

Save Our Sperrins Rebuttal to Dalradian Gold's Statement of Case in respect of Water Abstraction and Impoundment Applications

November 2024

1. Vague and Inconsistent Language

Save Our Sperrins refutes Dalradian's Statement of Case on Water Abstraction and Impoundment in its entirety. It is comprised of vague language, inconsistencies, suppositions and references to other versions of Dalradian documents, making it impossible to follow or reasonably cross reference. For example, page 8, the Clean Water Pond holds 19,180 cubic metres whereas on page 11, Fig. 3. the same pond holds 40,260 cubic metres. On page 13 under DAERA comments, it states "in response to 2020 Applications,..DAERA, in its letter dated 18th November 2018 ...' The latter assertion by Dalradian is simply nonsensical in claiming that a letter could have been sent by NIEA in November 2018 in response to 2020 applications.

2. Independence of Golder Associates

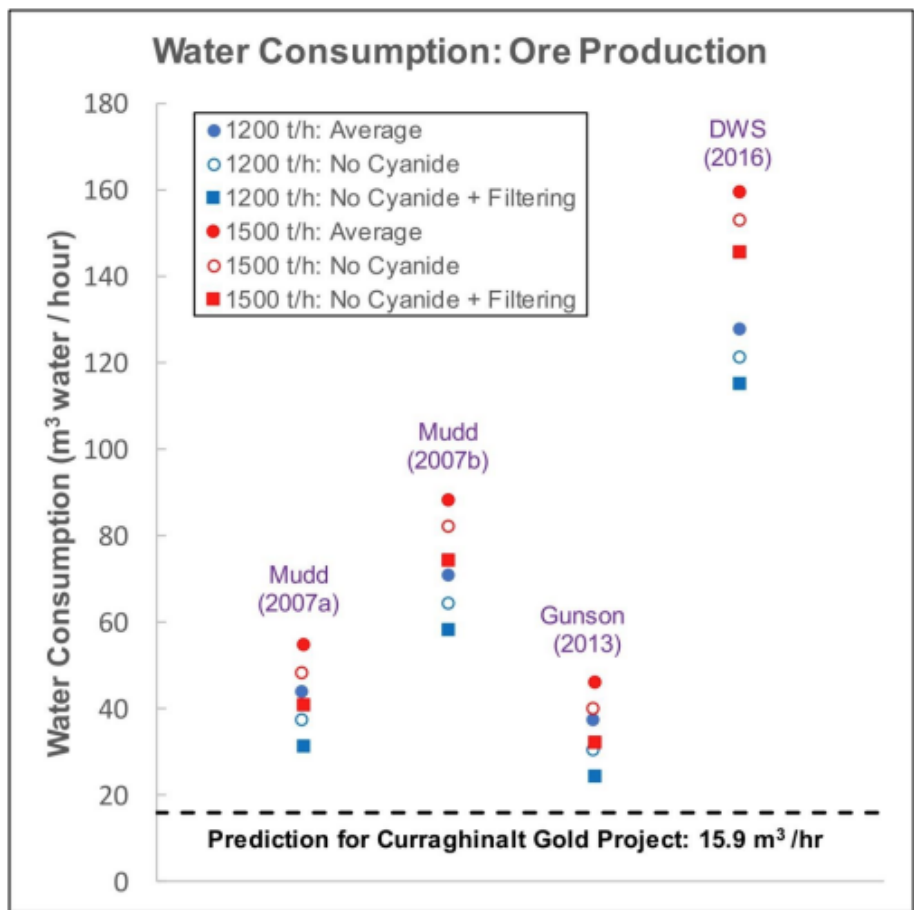
Golder Associates are described as "independent" in Dalradian's documents. Save Our Sperrins perceives that Golder has a conflict of interest in their work for Department for Infrastructure(DfI)(2020-2021) in view of their previous work for Dalradian from 2011-2017. An application for Leave for a Judicial Review in relation to a perceived conflict of interest was made in 2021 but the Applicant was out of time and the Judge indicated that if there is an issue in relation to the independence of Golder, the correct forum to explore that is the Public Inquiry.¹Golder provided Dalradian with a Tailings management facility site selection study in 2011, a series of audits in 2012, professional services relating to a waste licence exemption in 2013 and testing on tailings 2015 – 2016 for the purpose of the 2017 Environmental Statement submitted as part of Dalradian's Planning Application. Golder was contracted by DfI in 2020 for 18months to assess Dalradian's Waste Management Plan (MWMP). Save Our Sperrins has not had sight of the terms of reference for the latter. DfI's Statement of Case states that Golder "carried out a detailed review of the content, aims and objectives of the Mine Waste Management Plan. They have not identified any issues within the Mine Waste Plan that would render the material content of the MWMP unacceptable for consideration at the Public Local Inquiry." It is not stated whether the model was validated and calibrated. The Mining Association of Canada (MAC) defines independent review as 'independent evaluation of all aspects of the design, construction, operation, maintenance of a tailings or other mine waste facility by competent, objective, third-party review.' In addition to the MAC's definition, independent review must demonstrate financial independence from the operating company/mine owner.²

