

Statement of Case

Regarding the Planning Application for the Curraghinalt Gold Project (Application AIL/2024/0008 and AIL/2024/0009)

Submitted to the Public Inquiry

By: [REDACTED]

Introduction

This statement of case is submitted in response to the planning applications AIL/2024/0008 and AIL/2024/0009 regarding the proposed abstraction and impoundment associated with the Curraghinalt Gold Project in County Tyrone. On behalf of the concerned community, I strongly object to this proposal on the grounds of environmental, hydrological, and legal deficiencies. These concerns, detailed below, demonstrate that the project poses unacceptable risks to human safety, the local environment, and the overall viability of the development. I request that the planning application be refused or reconsidered based on the following points:

1. Outdated and Insufficient Environmental Data

The Environmental Impact Assessment (EIA) provided for the Curraghinalt Gold Project is critically outdated, with some data being potentially four years old or more. According to best practices outlined by the Chartered Institute of Ecology and Environmental Management (CIEEM), environmental data older than two years cannot be considered reliable. The UK Government's Planning Practice Guidance also emphasizes that Environmental Statements must rely on current and accurate information to assess impacts. The use of outdated data undermines the precautionary principle, which demands preventive action when scientific evidence is incomplete. The lack of recent, relevant data makes it impossible to properly assess the risks, and as such, this application should be refused until updated assessments are conducted.

2. Misleading Cross-Sectional Data and Design Flaws

The documentation submitted by the applicant contains misleading cross-sectional diagrams of the proposed water impoundment areas. The diagrams are oriented east-west, which fails to reflect the true north-south topography of the site. This misrepresentation has significant implications for understanding the terrain and the potential risks of water storage on sloped land. Additionally, key infrastructure details such as spillways and culverts are missing, raising concerns about the project's structural integrity and the potential for flooding or failure. This misrepresentation of data and the absence of critical design details call into question the transparency and safety of the project.

3. Hydrological Risks and Flooding Threats

The proposed reservoirs pose significant hydrological risks, especially in relation to the Pollanroe Burn, which could act as an unintended spillway in the event of overflow or reservoir failure. The reservoirs are located on elevated ground, and any breach or overflow could result in uncontrolled water surges that would threaten nearby residential properties and infrastructure, including the busy Greencastle to Gortin Road. Given the history of severe weather events in the region, the failure to adequately assess these risks is a major oversight that could have disastrous consequences for both the environment and public safety.

4. Non-Compliance with the Northern Ireland Reservoirs Act (2015)

The proposed reservoirs exceed the 10,000-cubic-meter threshold stipulated by the Reservoirs Act (Northern Ireland) 2015, which mandates strict safety regulations for reservoirs of this size. Despite this, the application lacks appropriate measures for emergency planning, inspections, or maintenance, which are necessary under the Act. The location of these reservoirs on uneven, sloped terrain further increases the risk of catastrophic failure. The proximity to both residential properties and critical roads makes it essential that the project comply fully with the Reservoirs Act to mitigate these risks. Without such compliance, the project should not be allowed to proceed.

5. Environmental and Pollution Risks

The Pollanroe Burn and Owenreagh River systems, which are critical to the local ecosystem and provide drinking water to over 40,000 people, are at risk of severe contamination from pollutants discharged as part of the project's operation. The project's design and containment measures for tailings and other waste products are inadequate, especially in the context of heavy rainfall and extreme weather events. The discharge of heavy metals, chemicals, and other pollutants into these watercourses would have long-lasting detrimental effects on biodiversity, water quality, and public health. This is particularly concerning given the area's designation as a sensitive ecosystem, home to priority species such as salmon and trout.

6. Expert Evaluation of Water Usage and Infrastructure Deficiencies

In his report, *Evaluation of the Updated Environmental Statement for the Proposed Curraghinalt Gold Project*, hydrology expert Dr. Steven Emerman identified critical deficiencies in the project's design, including the proposed tailings dam, which is not designed to withstand the Probable Maximum Flood (PMF), as required by international dam safety standards. Instead, it is only designed for a 1000-year flood event, which is grossly inadequate. Additionally, the water usage predictions for the project are less than 10% of industry standards, casting doubt on the applicant's claims regarding environmental impacts. Dr. Emerman's findings underscore the risks posed by the project and support the rejection of the application.

7. Impact of Water Abstraction on Peatland Ecosystems

The proposed water abstraction will have severe impacts on local peatland ecosystems, which are highly sensitive to changes in groundwater levels. The desiccation of peatlands due to water withdrawal could lead to the degradation of carbon storage capacity, increased greenhouse gas emissions, and loss of biodiversity. The long-term damage to these ecosystems would undermine their role as carbon sinks and lead to broader environmental degradation. This project does not provide adequate safeguards to protect peatlands, and the risks to these ecosystems must be thoroughly considered.

Conclusion

The proposed Curraghinalt Gold Project presents serious and unacceptable risks to both the environment and the local community. The combination of outdated data, misleading documentation, hydrological risks, non-compliance with legal requirements, pollution threats, and the destruction of sensitive ecosystems creates a strong case for the rejection of this application. Furthermore, the expert analysis provided by Dr. Emerman highlights the significant deficiencies in the project's design and the unacceptable risks it poses.

