

Save Our Sperrins Statement of Case re Discharge Consents
Curraghinalt Public Inquiry re Dalradian Gold Application

October 2024

Executive Summary

Save Our Sperrins opposes the granting of Discharge Consents TrC 080 20_1 & TrC 081_20_1 to Dalradian Gold.

These Discharge Consents are part of & directly linked to a much larger goldmining application LA10/2017/1249/F. In the event that the goldmining application is refused, the Discharge Consent applications should not be considered or processed as stand-alone applications, but should be deemed null and void. Also if the Discharge Consents are not granted the goldmining application should not be granted.

These two Applications for Discharge Consents would contravene the Habitats Directive, Water Framework Directive, Owenkillev River Management plans, Espoo Convention, Aarhus Convention, Water (NI) Order, NIES/RPS Owenkillev Sub-basin Management Strategy 2013, Directive on the Conservation of Natural Habitats & of Wild Fauna & Flora (92/43/EEC), Article 7 of EFD (2006/EC), Practical Implications of FWPM Measures 2013, the Draft Environment Bill NI 2024, FODC Local Development Plan 2030 & FODC Biodiversity Strategy & Action Plan 2022-2027.

This document addresses the following:

- Water Quality Failings- applications should be refused where they may cause deterioration of the status of a waterbody
- Environmental Sensitivity- in particular ASSI & SAC status should be protected
- Ecological Value – protection not pollution of Curraghinalt and Pollanroe Burns
- River Quality Status- improvement not pollution
- Due Diligence – failure of Applicant to comply with consent limits plus failure of DAERA to prosecute breaches
- Water Supply – application should be refused where it may adversely impact the status of a body of surface water plus Applicant has understated consumption of water
- Cross Border Consultation- failure to consult contrary to obligations under Espoo Convention
- Issues causing confusion- inaccuracies, inconsistencies and lack of transparency all in breach of Aarhus Convention
- Key environmental concerns –contravenes SAC & ASSI designations, fails to comply with Habitats Directives and Regulations, endangers freshwater habitats including that of the freshwater pearl mussels, fails to comply with stated EQS for several metals, with absence of testing by NIW
- Potential Contamination- serious concern
- Regulatory Compliance- contraventions of Directives and Regulations, risks to environment and health
- Risks re sewage – risks to environment, aquatic life and people

Both these Applications are to discharge trade effluent (including site drainage, spills from chemicals & fuels used on premises, runoff from roads, yards & buildings & from mine waste storage area as well as mine water from underground workings) into the Curraghinalt Burn and into the Pollanroe Burn. In addition, TrC 081 20_1 includes an application to discharge sewage into the Pollanroe Burn. These applications should be refused on the grounds set out below:

Water Quality Failings

Granting these consents would breach Reg 3(2) of the Water Environment (Water Framework Directive) Regulations (NI) 2017 as DAERA must determine an authorization to prevent deterioration of surface water status of a body of water and otherwise to support the achievement of the environmental objectives set for the body of water under regulations 12 and 13.

An authorization must be refused where it may cause a deterioration in the status of a waterbody or where it jeopardises the attainment of good surface water status. There is a deterioration in surface water status as soon as the status of at least one of the quality elements fails by one class. [Bund v Germany C-461/13]

The environmental objectives set for the Owenkillew River and the Owenreagh River are to achieve “good status” and to achieve compliance with the standards and objectives required by the Conservation (Natural Habitats and Species) Regulations (NI) 1995. A grant of these applications would breach that.

A grant of this application would also breach regulation 3 of the Water Framework Directive (Classification, etc) Regulations (NI) 2015.

A grant of this application would breach section 1(1) of the Wildlife and Natural Environment Act (NI) 2011 as it is the duty of every public body in exercising its functions to further the conservation of biodiversity. This includes restoring populations [s.1(3)] and DAERA is required to publish a list of species which are judged to be of principal importance for conserving biodiversity. [s. 3] DAERA’s publication includes Freshwater Pearl Mussels (“FWPM”) and salmon.

