

Statement of Case to Oppose the Granting of Discharge Consents TRC 080/081 20_1 for Dalradian Gold's Gold Mining and Processing Plant

Introduction

This statement is submitted to the Planning Appeals Commission (PAC) to oppose Dalradian Gold Limited's (DGL) application for water discharge consents related to the Curraghinalt Gold Project. The proposal involves discharging mine water and treated sewage into the Curraghinalt Burn, Pollanroe Burn, and ultimately into the Owenkillev and Owenreagh Rivers—two vital ecosystems that support biodiversity and provide drinking water to thousands of residents in the Derry and Tyrone area.

This submission outlines key legal, environmental, and public health concerns associated with the proposed discharges. The application relies on outdated data, lacks proper contingency planning, poses significant pollution risks, and contradicts the precautionary principle, all of which warrant the rejection of the discharge consents. Furthermore, this statement provides a detailed analysis of the deficiencies in the proposed **Reverse Osmosis (RO) plant**—a critical part of the water treatment system that lacks adequate planning and could lead to catastrophic environmental harm.

Failure to Address the Landmark Legal Analysis

Dalradian Gold was given an opportunity to respond to a comprehensive legal analysis conducted by Landmark Chambers. The analysis outlined the legal framework for the discharge consents, including obligations under the Water Framework Directive (WFD), the Habitats Regulations, and the Wildlife and Natural Environment Act 2011 (WNEA 2011). However, Dalradian Gold has not provided a response for public review, leaving significant legal and environmental questions unanswered.

This failure to engage with critical legal analyses undermines the integrity of the process, depriving stakeholders of the opportunity to evaluate the company's approach to addressing these crucial issues.

Violation of the Aarhus Convention and Public's Right to Information

The department was requested to supply the applicant's response to the Landmark legal analysis, but it has not provided this information to the public. This failure violates the **Aarhus Convention**, which guarantees the public's right to access environmental information and participate in decision-making processes. The absence of this information weakens public participation, a fundamental pillar of environmental governance, and must be addressed before any decision is made.

Environmental Impact on Special Area of Conservation (SAC)

The Owenkillev River, which will receive the proposed discharges via the Owenreagh, is designated as a **Special Area of Conservation (SAC)** due to its populations of **Freshwater Pearl Mussel (FWPM)** and **Atlantic Salmon**. Both species are highly sensitive to water quality changes, particularly in relation to **biological oxygen demand (BOD)** and **nitrate levels**.

Landmark Chambers' legal analysis, supported by Dalradian Gold's own water quality modelling, reveals that the proposed discharges would further degrade these water quality parameters. The Owenkillev River is already in an unfavourable condition, and any additional deterioration would contravene the **Habitats Regulations** and pose a direct threat to these vulnerable species.

Public Health Risk: Contamination of Drinking Water Supply

The Owenreagh River, which is set to receive treated sewage and mine water discharges, serves as a **drinking water catchment** for the Derg water treatment plant, which supplies over 40,000 people. The river is already classified as having **poor chemical status** under the Water Framework Directive. Introducing further pollutants such as nitrates, BOD, and potentially heavy metals increases the risk of contamination, threatening public health.

The introduction of additional pollutants into a drinking water source without sufficient mitigation strategies is unacceptable and highlights the critical need for strict precautionary measures. It must also be noted that there has been no assessment of the accumulative effects of small amounts of these pollutants and possibly chemical used in the processing of the ore would have on the population dependant on this water source.

Failure to Protect Biodiversity

Joint **investigative electro-fishing surveys** conducted by the Northern Ireland Environment Agency (NIEA) and Loughs Agency have shown that the **Curraghinalt Burn** and **Pollanroe Burn** support **juvenile salmonids**, including **Atlantic Salmon** and **trout**, both of which are classified as **priority species**. The protection of these species is vital under environmental regulations, as they are key indicators of ecosystem health and are particularly sensitive to water quality changes.

Allowing the proposed discharges into these watercourses would severely degrade these critical habitats, jeopardizing the survival of these priority species. The preservation of Atlantic Salmon and trout, as priority species, is not only an ecological responsibility but also a legal obligation under national and international environmental regulations.

Outdated Data Contradicts the Precautionary Principle

The data used to support this application is outdated, with some reports being as much as six years old. According to best practice guidelines from the **Chartered Institute of Ecology and Environmental Management (CIEEM)** and **UK Government Planning Practice Guidance**, ecological data older than two to three years is unreliable. This outdated data invalidates the application under the **precautionary principle**, which mandates proactive measures when there is scientific uncertainty, particularly in cases where public health and environmental risks are involved.

Inadequacies in the Reverse Osmosis (RO) Plant and Lack of Contingency Planning

The **Reverse Osmosis (RO) plant**, a critical component of the project's water treatment infrastructure, is fraught with significant operational and design flaws that exacerbate the risk of environmental pollution.

Limitations of the Water treatment Plant Design

The RO (Reverse Osmosis) plant is designed to treat substantial volumes of water—between 30 to 50 cubic meters per hour. However, the efficiency of the system is highly contingent on several operational factors, including **membrane performance, feed water quality, and system maintenance**. Membrane fouling, for example, is a common problem in RO systems, which can dramatically reduce treatment efficiency or even lead to system failure.