For these reasons, I respectfully urge the Public Inquiry to reject this application in its current form and require the applicant to provide up-to-date, accurate assessments and fully comply with environmental and safety regulations before any further consideration is given.

Appendix

I am attaching a document titled *Objection to AIL/2024/0008 and AIL/2024/0009* for the Public Inquiry's review. This document provides a detailed analysis of the project's risks and supports the points raised in this statement.

Dear NIEA, Water Regulation Team

We are writing to express our strong objection to the proposed abstraction and impoundment at lands adjacent to 80 Mullydoo Road, Greencastle, County Tyrone, BT79 7QP (E258418, N383902) as detailed in the application reference AIL/2024/0008 and AIL/2024/0009.

Upon meticulous examination of the application and its supporting documents, we have identified several profound concerns that question the project's viability, environmental safety, and community impact. This letter outlines these issues in detail, urging a comprehensive reconsideration of the proposal.

The following information contained within this document is in reference to AIL/2024/0008 and AIL/2024/0009 and the applications which are now sitting in front of the department to make a ruling on. This document is to present evidence of short comings in the process and application by the department and the applicant for the purpose of getting the above-mentioned applications refused.

There is a number of points which must be mentioned for further investigation by the department and relevant agencies to allow for full substantial and transparent consideration of these applications.

Following points are as listed.

1. The data that has been used to assess this application is now what can only be classed as out of date and as such flies in the face of the precautionary principle.
2. All cross sections listed are from the orientation of east – west, which is inconsistent with what would be required of transparent and honest application as local knowledge will know that this area is on the side of a hill running North – south.
3. Some of the drawings are misleading in the labelling of information or data, it can be seen when there are site overviews which would allow for full understanding of site topography water bodies are labelled with data such as “formation level” but is absent of “water level”
4. Key design aspects of the infrastructure are missing, this is in reference to culverts and Spillways.
5. Reservoir act, it can be seen clearly for anyone with knowledge of the local terrain that the water bodies will be above natural ground level of surrounding grounds, especially in the areas leading to the Pollanroe burn.
6. No consideration to the natural formation of the Pollanroe burn and how it will act as a spillway containing any water bodies until they reach lower levels which will include the busy Greencastle to Gortin road B46 Crockanboy Road, which would lead to endangerment of life in extreme weather events.
7. To date no rebuttal has been forthcoming to the report produced by the eminent [REDACTED] [REDACTED] a leader in his field and internationally recognised expert in the field of Hydrology. In his report “Evaluation of the Updated Environmental Statement for the Proposed Curraghinalt Gold Project, County Tyrone, Northern Ireland” he states that the projected usage figures of water within the process of mining a refining the materials in this project are only 10% of industrial standards. This would have a major and catastrophic impact on the local environment and ecosystems.

8. The accompanying infrastructure to this impoundment application would lead to series issues with pollutants been discharged directly into the Pollanroe burn and then the Owenreagh River system. This can be clearly seen on the applicants' documents.
9. Flaws in Water Balance Assumptions and Lack of Contingency Planning for Treatment Systems
10. Effects of water abstraction on Peatlands.

Point 1 – Relevance of data

First and potentially most importantly point one and the reference to data been out of date, as can be seen in the supporting documents "CURRAGHINALT GOLD PROJECT: ABSTRACTION LICENCE APPLICATION (SURFACE WATER)" that EIA (Environmental Impact Assessment) to this proposed abstraction license was originally submitted in the overall 2017 application for the entirety of the project and then updated in 2020.

The Chartered Institute of Ecology and Environmental Management (CIEEM) provides guidelines that are widely recognized in the UK for the preparation of ecological reports. According to the CIEEM's guidelines:

- **"Field surveys should be undertaken within an appropriate period and updated as necessary to provide an accurate assessment of the site conditions at the time of the application."**
- **"Survey data may become outdated if there are significant changes to the site or if the data is over two to three years old."**

This suggests that ecological survey data older than two years may not be considered recent or reliable for decision-making purposes. The guidelines emphasize the importance of using current data to reflect actual site conditions. Also relating to this is the information gather below.

UK Government Planning Practice Guidance:

- The UK Government's Planning Practice Guidance for Environmental Impact Assessment states that "the Environmental Statement should be prepared on a sound evidence base and contain sufficient information to enable the significance of effects to be determined."
- The guidance suggests that outdated information should be reviewed and, where necessary, updated to reflect current conditions.
- Source: UK Government Planning Practice Guidance

Institute of Environmental Management & Assessment (IEMA):

- IEMA's "Guidelines for Environmental Impact Assessment" emphasize the need for using the most current and accurate data available. It suggests that data should be as recent as possible and relevant to the conditions at the time of the assessment.
- The guidelines highlight the importance of justifying the use of older data and ensuring it remains representative of current conditions.

- Source: IEMA Guidelines for Environmental Impact Assessment (accessible through IEMA membership)

It can clearly be seen by any reasonable person that the data is now potentially 4 years old and, in some cases, depending on when the studies were conducted before been put in the 2020 updated submission, it could be potentially older and outdated.