No adequate Appropriate Assessments were carried out, contrary to regulation 43 of the Habitats Regulations. The discharge must not adversely effect the integrity of the SAC.

The proposed discharge would render the make-up of the bodies of water unsuitable for the FWPM and the salmonoid juvenile hosts the FWPM rely on.

The bodies of water are already in Unfavourable condition and the condition of the water would be reduced further by these proposed discharges.

Owenkillew River

Dalradian’s own modelling shows that the current BOD upstream of the Curraghinalt Burn is 2mg/l and with the discharges this will increase to 2.3mg/l, making the condition worse and increasing the already breached limit of 1mg/l. Dalradian’s modelling shows that the current concentration of nitrates is 0.12mg/l, which just meets the guideline annual mean of less than

0.125mg/l. However, this is the modelled concentration, the actual measured concentration is 0.26mg/l, which is in excess of the guideline. Dalradian's modelled concentration to take into account the discharge is 0.19mg/l, which significantly exceeds the guideline. It is likely that the actual concentration (to which the FWPM will be subjected) will be more than this. The BOD in the Owenkillew River also exceeds that appropriate for salmon (1.5mg/l) and so that is also likely to cause harm to FWMP.

Owenreagh River

The Dalradian modelling for the ORR shows that the water quality is significantly worse in respect of BOD and nitrates below the confluence with the PB with the proposed discharges. Nitrates increase from 0.24mg/l upstream to 0.53mg/l below PB and 0.47mg/l at the Owenreagh River when it reaches the Owenkillew River. The concentration will be much higher than in the Owenkillew River at that point and so the PB discharges will worsen water quality in the FWPM habitat downstream of the Owenkillew River confluence. BOD will also increase with the PB discharges although there is no data for the BOD content at the confluence with the Owenkillew River, which is a serious flaw.

In both bodies of water the conditions will be made worse by the proposed discharges. It should therefore be recommended that they are not granted.

With due regard to the Precautionary Principle ¹ & in view of all the potential risks, negative environmental impacts & major concerns regarding these applications, both Discharge Consents, TrC 080 20_1 & TrC 081_20_1, should be rejected

Environmental sensitivity

The environmental sensitivity of the overall site must be acknowledged and recognised at the outset. The Curraghinalt Burn flows into the Owenkillew River SAC & ASSI and the Pollanroe Burn flows into the Owenreagh River ASSI which in turn joins the Owenkillew. The Owenkillew river joins the Glenelly River, the Strule River, the Mourne River, the Derg River and the Finn River before becoming the River Foyle (SAC & ASSI). These rivers are all hydrologically and ecologically linked and cannot be treated as separate entities. Any negative impact on one constituent body will affect the whole Foyle River system. The special designations attached to these rivers mean they should be afforded the highest level of protection under the Habitats Directive, the Water Framework Directive & the River Management Plans, FODC Local Development Plan, all of which would be contravened if these Discharges were allowed.

Ecological value

Both Curraghinalt and Pollanroe Burns have **ecological value** as confirmed by the Loughs Agency. This means they have to be protected under the Habitats Regulations, not polluted by toxic discharges.

¹ Office for Environmental Protection. 2023. Precautionary Principle. <https://www.theoep.org.uk/sites/default/files/reports-files/Advice%20on%20the%20Northern%20Ireland%20Environmental%20Principles%20Policy%20Statement.pdf>

Overall River quality Status

The Northern Ireland Water Framework Directive Statistics Report 2021 stated “In 2021, when the presence of uPBT were included as part of the chemical assessment no river water bodies achieved good or high overall status.”² Accepting that the rivers in NI are already polluted, the focus should be on improving their quality, not adding to their pollution.

Due diligence of Dalradian

The applicant's history of breaching previous discharge consents & pollution incidents should be a material consideration.