Membrane Fouling and System Downtime: RO membranes are highly sensitive to changes in water quality, and fouling from contaminants like heavy metals, sediments, and other pollutants can reduce their effectiveness. When fouling occurs, the plant requires downtime for cleaning and maintenance, during which untreated or inadequately treated water could be discharged into the environment. The application does not address how such downtime will be managed or what contingency plans will be in place to prevent environmental contamination.

Lack of Contingency Planning

One of the most alarming shortcomings of the application is the absence of robust contingency plans in case of system failures. The following risks have not been addressed adequately:

- **Membrane Failure:** Membrane fouling or damage is likely in a system exposed to variable water quality from mining processes. The application fails to specify backup systems or emergency protocols to handle such failures, meaning untreated water could bypass the system and be discharged directly into the **Pollanroe Burn** and **Owenreagh River**.
- **Power Outages or Mechanical Failures:** The RO plant and associated treatment systems are power-driven and reliant on multiple pumps and filters. In the event of a power outage or mechanical failure, there is no outlined backup plan to prevent untreated water from being discharged into surrounding ecosystems. This poses a grave threat to water quality, especially in the event of heavy rainfall or other extreme weather events that could overwhelm the system.
- **Extreme Weather Events:** The current design does not account for the potential impact of extreme weather, which could overwhelm the system's capacity and result in the release of untreated or partially treated water into the environment. With climate change increasing the frequency of such events, this omission is a critical oversight.
- **Accumulation of Contaminants:** The design of the RO system does not adequately address the **accumulative effect of contaminants**, such as heavy metals and chemicals, over time. The backwash from the RO process, which contains concentrated pollutants, is expected to be directed into the impoundment ponds. Over time, these ponds will accumulate higher levels of contaminants, increasing the likelihood of overflow or leaching into nearby watercourses. The failure to account for the long-term impact of these pollutants poses a serious threat to both the **Pollanroe Burn** and **Owenreagh River** ecosystems. There is also

mention of concentrated wastes been run through a drying process which will result in a crystallised salt which will be collected periodically, this dry caked waste will be the concentration byproduct of the water treatment process and as such will be in a highly pure form. This waste has not been categorised and potentially could be classed as a category A waste product as pertaining to Decision 337/2009/EC.

International Comparisons of RO Failures

There are several documented cases of water treatment failures that resulted in significant environmental damage. For example:

- **The Gold King Mine spill in Colorado (2015)** released over 3 million gallons of contaminated water into local rivers due to inadequate water treatment systems. The incident serves as a stark reminder of the risks associated with underprepared water management systems at mining sites.
- **Mount Polley Mine disaster (2014)** in British Columbia saw the breach of a tailings pond, leading to the release of contaminated water into nearby rivers and lakes. A lack of adequate water treatment and containment systems contributed to the disaster.

These examples illustrate the catastrophic consequences that can arise when water treatment systems fail or are overwhelmed by extreme conditions. The proposed RO plant for the Curraghinalt Gold Project, lacking proper contingency planning, could result in similar disasters if not addressed adequately.

Potential for Environmental Pollution

The proposed infrastructure poses significant pollution risks, particularly regarding the release of **heavy metals, chemical runoff, and suspended solids** into the **Pollanroe Burn and Owenreagh River**. Without adequate contingency planning and infrastructure, pollutants from the RO plant, tailings, and runoff will likely lead to severe and long-lasting damage to these ecosystems.

Given the proximity to sensitive areas, even small amounts of pollutants could have an outsized impact, degrading water quality and threatening biodiversity. The project must be reassessed to address these deficiencies and ensure that all precautionary measures are in place to avoid environmental degradation. This also highlights the need for up-to-date information. We have seen in this month alone (October 2024) two 1000-year events in America and we see every night the televised reports of adverse weather patterns all over Europe and Asia and the planet.

Compelling Evidence of Biodiversity in the Owenreagh River

Despite the Owenreagh River's classification as being in an unfavourable condition, recent ecological surveys provide compelling evidence of a thriving and biodiverse ecosystem, supporting species such as **Atlantic Salmon** and **trout**. Allowing the introduction of additional pollutants from the RO plant or other parts of the project would jeopardize this biodiversity, making it critical to protect the Owenreagh River and its surrounding habitats.

It should also be considered an industrial reverse osmosis plant typically lowers the pH of treated water, making it more acidic. This change is primarily due to the removal of alkaline minerals that buffer the water and the increased absorption of carbon dioxide, which forms carbonic acid. To mitigate these effects and achieve desired pH levels, post-treatment steps such as remineralization and pH adjustment are often implemented. This application makes no mention of this or indeed the extent to which it will remove pollutant and suspended solids. This taken in to consideration along with fact that there natural source of the water will be removed through the abstraction process which has also been applied for in this mine application will change the consistency and mineralogical make up of the waters. This not been assessed or considered in this application or the harm it would cause to the ecosystems and animals of the burn and associated rivers.

Conclusion and Request

Given the severe deficiencies in the RO plant design, lack of contingency planning, reliance on outdated data, and significant risks to biodiversity and public health, we respectfully urge the Planning Appeals Commission to reject Dalradian Gold's application for water discharge consents.

The proposed discharges pose an unacceptable risk to both the environment and public health. At a minimum, the PAC should require stringent conditions, updated environmental assessments, and detailed contingency plans to ensure compliance with the precautionary principle and relevant legal obligations.

The PAC must prioritize the protection of public health, biodiversity, and the environment, ensuring that all actions align with the **Water Framework Directive**, **Habitats Regulations**, and the **Aarhus Convention**.