As stated in previous submissions there is the potential for environmental and human health harm. This then relates to the founding value of the precautionary principle which is to take preventive action in the face of uncertainty to avoid potential harm to human health and the environment. It emphasizes the need to act proactively when scientific evidence about potential risks is incomplete or inconclusive. Data that is potentially out of date and unreflective of current environmental conditions can only be seen as inconclusive and incomplete. As such this license should be refused to at least such a time there is relevant data collected which would allow all parties to do a thorough and conclusive assessment of the application as per best practice guidance.

Point 2 – cross sectional data misleading.

Within document UPDATED ES (2) Vol 3 - App B12 - Design Drawings - 10 of 18 - Received 04.11.2020 submitted by the applicant there is numerous cross-sectional diagrams detailing the different aspects of the planning application and in them is the cross-sectional diagrams of the proposed ponds for impoundment. It was stated in an email received under Freedom of Information that there were major decisions made from these cross-sectional diagrams, please see below email.

From: [REDACTED] <@infrastructure-ni.gov.uk>
Sent: Sunday, March 24, 2024 8:52 PM
To: [REDACTED] <@daera-ni.gov.uk>
Cc: [REDACTED] <@infrastructure-ni.gov.uk>; DAERA Abstractions & Impoundments Licensing Team <AIL@daera-ni.gov.uk>; [REDACTED] <@infrastructure-ni.gov.uk>; [REDACTED] <@infrastructure-ni.gov.uk>; [REDACTED] <@infrastructure-ni.gov.uk>
Subject: RE: URGENT Dalradian Gold - Consultation on applications for Abstraction and Impoundment Licences (AIL/2020/0105 & AL/2020/0106) -

[REDACTED]

Apologies, I didn't get a chance to reply on Friday.

With thanks to my Rivers colleagues, I believe your understanding is correct, and the lagoons fall outside of the Act.

From the attachments and in particular the levels and cross sections that were supplied it seems that the ponds will be excavated structures and as such the storage volume will be below the natural level of the surrounding land (definition of a controlled reservoir considers structures or areas that hold water above the natural level of the surrounding land).

There does not appear to be any form of impounding structure being constructed to hold water above the natural level of the surrounding land, so we don't believe a controlled reservoir is the intended construction and therefore the Act wouldn't apply.

Colleagues have suggested that once up and running, it may be worth a site visit just to confirm, but that would be for another day.

Hope this helps.

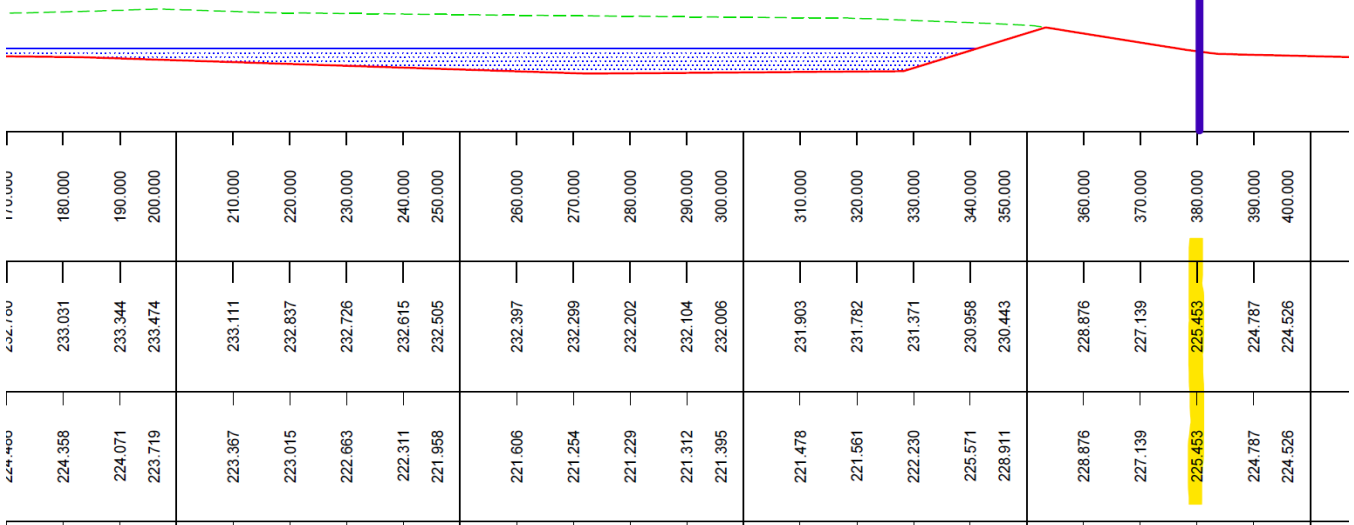
Thanks,

[REDACTED]

There is a number of points here to consider and highlight, firstly anyone with local knowledge of the area would recognise immediately that the cross-section diagrams are running East – West which would be on the same elevation plain and this area is on the side of a hill which runs from the higher terrain in the North to lower terrain in the South. This should have and can be verified on any readily available OS map or other maps of the same kind online. These diagrams do not give a true and accurate representation of the area and the levels of the terrain immediately beside the proposed ponds. It could also be concluded that the manner in which the west and lower east ponds cross sectional maps ended before taking in the drastic change in elevation as they approached the area of the Pollanroe burn could be construed as an attempt to mislead and misrepresent data to the deciding department officials.