A NIEA Officer (Officer P2 on 26 April 2018) in over-ruling a recommendation to prosecute wrote: “*the sample analysis shows results which are approximately 3 times the consent limit. While there is no absolute policy against prosecuting in such circumstances, **informal Regulation Group guidelines are that the threshold for prosecution is normally around 5 times consent limits.***”³ This seems to allow pollution with impunity and immunity.

The lack of proper governance and of regulation & enforcement by DAERA has been highlighted many times over the years and should be a material consideration in this regard. The BBC NI Spotlight programme of 26th October 2021 showed the serious and longlasting consequences of the actions of Dalradian’s Chief Executive in Brazil.⁴ Previous history should also be a material consideration.

Water Supply Concerns

Dalradian’s response to Q 5 ‘Rainfall Independent Discharges’ in Annex 2 of both Applications implies that Mains Water will be a source of supply. This would be in addition to abstracting half a million gallons of water per day from the peatland. It also supports Dr. Emerman’s assertion that Dalradian has downplayed the amount of water needed for their goldmine.⁵ This raises serious questions about the potential impacts on the local water supply if Dalradian’s planning application (LA10/2017/1249/F) were to be allowed.

Cross-Border Consultation

There appears to have been inadequate consultation with relevant authorities in Donegal. The River Foyle and its tributaries flow through 3 counties: Tyrone, Derry and Donegal so there is a cross-border factor to these Applications and it has not been properly addressed, in contravention of the Espoo Convention.

² NIEA / DAERA. December 2021. Northern Ireland Water Framework Directive Statistics Report. <https://www.daera-ni.gov.uk/sites/default/files/publications/daera/NI%20Water%20Framework%20Directive%20Statistics%20Report%202021.pdf>

³ NIEA. 14 Oct 2021, EIR Response to EIR request of 10 October 2021

⁴ BBC NI Spotlight, 2021. *War in the Sperrins*. <https://youtu.be/MLPLAZdhSjM>

⁵ Dr Emerman, S.H, 2024. Evaluation of the Updated Environmental Statement for the Proposed Curraghinalt Gold Project, Co Tyrone. https://drive.google.com/file/d/1PvW_or1U88XMr_ZIpmqdgfGexywwdpuk/view?usp=sharing

Confusing Application Details/ Delayed Advertisements & Inaccuracy in Advertisement/Incorrect Application Categorisation / Management & Administrative Procedural problems / A number of documents not shared with PAC

Lack of response to phone calls and unfulfilled requests for paper copies which would seem to breach people's rights under the Aarhus Agreement, being entitled to full and open information.

Inconsistencies in the applications regarding dates applied for, which appears to have been a breach of the Water NI Order, Schedule 1, para. 2(2)

Further breach in that there was no continuity in several of the extensions granted.

Application TrC 080 20_1 is **not** a variation of a Discharge Consent 068/12/12 and should have been treated as a new application as it is for a different grid reference.

A number of Documents relating to both applications have not been shared with PAC.

Inaccuracy in the Advertisement for TrC 081 20_1 on the name of Pollanroe Burn

Inaccuracy in Application TrC 081 20_1 on detail of Planning Permission applied for.

Inaccuracies in DAERA'S references to application date & address for TrC 081 20_1

All these would seem to breach people's rights under the Aarhus Agreement, being entitled to full and open information.

Key Environmental Concerns

To discharge toxic substances into the Curraghinalt Burn which is hydrologically linked to the Owenkillew river SAC & ASSI would be in contravention of Article 6(2) of the Habitats Directive 92/43/EEC. Similarly, to discharge toxic substances into the Pollanroe Burn which is hydrologically linked to the Owenreagh river ASSI would be in contravention of Article 6(2) of the Habitats Directive 92/43/EEC.

