertainty must inevitably result in refusal of an environmental permit.

Nor is it suggested that the Environment Agency should require absolute scientific certainty before reaching a decision. However, the present application contains an unusual combination of unresolved issues concerning:

- geology;
- hydrogeology;
- fracture behaviour;
- groundwater protection;
- waste management;
- operational controls;
- environmental monitoring;
- Best Available Techniques.

Considered individually, each may be capable of further investigation. Taken collectively, they demonstrate that important elements of the environmental assessment remain incomplete.

In those circumstances, the precautionary approach favours postponing the permit determination until the outstanding evidence has been obtained and evaluated.

12.13 Conclusion

The precautionary principle does not prevent environmentally sensitive activities from taking place.

Rather, it requires that regulators should be satisfied, on the basis of adequate evidence, that those activities can be undertaken without unacceptable environmental harm before authorisation is granted. The Draft Decision repeatedly acknowledges the existence of outstanding technical information while simultaneously concluding that the statutory tests for granting the permit have already been met.

FFCC submits that these two propositions are difficult to reconcile. Where significant uncertainty remains regarding geological conditions, groundwater protection, waste

management, emissions control and operational safeguards, the more precautionary and legally robust course is to require completion of the outstanding technical work before determining the application.

Accordingly, FFCC submits that the Environment Agency should defer determination of Environmental Permit EPR/YP3623LC/A001 until all material information has been provided, independently assessed and, where appropriate, made available for further public consultation. This approach would better reflect the preventative purpose of the Environmental Permitting regime, reinforce public confidence in the regulatory process and ensure that any final decision rests upon a complete and transparent assessment of the environmental risks.

12.14 Findings – Chapter 12

- Environmental permitting is intended to prevent pollution before it occurs and therefore requires a robust evidential basis before a permit is granted.
- The Draft Decision acknowledges multiple areas of material uncertainty, including geology, groundwater, waste management, emissions control and operational safeguards.
- The extensive use of pre-operational conditions demonstrates that important aspects of the environmental assessment remain incomplete.
- Permit conditions are an important regulatory tool, but they cannot substitute for the evidence needed to satisfy the statutory tests for granting a permit.
- In light of the cumulative uncertainties identified throughout the Draft Decision, FFCC submits that the precautionary approach supports deferring the permit determination until the outstanding information has been obtained, assessed and, where appropriate, subject to further public scrutiny.

13. Overall Assessment of the Draft Decision

13.1 Introduction

Throughout this submission, Frack Free Coastal Communities (FFCC) has examined the Environment Agency's Draft Decision Document against the statutory requirements of the Environmental Permitting (England and Wales) Regulations 2016, the relevant provisions of retained environmental legislation, and the principles of sound regulatory decision-making.

This submission has not sought to challenge the principle of environmental regulation, nor has it invited the Environment Agency to determine matters that properly belong within the planning system or national energy policy. Instead, it has focused on whether the Environment Agency has demonstrated, on the evidence presently available, that the statutory tests for granting an environmental permit have been satisfied.

Having reviewed the Draft Decision in detail, FFCC concludes that the evidential basis for granting the permit has not yet been established.

13.2 The Central Issue

A recurring theme throughout the Draft Decision is the Environment Agency's repeated statement that it is "satisfied" that the proposed activities can be undertaken without causing unacceptable pollution or harm to human health.

However, the same document repeatedly acknowledges that important technical information has yet to be provided.

Amongst the outstanding matters are:

- the Hydraulic Fracturing Plan;
- revised geological fault mapping;
- additional hydrogeological investigations;
- baseline groundwater monitoring;
- an updated Surface Water Management Plan;
- a revised Waste Gas Management Plan;
- a Leak Detection and Repair Plan;
- confirmation of the final dimensions of the underground mining waste facility;
- additional operational information demonstrating Best Available Techniques.

FFCC submits that these are not matters of operational detail. They are fundamental components of the environmental assessment itself.

The Draft Decision therefore reaches conclusions regarding environmental acceptability before the evidence required to support those conclusions has been completed.

13.3 The Cumulative Effect of the Deficiencies

Each chapter of this submission has identified areas where the Draft Decision relies upon assumptions, future submissions or unresolved uncertainties.

Viewed individually, some of these issues might be regarded as capable of being addressed through additional regulatory controls. Viewed collectively, however, they reveal a broader concern.

The cumulative picture presented by the Draft Decision is one of an application that continues to evolve during the determination process.