Even with this selective representation of data it can still be seen from some of the data that there is an elevational difference along the East – west viewpoint. Please see below for West Pond

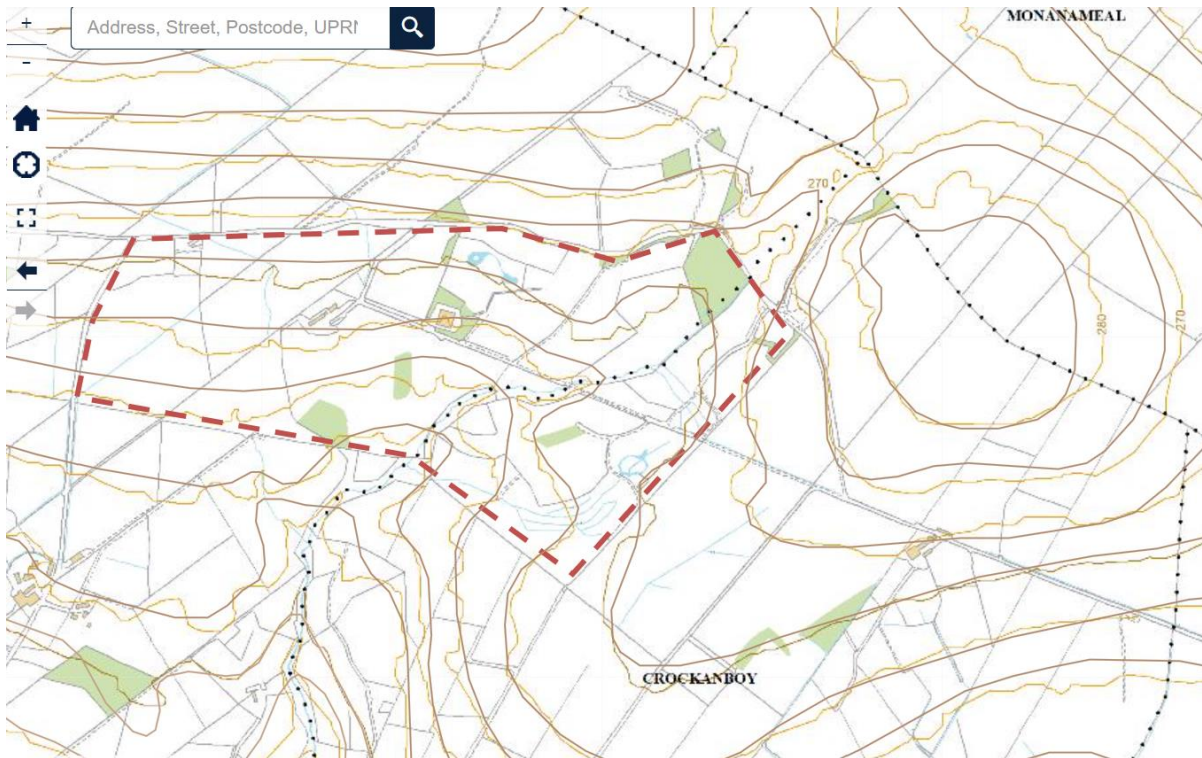
WEST POND
 Typical Operating
 Water Level = 226.0m
 Max Volume = 38,855m³



It can clearly be seen here that even with the selective representation of data it is still impossible to hide the fact that water levels will be higher than the surrounding natural ground level. The fact that these ponds contain immensely above volumes of 10,000 cubic meters on the side of a hill would clearly represent that they are indeed falling under the legal framework of the Reservoirs Act (Northern Ireland) 2015.

It can be clearly seen in the below images that this area is a hill side running from North to South and with varying elevations due to its uneven and hilly topography. The areas in question which will house the proposed ponds are within the broken red line and can be compared to maps submitted by the applicant of the area and overlays with the ponds.





Due to the elevation cross section data been taken from the wrong orientation for the terrain in question this application should not be approved until such times as there is a full and independent assessment of the terrain and the implications it would have on such large bodies of water been stored so closely to residential properties and a proposed road running meters from it which the public will be using.

Point 3 - Misleading Labelling of data

Following on from point 2 it should also be noted that some of the information pertaining to this application is labelled in such ways that are misleading and could bring about false conclusions from reviewing the information.

This is in reference to maps which would give a full overview of the project, and its impoundment ponds as can be seen in UPDATED ES (2) Vol 3 - App B12 - Design Drawings - 10 of 18 - Received 04.11.2020 page 7 of 14 where instead of giving water levels it gives formation levels.

If the same map is taken with the detail given in the below illustration taken from the same document but on page 9 of 14 it would make for far more concerning and different reading, as it can be seen the water level is sitting at 229m this data with a ground level in the immediate area sitting at 225.453m, which clearly and unarguably demonstrates these reservoirs fall under the reservoirs act.