Negative impacts on freshwater habitats, especially Fresh Water Pearl Mussels, Ireland's only globally endangered species, would be in contravention of NIEA/RPS Owenkillew Sub-Basin Management Strategy 2013. It would violate the recommendations for Favourable Conditions, Water Quality Criteria for Freshwater Pearl Mussels in NIEA's own document 'Practical Implications of Freshwater Pearl Mussels measures 2013.'

Negative impacts on wildlife would fail to take cognisance of the Fourth Report by the UK under Article 17 on the Implementation of the Directive on the Conservation of Natural Habitats & of Wild Fauna & Flora (92/43/EEC) as well as the Habitats Regulations & FODC Biodiversity Strategy.

Pollution of water sources. The proposed discharge criteria for several metals exceeds the limits set by the Environmental Quality Standards (EQS) from the Water Framework Directive (NI) 2015, indicating potential environmental concerns and risks to aquatic life and the water quality. In light of the most recent update on the nitrogen status of the Owenkillew River, this application cannot be considered until the protected site has returned to Favourable Management Conditions and it can be demonstrated that any emissions from the project will not exceed the site's critical threshold.

The proposed discharge criteria should be listed as 'Total', not 'Dissolved', as the latter can bioaccumulate and be released at a later date⁶

⁶ Emerman, S.H. 2023. Evaluation of a Proposal for Cyanide Extraction of Gold and Silver from Mine Waste at the Leadville Mill, Lake County, West-Central Colorado.. Dissolved and Total Concentrations (subsection). <https://drive.google.com/file/d/15cykYyefgBzUA0WKQft9niu5MDuWv2lB/view>

The cumulative effect of the Discharges could put people's health at risk as water is abstracted from the river near Newtown Stewart to feed the reservoir for the people of Castlederg area (39,000 households). NI Water does not test for heavy metals & even if they did, they have no system of removing them.

Potential Contamination

Activities eg. mining and runoff that could contaminate surface water
Speculation on substances like acids, oils, flocculants, and diesel
Lack of quantification and risk assessment for potential substances

Regulatory Compliance

Grave Concerns about NIEA's agreement to allow deterioration levels in contravention of the Conservation Objectives of the river and associated Regulations & Directives, contrary to statements on DAERA's website about the damaging impacts of these pollutants on biodiversity as well as on human health. There are concerns over whether NIEA has the technical capacity to evaluate a modern mining project. In 2018 Dr Emerman identified ten reasons as to why the scientific basis by which NIEA set consent limits for effluent discharge by Dalradian Gold was invalid:⁷

- “1) The streamflow in Curraghinalt Burn does not follow a lognormal distribution.
- 2) Since there is no streamflow record for the Owenkillev River above the confluence with Curraghinalt Burn, it cannot be confirmed that the streamflow follow a lognormal distribution. Moreover, since the streamflow for the Owenkillev River at Crosh does not follow a lognormal distribution, it is unlikely that a lognormal distribution is followed by the streamflow for the Owenkillev River above the confluence with Curraghinalt Burn.
- 3) Since the flow rate record for the effluent has not been provided, it cannot be confirmed that the flow rates follow a lognormal distribution or even that the flows are continuous. Moreover, the assumption that the standard deviation is one-third of the mean cannot be confirmed.
- 4) Out of the five chemical parameters (Cd, Cu, Fe, Hg, Zn), there are no cases where the parameter follows a lognormal distribution at all three relevant sites (effluent above the confluence with Curraghinalt Burn, Curraghinalt Burn above the confluence with the Owenkillev River, Owenkillev River above the confluence with Curraghinalt Burn).
- 5) NIEA has provided dual versions of the input data with no indication as to which version is correct or why dual versions exist.
- 6) Neither of the dual versions of the input data can be reconciled with the statistical summaries of the input data. Moreover, the streamflow record of Curraghinalt Burn cannot be reconciled with its statistical summary.
- 7) Statistical summaries of the water quality and streamflow data obtained from Kaya Consulting cannot be reconciled with statistical summaries of the data provided by NIEA.
- 8) The NIEA analytical laboratory does not appear to have appropriate detection limits for a study of this kind. Moreover, the discussion and use of detection limits is filled with contradictions.
- 9) In the case where a detailed numerical calculation has been provided, it has been shown that the wrong input data were used.