The Environment Agency itself has recognised this by:

- issuing multiple Schedule 5 requests;
- requiring substantial further information;
- securing revised technical documentation;
- imposing numerous pre-operational conditions;
- requiring additional monitoring before operations commence.

Rather than demonstrating confidence in a complete application, these measures suggest that essential aspects of the proposal remain under development.

13.4 Consultation Has Identified Genuine Technical Issues

The consultation process generated an unusually large volume of representations from:

- statutory consultees;
- parish and town councils;
- environmental organisations;
- local businesses;
- agricultural interests;

- technical campaign groups;
- community organisations;
- individual residents.

Although these responses originated from different organisations, many identified remarkably similar concerns. These included:

- geological uncertainty;
- groundwater protection;
- fault mapping;
- fracture propagation;
- mining waste;
- air quality;
- baseline monitoring;
- chemical disclosure;
- emergency planning;
- Best Available Techniques.

The consistency of these concerns should not be dismissed simply because they were raised by multiple respondents. Rather, their repetition suggests that they identify genuine technical issues requiring careful regulatory scrutiny.

FFCC submits that the Draft Decision does not always demonstrate that this scrutiny has taken place.

13.5 Reliance Upon Future Regulatory Controls

The Draft Decision frequently responds to uncertainty by imposing pre-operational conditions.

FFCC recognises that such conditions form an important part of the Environmental Permitting regime. However, conditions should regulate activities that have already been demonstrated to be environmentally acceptable. They should not be used to compensate for the absence of information necessary to determine whether the statutory tests have been met. Several of the required future documents—including the Hydraulic Fracturing Plan, revised groundwater investigations and updated operational management plans—contain information that goes directly to the assessment of environmental risk.

The existence of these outstanding requirements demonstrates that important elements of the environmental assessment remain incomplete.

13.6 Geological and Hydrogeological Uncertainty

The Draft Decision concludes that stimulation activities present a low environmental risk.

At the same time, it requires additional fault mapping, geological analysis, hydrogeological investigations and fracture monitoring before operations commence.

FFCC submits that these requirements acknowledge the existence of unresolved uncertainty. In complex geological environments, uncertainty is itself an important consideration.

Where the consequences of error could include contamination of controlled waters or permanent underground disposal of extractive waste, incomplete geological information should weigh in favour of additional assessment before permission is granted.

13.7 The Underground Mining Waste Facility

The proposal includes the permanent retention of a substantial proportion of proppant carrier fluid within the geological formation.

The Draft Decision concludes that this constitutes a mining waste facility regulated under the Environmental Permitting regime. Although the Environment Agency considers that the associated risks are acceptable, important uncertainties remain regarding:

- the final dimensions of the waste facility;
- fracture propagation;
- long-term containment;
- geological pathways;
- future monitoring.

The permanent nature of this waste disposal activity reinforces the need for a cautious and evidence-based approach.

13.8 Best Available Techniques

Throughout the Draft Decision the Environment Agency concludes that the operator will apply Best Available Techniques (BAT).

However, several key operational documents demonstrating BAT are themselves subject to revision through pre-operational conditions.

This creates an apparent inconsistency.

If revised management plans are necessary to demonstrate BAT before operations commence, it is difficult to conclude that BAT has already been fully demonstrated during permit determination.

13.9 Public Confidence in Environmental Regulation

Environmental regulation depends not only upon technical competence but also upon public confidence.

The Cloughton-2 proposal has generated exceptional public interest. In such circumstances, regulatory transparency becomes particularly important. The Draft Decision undoubtedly reflects a substantial amount of technical work by Environment Agency officers.

Nevertheless, the repeated reliance upon future submissions, future assessments and future operational controls risks creating the impression that the environmental assessment remains incomplete.

A more cautious approach would strengthen confidence in both the decision-making process and the eventual outcome.

13.10 The Precautionary Approach

Environmental permitting is intended to prevent pollution before it occurs. That preventative purpose is reflected throughout environmental legislation.

Where uncertainty remains regarding:

- groundwater protection;
- geological behaviour;
- fracture propagation;
- waste management;
- emissions;
- environmental monitoring,

the precautionary approach favours obtaining additional evidence before irreversible activities are authorised.

FFCC submits that the Draft Decision does not consistently reflect this approach. Instead, it frequently assumes that future information will confirm the conclusions already reached.

13.11 Has the Statutory Test Been Met?

The central question for the Environment Agency is not whether the operator may ultimately be capable of complying with permit conditions.