PROPOSED ADOPTED PUBLIC ROAD AND EXISTING LANE WEST JUNCTION
1:500

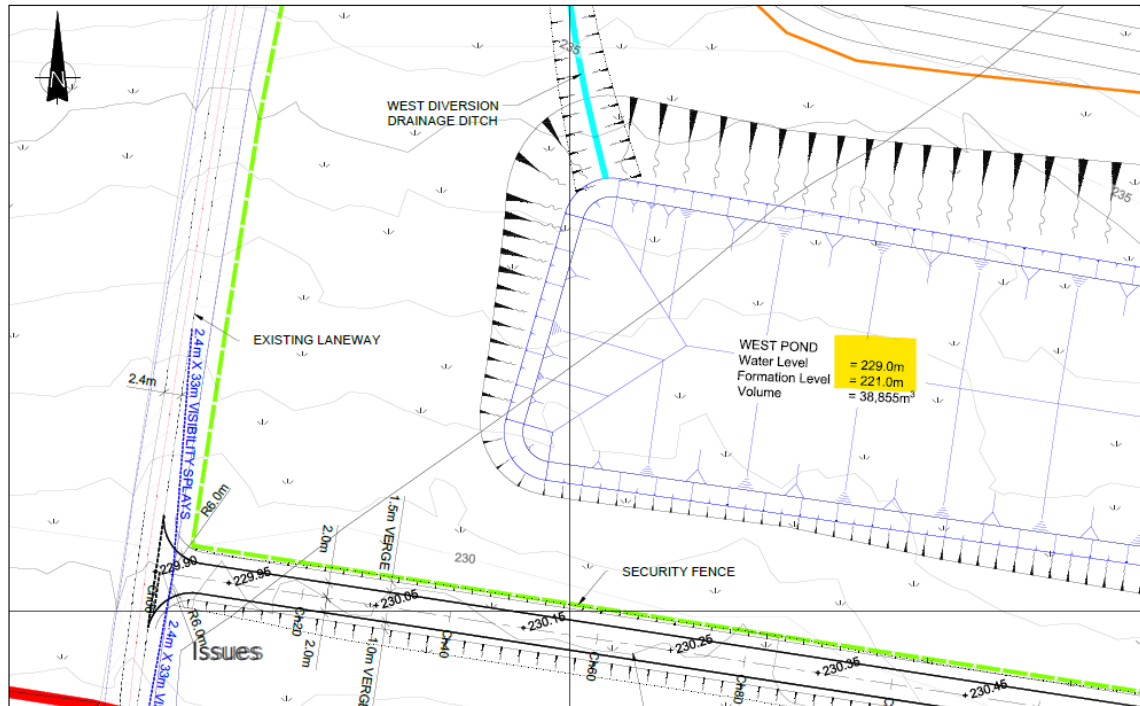


Figure 2 – 229.0 meters highlighted in Yellow for west pond

Point 4 – Missing Infrastructure detail

As a community group we would also like to outline the critical concerns related to the missing design details, such as dimensions and construction methods, for spillways and culverts associated with reservoirs, especially when these structures are located near roads and environmentally sensitive areas. These concerns are essential to ensure the safety of public as well as to protect the environment.

A. Structural Integrity and Safety Risks

- **Undersized or Inadequate Structures:** Without precise dimensions, there is a significant risk that spillways and culverts could be undersized, leading to insufficient capacity to handle peak flow events. This could result in overtopping or failure of these structures, posing a serious threat to the integrity of the reservoir, the adjacent roads, and the safety of people using these roads.
- **Incorrect Construction Methods:** Missing construction method details may lead to improper installation, including poor compaction, inadequate reinforcement, or incorrect material selection. These errors can compromise the structural integrity of the spillways and culverts, increasing the likelihood of failures such as erosion, collapse, or blockage.

B. Hydrological and Hydraulic Performance

- **Flow Capacity and Flooding Risks:** Spillways and culverts are critical for managing the water flow from the reservoir. Without accurate design dimensions, there is a risk that these structures may not be able to accommodate the expected flow rates during heavy rainfall or reservoir drawdown events, leading to flooding. This can threaten nearby roads, disrupt transportation, and cause severe damage to the environment.
- **Scour and Erosion:** Incorrectly designed or constructed spillways and culverts can lead to scour and erosion at the outlet points. This can undermine road foundations, cause embankment failures, and result in significant environmental degradation, especially in sensitive areas like wetlands or habitats for endangered species.

C. Environmental Impact

- **Sediment and Pollution Control:** If the spillways and culverts are not properly designed, they may fail to control sediment and pollutants effectively, leading to contamination of downstream water bodies. This is particularly concerning in environmentally sensitive areas where water quality is crucial for the health of ecosystems.
- **Disturbance to Habitats:** Poorly designed spillways and culverts can disrupt natural water flow patterns, leading to habitat destruction or alteration. This could affect local wildlife and plant species, especially in protected or environmentally sensitive regions.

D. Roadway Safety and Maintenance Concerns

- **Roadway Stability:** The stability of roads adjacent to reservoirs relies heavily on the proper functioning of spillways and culverts. Any failure in these structures can lead to road subsidence or collapse, posing a direct risk to public and company personnel.
- **Maintenance Challenges:** Incomplete design details can make it difficult to predict maintenance needs and intervals. This uncertainty can lead to unexpected failures and increased long-term costs due to more frequent and extensive repairs.