⁷ Emerman, S.H. 2018. Evaluation of the Use of a Mixing Model in a Water Discharge Consent issued by the Northern Ireland Environment Agency. Pps 13-14.- Appendix 1

10) The screenshots of data input cannot be reconciled with the data that were provided. In at least one case, repetition of incorrect values suggests a data entry error.”

Potential risks associated with sewage effluent discharges (TrC 081 20 1)

Concerns about disease-causing organisms entering the river / cumulative impact of pollutants goldmine's potential lifespan

Questions remain over the sewage quantity per day.

Questions remain over lack of regulatory standards for ‘faecal coliforms’, ‘total coliforms’, ‘enterococci’ & ‘e-coli’.

The risk of these disease-causing organisms entering the river, killing fish and other aquatic life, as well as contaminating water supplies & ultimately affect people’s health.

No consideration of the cumulative impact of the coliforms as well as the heavy metals, acids, runoffs and fuels, etc over the potential 20 year life of a goldmine and the acid mine drainage in perpetuity.

Appendix 1 - Emerman, S.H. 2018. Evaluation of the Use of a Mixing Model in a Water Discharge Consent issued by the Northern Ireland Environment Agency. Pps 13-14

(see Fig. 5c). For the upstream river data for Zn, the mean quality should have been 4.18 and the standard deviation of quality should have been 2.52 (see Table A3), instead of the entered values of 4.55 and 4.18, respectively (see Fig. 5d). For the discharge data for Zn, the mean quality should have been 19.0 and the standard deviation of quality should have been 20.5 (see Table A3), instead of the entered values of 251.89 and 125.94, respectively. Although the values of mean quality and standard deviation of quality were entered correctly for Fe, the Fe concentration in the Curraghinalt Burn downstream of the confluence with the effluent is still not correct because incorrect values for the mean flow and Q95 of Curraghinalt Burn were used.

The second use of the mixing model for the flow of the combination of the effluent and Curraghinalt Burn into the Owenkillev River showed additional discrepancies (see Fig. 5e). In this case, "Upstream River Data" refers to the Owenkillev River, while "Discharge Data" refers to the combination of the effluent and Curraghinalt Burn. In other words, the "Discharge Data" is simply the output from the use of the Monte Carlo software to mix the effluent with Curraghinalt Burn. Thus, all of the input entries for "Discharge Data" must be incorrect because, as shown above, all uses of the mixing model to combine the effluent with Curraghinalt Burn involved incorrect data entries. Furthermore, the mean flow for the discharge data is incorrect because it simply adds the mean flow rate of the effluent with an incorrect value for the mean flow rate of Curraghinalt Burn (see Fig. 5e). In addition, the standard deviation of flow for the discharge is simply assumed to be one-third of the mean, which is a completely unjustified assumption, as discussed previously. Finally, for the upstream river data for Zn, the mean quality should have been 4.50 and the standard deviation of quality should have been 4.20 (see Table A4), instead of the entered values of 4.55 and 4.18 (see Fig. 5e). For all of the above discrepancies, there is no way to determine whether they were data entry errors or whether the data that were used to determine the discharge consents were not the same as the data provided by Coey (2018) and Brown (2018a). However, it should be noted that the values of 4.55 and 4.18 for mean quality and standard deviation of quality, respectively, were incorrectly used twice as entry values for Zn, first with Curraghinalt Burn as the upstream river (see Fig. 5d), and second with the Owenkillev River as the upstream river (see Fig. 5e). This suggests at least one example of a data entry error, although it is still not clear where the numbers 4.55 and 4.18 came from.