The statutory question is whether, on the basis of the information currently available, the Agency can properly conclude that:

- the activity will not give rise to significant pollution;
- controlled waters will be protected;
- waste will be managed safely;
- emissions will be appropriately controlled;
- Best Available Techniques have been demonstrated;
- human health will be protected;
- the permit provides a high level of environmental protection as a whole.

FFCC submits that the Draft Decision does not yet demonstrate that these questions can be answered with sufficient certainty.

13.12 Overall Conclusions

The Draft Decision is a detailed and carefully prepared document that reflects significant technical work by the Environment Agency. FFCC recognises the professionalism and expertise that have informed its preparation.

However, the issue is not whether the assessment has been undertaken diligently. The issue is whether the evidence presently available is sufficient to support the legal conclusion that an environmental permit should now be granted.

Having reviewed the Draft Decision in detail, FFCC considers that several important components of the environmental assessment remain incomplete. The extensive reliance upon pre-operational conditions, future management plans, additional investigations and

further technical submissions demonstrates that the evidential basis for the permit has not yet been fully established.

The cumulative effect of the issues identified throughout this submission is greater than the significance of any individual point. Considered together, they reveal a determination that depends upon information still to be produced rather than information already available for scrutiny.

FFCC therefore submits that the Draft Decision is premature. The Environment Agency should require the outstanding information to be provided, independently assess that material, and consider whether any significant new evidence should be subject to further public consultation before reaching a final determination.

Such an approach would be consistent with the objectives of the Environmental Permitting regime, would reinforce the precautionary nature of environmental regulation, and would strengthen public confidence that any final decision rests upon a complete, transparent and robust assessment of the environmental risks.

13.13 Key Findings – Chapter 13

- The Draft Decision reaches firm conclusions while acknowledging that several fundamental technical documents remain outstanding.
- The cumulative effect of unresolved issues raises wider concerns about the completeness of the environmental assessment.
- The consultation process identified consistent technical concerns that, in FFCC's view, have not always been fully addressed.
- Extensive reliance on pre-operational conditions indicates that important aspects of the proposal remain under development rather than fully assessed.
- In light of the remaining geological, hydrogeological, waste management.

14. Conclusions and Recommendations

14.1 Introduction

Frack Free Coastal Communities (FFCC) has carefully reviewed the Environment Agency's Draft Decision to grant Environmental Permit **EPR/YP3623LC/A001** for the proposed Cloughton-2 Wellsite.

This submission has examined the Draft Decision against the statutory framework governing environmental permitting, the evidence presented within the Decision Document itself, the consultation responses, and the supporting material that has been made available during the permitting process.

Throughout this submission FFCC has sought to adopt a constructive and evidence-based approach. It has not sought to revisit matters that properly fall within the planning regime or wider questions of national energy policy. Instead, it has focused on whether the Environment Agency has demonstrated that the statutory tests for granting an Environmental Permit have been satisfied.

Having reviewed the Draft Decision in detail, FFCC concludes that those statutory tests have not yet been met.

14.2 The Central Concern

The principal concern identified throughout this submission is that the Draft Decision reaches firm conclusions regarding environmental acceptability whilst simultaneously acknowledging that important elements of the environmental assessment remain incomplete.

The Environment Agency repeatedly states that it is satisfied that risks to groundwater, surface water, air quality, geological integrity and human health can be adequately controlled. However, the same document confirms that significant technical information is still outstanding and will only become available through future submissions required by pre-operational conditions.

These include, amongst other matters:

- the Hydraulic Fracturing Plan;
- revised geological fault mapping;
- baseline groundwater investigations;
- an updated Surface Water Management Plan;
- an updated Waste Gas Management Plan;
- a Leak Detection and Repair Plan;
- confirmation of the final underground mining waste facility;
- further operational controls and monitoring arrangements.

FFCC submits that these are not matters of operational detail. They are fundamental components of the environmental assessment upon which the permitting decision should be based.

14.3 The Cumulative Effect of the Evidence

Each chapter of this submission has identified concerns regarding different aspects of the Draft Decision.

These include:

- the consultation process;
- reliance upon future information;
- geological uncertainty;
- groundwater protection;
- long-term waste management;
- Best Available Techniques;
- inconsistencies between planning and permitting documentation;
- the application of the precautionary principle.

Although each issue is important in its own right, FFCC submits that the Environment Agency should also consider their cumulative effect.

Taken together, these issues demonstrate that the Draft Decision depends heavily upon information that is yet to be produced rather than information already available for independent scrutiny.

It is this cumulative picture that gives rise to FFCC's principal concern.