E. Regulatory Compliance and Liability Issues

- **Non-Compliance with Standards:** Spillways and culverts must meet specific regulatory standards and codes. Missing design details increase the risk of non-compliance, which could lead to legal challenges, fines, and the loss of public confidence in oversight bodies within the departments.
- **Liability for Failures:** In the event of a failure that leads to injury, loss of life, or environmental damage, the lack of proper design documentation can result in significant liability for the planners, engineers, and the company. This can lead to legal action and damage to the department's reputation.

F. Risk to Human Life

- **Direct Threats:** In the event of structural failure, the rapid release of water from the reservoir through a failed spillway or culvert could pose an immediate danger to anyone in the vicinity,

including road users and company personnel. Flash flooding and road washouts are potential risks that could result in fatalities.

- **Immediate threat to life due to lack of consideration of Crockanboy Road:** The proposed storage of millions of liters of water uphill from residential areas poses a significant risk, particularly to the properties at [REDACTED] and [REDACTED]. The road that passes [REDACTED] and leads directly to the T-junction [REDACTED] is flanked by high-sided ditches, which would exacerbate the funnelling effect in the event of a sudden, massive release of water due to structural failure, extreme weather, or an unforeseen accident. These high-sided ditches would channel the water with increased force and velocity, directing it straight towards these homes and creating a scenario where the risk of severe flooding is drastically heightened. The resulting surge of water, concentrated by the natural topography and road infrastructure, could lead to catastrophic flooding, endangering both life and property. It is crucial that these specific geographical and infrastructural risks are thoroughly assessed to fully understand the potential dangers before proceeding with the licensing process.

Point 5 – Applicability of the Reservoirs Act (Northern Ireland) 2015

Given the significant elevation differences and the location of the proposed water bodies above the natural ground level, particularly in areas adjacent to the Pollanroe Burn, it is clear that these impoundments should fall under the jurisdiction of the Reservoirs Act (Northern Ireland) 2015. This legislation mandates strict safety and regulatory standards for reservoirs holding 10,000 cubic meters or more of water, recognizing the severe risks these bodies can pose to public safety, infrastructure, and the environment. The proposed reservoirs, by the applicant's own documentation, clearly exceed this threshold and are located on uneven, sloping terrain, which further exacerbates the potential for catastrophic failure in extreme weather events. The close proximity of these reservoirs to residential properties and the busy Greencastle to Gortin B46 Crockanboy Road further underscores the necessity for this project to be subject to the full range of inspections, maintenance requirements, and emergency planning measures dictated by the Reservoirs Act. Failure to do so would represent a significant oversight, putting both human life and the environment at unnecessary risk. We strongly urge the department to ensure that this project is evaluated and regulated in full compliance with the Reservoirs Act to mitigate these serious risks.

Point 6 – Hydrological Risks Associated with the Pollanroe Burn

A critical concern with the proposed impoundment is the failure to adequately consider the natural hydrology of the Pollanroe Burn, particularly how it might function as an unintended spillway during extreme weather events or in the case of reservoir overflow. In its upper regions, the Pollanroe Burn is substantially deep, which could temporarily contain large volumes of water. However, as the burn approaches the public road, it becomes significantly shallower. This transition in depth poses a serious risk, as any sudden release of water from the reservoirs—whether due to structural failure or extreme weather—would likely result in a large, uncontrolled surge of water.

This surge could overwhelm the shallow sections of the Pollanroe Burn near the road, leading to a rapid and forceful impact against the bridge and road infrastructure. The design and current condition of the bridge may not be sufficient to withstand such a sudden and concentrated flow of water, potentially leading to structural damage, road washouts, or even collapse. This situation would not only disrupt transportation but also endanger the lives of road users and nearby residents which there is a number in close proximity to the burn both at the bridge and downstream of the road and bridge area of the burn.

Moreover, this risk is exacerbated by the fact that the proposed reservoirs are positioned on higher ground relative to the Pollanroe Burn. This topographical relationship means that any overflow or breach could direct large volumes of water toward the burn, increasing the likelihood of a catastrophic flood event at the point where the burn intersects the road. The potential for such an event has not been adequately addressed in the application, and the implications for public safety, infrastructure integrity, and emergency response capabilities are severe.

Given these hydrological risks, it is imperative that the department fully assess the capacity of the Pollanroe Burn to safely convey overflow water under worst-case scenarios, including the impact on the road and bridge infrastructure. Failure to do so would represent a significant oversight in the risk assessment process and could lead to disastrous consequences for the local community.

Point 7 – Expert Evaluation of Inadequate Infrastructure and Water Usage Predictions

The proposed Curraghinalt Gold Project presents significant risks that have been thoroughly documented in a report by ██████████ an internationally recognized expert in hydrology and geotechnical analysis. ██████████ report, *Evaluation of the Updated Environmental Statement for the Proposed Curraghinalt Gold Project, County Tyrone, Northern Ireland*, identifies several critical deficiencies in the project's design and its potential environmental impact.