DISCUSSION

There are at least ten reasons as to why the scientific basis by which NIEA set consent limits for effluent discharge by Dalradian Gold is invalid:

- 1) The streamflow in Curraghinalt Burn does not follow a lognormal distribution.
- 2) Since there is no streamflow record for the Owenkillev River above the confluence with Curraghinalt Burn, it cannot be confirmed that the streamflow follow a lognormal distribution. Moreover, since the streamflow for the Owenkillev River at Crosh does not follow a lognormal distribution, it is unlikely that a lognormal distribution is followed by the streamflow for the Owenkillev River above the confluence with Curraghinalt Burn.
- 3) Since the flow rate record for the effluent has not been provided, it cannot be confirmed that the flow rates follow a lognormal distribution or even that the flows are continuous. Moreover, the assumption that the standard deviation is one-third of the mean cannot be confirmed.
- 4) Out of the five chemical parameters (Cd, Cu, Fe, Hg, Zn), there are no cases where the parameter follows a lognormal distribution at all three relevant sites (effluent above the

confluence with Curraghinalt Burn, Curraghinalt Burn above the confluence with the Owenkillew River, Owenkillew River above the confluence with Curraghinalt Burn).

- 5) NIEA has provided dual versions of the input data with no indication as to which version is correct or why dual versions exist.
- 6) Neither of the dual versions of the input data can be reconciled with the statistical summaries of the input data. Moreover, the streamflow record of Curraghinalt Burn cannot be reconciled with its statistical summary.
- 7) Statistical summaries of the water quality and streamflow data obtained from Kaya Consulting cannot be reconciled with statistical summaries of the data provided by NIEA.
- 8) The NIEA analytical laboratory does not appear to have appropriate detection limits for a study of this kind. Moreover, the discussion and use of detection limits is filled with contradictions.
- 9) In the case where a detailed numerical calculation has been provided, it has been shown that the wrong input data were used.
- 10) The screenshots of data input cannot be reconciled with the data that were provided. In at least one case, repetition of incorrect values suggests a data entry error.

There are two remaining issues regarding the use of the Monte Carlo software to determine discharge consent limits. The first is that, among other input data, the mean and standard deviation of a water quality parameter of the effluent are used to determine the 90th percentile of the same water quality parameter in the downstream river. However, the standard deviation of the water quality parameter in the effluent is simply a measure of the past history of the variation in the water quality parameter. Unlike the variation in water quality in the natural streams of Curraghinalt Burn and the Owenkillew River, the variation in water quality in the effluent is under the control of Dalradian Gold. On this basis, it is not clear as to why the past history of variation in water quality is relevant to setting a discharge consent. Once a discharge consent has been set, Dalradian Gold presumably has the right to release effluent with that water quality on a continuous process. Therefore, it seems as if the discharge consent should be determined by setting the standard deviation of the water quality parameter of the effluent equal to zero.

The second issue is that the Monte Carlo software could be used without the assumption of a lognormal distribution. In fact, most applications of the Monte Carlo method do not make any assumptions about the input data. A more typical application would involve randomly choosing values from the actual input data, rather than from an assumed distribution. For example, the repeated random choices for the Zn concentration in the Owenkillew River could simply be chosen randomly from the measured values given in Table A4. This option is available in the Monte Carlo software under the tab labeled "Monte Carlo Simulation for Non-Parametric Distributions" (Murdoch, 2012). The use of this option requires entering all of the measurements as an ASCII file, rather than entering the summary statistics. It is clear from the provided screenshots (see Figs. 5a-e) that the non-parametric option was not chosen. Some problems in exercising this option are that it would be necessary to enter all of the effluent flow rates (which have never been provided) and all of the streamflows for the Owenkillew River above the confluence with Curraghinalt Burn (which seem to have never existed).

However, it cannot be emphasized enough that the real issue is not the proper use of the software. There is no software that will yield appropriate consent limits without high-quality input data. There are so many contradictions and unanswered questions regarding the input data that I have no confidence in either the data or any consent limits that were determined using