14.4 The Importance of Public Confidence

The Cloughton-2 proposal has generated exceptional public interest.

The Environment Agency has undertaken an extensive consultation process reflecting that level of public concern. FFCC welcomes the Agency's efforts to engage with local communities and acknowledges the considerable technical work that has been undertaken during the determination process.

However, public confidence in environmental regulation depends not only upon technical expertise but also upon transparent decision-making and the ability to demonstrate clearly how evidence has informed the final decision. Where important technical information remains outstanding, granting a permit before that information has been assessed risks undermining confidence in the permitting process.

Conversely, requiring the outstanding work to be completed before determination would strengthen confidence that the final decision rests upon a complete and robust evidential foundation.

14.5 The Role of Pre-operational Conditions

FFCC fully recognises that pre-operational conditions are a well-established component of environmental permitting. They provide an important mechanism for regulating operational detail before activities commence.

However, this submission has demonstrated that many of the conditions proposed in this case extend beyond matters of operational implementation and instead concern issues that are fundamental to the assessment of environmental risk. Permit conditions cannot substitute for evidence. They regulate activities that have already been demonstrated to be environmentally acceptable.

They should not be relied upon to establish whether environmental acceptability exists in the first place.

14.6 A More Precautionary Approach

Environmental permitting is intended to prevent pollution before it occurs.

Where scientific uncertainty remains regarding geology, groundwater protection, fracture behaviour, long-term waste management or emissions, the precautionary approach supports obtaining further evidence before irreversible activities are authorised.

FFCC submits that the present application contains an unusual number of unresolved technical matters. Individually, each may appear manageable. Collectively, they demonstrate that the evidential basis for the proposed permit remains incomplete.

A more precautionary approach would therefore better reflect both the objectives of the Environmental Permitting regime and the Environment Agency's statutory responsibilities.

14.7 Recommendations

For the reasons set out throughout this submission, FFCC recommends that the Environment Agency:

Recommendation 1

Withdraw the current Draft Decision to grant Environmental Permit EPR/YP3623LC/A001 pending completion of the outstanding technical work identified throughout the Decision Document.

Recommendation 2

Require the applicant to submit all outstanding technical information before any final determination is made, including (but not limited to):

- the Hydraulic Fracturing Plan;
- updated geological fault mapping and fracture assessment;
- baseline groundwater monitoring results;
- revised Hydrogeological Risk Assessment where necessary;
- updated Surface Water Management Plan;
- updated Waste Gas Management Plan;
- Leak Detection and Repair Plan;
- confirmation of the final dimensions and extent of the underground mining waste facility;
- any additional documentation necessary to demonstrate Best Available Techniques.

Recommendation 3

Undertake a full technical assessment of that additional information before reaching a final permitting decision.

Recommendation 4

Consider whether the new material constitutes significant additional information that should be made available for further public consultation before the permit is determined.

Recommendation 5

Review the cumulative environmental assessment in light of the completed technical information, rather than considering each issue in isolation.

Recommendation 6

Apply the precautionary principle where material scientific uncertainty remains, particularly in relation to:

- geological structure;

- fracture propagation;
- groundwater protection;
- permanent underground waste retention;
- long-term environmental monitoring.

Recommendation 7

Provide fuller reasons where significant technical objections submitted during consultation have been rejected, so that consultees can better understand how their evidence has been evaluated.

14.8 Final Submission

FFCC recognises the expertise, professionalism and statutory responsibilities of the Environment Agency.

Nothing in this submission should be interpreted as criticism of the Agency's commitment to environmental protection. Rather, this representation reflects the belief that the exceptional environmental sensitivity of the proposed activities, together with the significant technical uncertainties acknowledged within the Draft Decision itself, justify a more cautious and evidence-led approach before any Environmental Permit is granted.

FFCC does not contend that the proposed activities could never satisfy the requirements of the Environmental Permitting (England and Wales) Regulations 2016. Instead, it submits that the evidence presently available does not yet provide a sufficiently complete basis upon which the Environment Agency can properly conclude that the statutory tests for granting the permit have been met.

For those reasons, FFCC requests that the Draft Decision be reconsidered, that the outstanding technical information be obtained and independently assessed, and that any final determination be made only after the evidential basis for the decision is complete, transparent and capable of public scrutiny.

Such an approach would reinforce the preventative purpose of environmental regulation, strengthen confidence in the permitting process and ensure that any eventual decision commands the confidence of the regulator, the applicant, local communities and all those with an interest in protecting the environment.

For and on behalf of,

Frack Free Coastal Communities

John Buckley BSc