One of the most alarming findings is the lack of adequate drainage infrastructure for the proposed 54-meter-high mine tailings dam. ██████████ points out that the infrastructure is designed to withstand only a 1000-year precipitation event, despite international and UK dam safety standards requiring that such structures be designed for the Probable Maximum Flood (PMF), a far more severe event. This inadequacy significantly increases the risk of dam failure, particularly during periods of heavy rainfall, which could lead to catastrophic consequences. The report further highlights that the

dam stability analysis is insufficient, as it only considers the geotechnical properties of the tailings, without accounting for the co-disposed materials or foundation materials. Even under these limited conditions, the analysis shows that the dam could become marginally stable if the water table rises to just 11 meters above the ground surface.

Additionally, the report underscores the absence of any analysis of the consequences of dam failure, despite numerous houses being located within 1000 meters downslope from the dam. In the event of a failure, the initial surge of tailings could extend up to 17.5 kilometers, with the potential to cause devastating impacts downstream along the Owenkillew and Strule Rivers. Such an event would not only endanger human lives but also result in long-term environmental damage.

Another critical issue identified by [REDACTED] is the predicted water consumption for the project, which is less than 10% of gold mining industry standards. This prediction is particularly concerning because it forms the basis for assessing the surface water and groundwater impacts of the project. Despite the applicant's claims, there is no justification provided for this unusually low water consumption, raising serious doubts about the accuracy and reliability of the environmental impact assessments. Moreover, achieving water efficiency at the relatively low throughput rates planned for this mine is highly challenging, further complicating the project's feasibility.

Given these substantial risks and the expert recommendation for rejection, it is clear that the proposed project does not meet the necessary safety, environmental, or operational standards. The department must take into serious consideration [REDACTED] findings, which argue that the Curraghinalt Gold Project, as currently proposed, could have catastrophic consequences for both the local community and the environment. It is strongly recommended that this application be rejected outright, or at the very least, that a comprehensive and independent review be conducted to address these critical deficiencies before any further consideration. This is all in context to the fact that the proposed impoundment ponds are directly adjacent to and downstream from the tailing's storage facility.

Point 8 – Potential Environmental Impacts and Pollution Risks

The proposed infrastructure associated with the Curraghinalt Gold Project poses significant risks to the local environment, particularly with respect to the Pollanroe Burn and the Owenreagh River system. The applicant's documentation suggests that there will be an increased likelihood of pollutants being discharged directly into these water bodies, which could lead to severe and long-lasting environmental damage.

The Pollanroe Burn and the Owenreagh River are critical components of the local ecosystem, supporting a range of aquatic species and contributing to the overall health of the region's water systems. Any introduction of contaminants from the mining operations, such as heavy metals, sediment, or chemical runoff, could disrupt these ecosystems, leading to the degradation of water quality, loss of biodiversity, and potential harm to species that are sensitive to changes in their habitat. It should also be noted that the downstream area of this discharge point is a protected area and as such should be treated as a protected area also due to the direct relationship of both areas.

One of the most concerning aspects of the proposed project is the inadequacy of the design and containment measures for the tailings and other waste products which sit directly beside the proposed reservoirs and as such must be considered. The storage ponds and diversion ditches, which are intended to manage runoff and prevent pollution, are only designed for a 1000-year precipitation event. As noted by Dr. Emerman in his expert report, this standard is far below what is required by internationally recognized dam safety regulations, which mandate designs that can withstand the Probable Maximum Flood (PMF). Without proper design and containment, there is a substantial risk that these systems will be overwhelmed during extreme weather events, leading to uncontrolled discharges of polluted water into the surrounding environment.

Moreover, the filtration and drainage infrastructure proposed for managing the tailings does not appear to be sufficient to prevent the resaturation of the tailings, particularly during periods of heavy rainfall. Resaturated tailings could lead to increased runoff and leaching of contaminants into the Pollanroe Burn, which then flows into the Owenreagh River. This could have serious consequences not only for the aquatic ecosystems but also for downstream water users, including communities that rely on these water sources for drinking water, agriculture, and recreation.

The applicant's documents also fail to adequately address the cumulative impacts of these potential discharges, particularly when considering the long-term operation of the mine and the likelihood of multiple extreme weather events over its lifespan. The omission of a robust assessment of these risks suggests a lack of due diligence and raises serious concerns about the potential for significant environmental harm and potential threat to human health through pathways such as food chain exposure.

Furthermore, the project's proximity to environmentally sensitive areas, including habitats that may support protected species, means that even small amounts of pollution could have outsized impacts. The precautionary principle should be applied in this context, requiring that all necessary precautions are taken to avoid harm to these vulnerable ecosystems. The current proposals do not meet this standard and therefore present an unacceptable risk to the environment.

Given the potential for significant pollution and environmental degradation, it is essential that the department carefully consider these risks in their review of the application. The failure to adequately design and plan for the containment and management of pollutants, combined with the project's location near critical water bodies, warrants a thorough and independent reassessment of the project's environmental impacts. In light of these concerns, I strongly recommend that this application be refused or, at a minimum, subjected to a comprehensive Environmental Impact Assessment and risk assessment that addresses these deficiencies in detail.

Point 9 – Flaws in Water Balance Assumptions and Lack of Contingency Planning for Treatment Systems

The application relies heavily on the assumption that large volumes of water will be effectively treated through the proposed Reverse Osmosis (RO) plant and other associated treatment systems. However, this assumption is critically flawed due to the lack of allowance for operational efficiency variances and the complete absence of a contingency plan in the event of plant failures. These oversights could result in significant environmental risks, particularly concerning the Pollanroe Burn and the Owenreagh River system.

Operational Efficiency and Water Balance Concerns

The RO plant and associated treatment systems, as detailed in the design documents, are expected to handle substantial volumes of water, with a design capacity of 30 to 50 cubic meters per hour. The efficiency of these systems is contingent upon several factors, including membrane performance, feed water quality, and the operational condition of the systems. However, the application does not account for potential reductions in efficiency due to membrane fouling, variations in feed water characteristics, or the need for maintenance and cleaning cycles. Any reduction in operational efficiency could result in lower-than-expected permeate output and higher volumes of untreated or partially treated water being released into the environment.

Lack of Contingency Planning

Of even greater concern is the absence of any contingency planning in the application to address potential failures of the RO plant or other treatment systems. The document does not provide details on how the system would handle scenarios such as:

1. **Membrane Failure:** Membrane technology is highly sensitive to feed water quality, and membrane fouling, or damage can occur, leading to a significant drop in treatment efficiency or even complete system failure. The sensory equipment mentioned in the design criteria of the treatment plant are accepted as not infallible and are indeed prone to failure to fouling in the example of TDS meters and equipment fatigue and are broad in their tolerance of error. There is no mention of backup systems or emergency protocols to prevent untreated water from bypassing the system in such events.
2. **Power Outages or Mechanical Failures:** The design documents indicate a substantial reliance on power-driven processes, with numerous pumps, filters, and chemical feeders required to maintain system operations. In the event of a power outage or mechanical failure, there appears to be no contingency plan to manage the untreated water, which could result in a direct discharge of polluted water into the Pollanroe Burn. There is vague mention on monitoring sensors which are not wholly reflective of the detail which would be expected from a plant which failure could cause such detrimental effects. The sensors mentioned such as turbidity which are prone to fouling and conductivity which are Non-Specific Measurement, Conductivity measures the total ionic content in water but does not distinguish between different types of ions. There is not the level of redundancy and robustness which would be seen as a must in a project of this size and potential harm.
3. **Extreme Weather Events:** While the treatment systems are designed to handle specific flow rates, the application does not consider how the systems would cope during extreme weather events that might overwhelm the treatment capacity. Such scenarios could lead to the overflow of untreated or inadequately treated water into the surrounding environment.
4. **Accumulative effect of backwash:** The plant design is as such that the concentrate from the process will be directed to the ponds, leading to greater concentrations of heavy metals and pollutants over a period of time. This has not been accounted for in the design assumptions or operational efficiencies of the UF and RO plant specially after periods of shut down or elevated concentrations of contaminants in feedwater, specifically from the mining and

processing processes and underdrainage and waste storage run off and site run off and finally underground mine pumped out waters.

Potential Environmental Impact

Without proper contingency plans, the failure of these systems would likely result in the discharge of polluted water containing heavy metals, chemicals, and other contaminants into the Pollanroe Burn and subsequently the Owenreagh River. These watercourses are vital to the local ecosystem, and any pollution event could have severe consequences, including the degradation of water quality, harm to aquatic life, and the disruption of downstream water users.

Given these significant risks, the department must critically assess the robustness of the proposed water treatment infrastructure. The absence of contingency planning is a substantial oversight that could lead to catastrophic environmental damage. Therefore, it is essential that the application includes detailed emergency response and backup plans to manage water treatment failures. Without such provisions, the application should not be approved, as it fails to meet the basic requirements for environmental protection and risk management.

Point 10 – Impact of Water Abstraction on Peatland Ecosystems

Water abstraction in peatland areas poses significant risks to the hydrological balance, carbon storage capacity, and overall health of these sensitive ecosystems. Peatlands, particularly those sustained by consistent groundwater levels, are highly vulnerable to the effects of water withdrawal. Research indicates that water abstraction can lower groundwater levels, leading to the desiccation of peatlands. This drying process alters critical peat properties, including pH, water content, and the rate of organic matter decomposition. As a result, these areas may experience increased tree encroachment and accelerated mineralization of peat, transforming peatlands from carbon sinks into potential carbon sources.

While studies from regions like the Hudson Bay Lowlands in Canada highlight the severe impacts of water abstraction on peatlands in subarctic climates, it is important to recognize that Northern Ireland's milder, more temperate conditions also make its peatlands particularly sensitive to changes in water availability. In the absence of adequate moisture, these ecosystems may undergo significant shifts, leading to a reduction in their ability to store carbon and maintain biodiversity.

Moreover, the combined effects of climate change and anthropogenic water extraction exacerbate these challenges, potentially leading to a loss of ecological function in peatlands and an increase in greenhouse gas emissions. Given these risks, the potential impact of water abstraction on the peatlands in the project area must be carefully considered. Without stringent safeguards, the proposed activities could result in irreversible damage to these critical ecosystems, undermining their role in carbon storage and contributing to broader environmental degradation.