¹<https://www.judiciaryni.uk/files/judiciaryni/decisions/Tracey%27s%20%28Martin%29%20Application%20%28Leave%20Stage%29.pdf>

²Morrill, J. et al. (2020), Safety First: Guidelines for Responsible Mine Tailings Management, Earthworks and MiningWatch Canada. <https://earthworks.org/resources/safety-first/>

3. Water Consumption Rate

In 2020, the water consumption rate was calculated to be 15.9 cubic metres per hour and now this has been reduced by almost 20% to 12.9 cubic metres per hour. See Figure 3 in Dalradian’s Water Abstraction Statement of Case. They have reduced the make-up water by 3 cubic metres per hour by assuming that 3 cubic meters per hour will be supplied by the water contained within the ore body. Dr Steven Emerman contends that Dalradian has understated the consumption of water by their proposed gold mine³ (see graph below). He compared their predicted rate of water consumption with 6 studies from other gold mines. He found that, “The predicted water consumption rate of 15.9 cubic metres per hour for the Curraghinalt gold project is less than 10% of the water consumption rate by six studies even taking all adjustments into account.” As the required water consumption rate is the entire basis (the critical assumption) that underlies all of the hydrogeological modelling, this completely undermines the Dalradian modelling and predictions. Furthermore, it is highly unlikely that the entire mineral and tailings processing occurs with no loss of water (zero evaporation); no water loss from dust control; no evaporation from any of the ponds.



³ 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_ZlpqmdgfGexywwdpuk/view?usp=sharing

4. Archaeology and Peatland

Historic Environment Division (HED) in their consultation response state that an Archaeological Impact Assessment (AIA) by an appropriately qualified and experienced wetland archaeologist is required to assess whether the abstraction has any impact on potential archaeological deposits within or beneath the peat. Dalradian procured a letter dated 7th October 2024 from Dr Gill Plunkett, QUB. She evaluated the potential for archaeological impacts based upon the assumption that the groundwater model is correct and concluded that there would be no archaeological impacts provided the groundwater model is correct. However, as evidenced by Dr Emerman (see paragraph above) there are serious questions about the groundwater model. It appears that Dr Plunkett has not considered the archaeological impacts that would result from the predictions of a groundwater model that was based on the choice of reasonable input parameters that would maximize the groundwater impact. Save Our Sperrins understands that a commitment for validation monitoring, incorporating multiple locations and loggers of peat water levels, is covered in Sections 5.2 and 5.3 for relevant phases of the mine development in the submitted SRK Consulting (2019) Groundwater and Surface Water Monitoring and Action Plan. Dr Plunkett does not address those sections. Dr Plunkett has failed to evaluate those sections. Rather Dr Plunkett states, “Dalradian Gold assures me that the company is committed to supporting the recommendations by Gahan & Long regarding the archaeological watching brief during the construction phase.” Is Dr Plunkett relying on an assurance (private/ verbal/ written/ whose assurance?) of a foreign mining limited company? It is crucial that an AIA is an evaluation of evidence and Save Our Sperrins does not accept that a private assurance of a limited company can constitute some binding commitment on the part of the company and or purport to constitute a full and proper impact analysis? Interestingly Dr Plunkett’s letter includes a noticeable presence of words and phrases impacting the objectivity of her source information and qualifying the conclusions drawn. For example, the report includes language such as: “Golder report raises no concerns” “I understand that” “the proposed activity expects to have limited direct impact” “may result in” “is likely to be substantially less than” “is poorly understood” “is unlikely.” Save Our Sperrins believes that all of this reduces the reliability and authenticity of this AIA.

“The potential development of new fractures within the peat could create numerous new pathways that might facilitate accelerated transmission of water from the peat aquifer to the underlying till aquifer. That transmission from peat to till might occur is reported as a possibility by SRK (2017, p. 85). If fracturing occurs and significantly accelerates water transfer from the peat to the till aquifer, any archaeological remains preserved in the peat could be adversely affected.” [See Appendix 1. Christopher Wnuk. 2024. Assessment of potential threats to undiscovered archaeological remains present on and around the proposed Dalradian Gold Curraghinalt Project]

5. Missing Information

Essential information is missing on the details of each and all abstraction points proposed: precise quantities to be abstracted per hour and per day, methods of recording, depths and testing regimes for each abstraction point associated with both the mine water and with the headwaters of the Pollanroe Burn and the “unnamed burn” as well as the peatland and the Curraghinalt Burn. In view of the area’s designation as a Drinking Water Protected Area (DWPA) under Article 7 of the Water Framework Directive, there appears to be essential information outstanding on the status of several other abstraction permits that Dalradian

Gold had been previously granted. The same applies to all borewells and other wells Dalradian Gold has made on the site and on adjacent and other land. Full details on all of these and their status is essential in considering both Abstraction and Impoundment Applications and all Discharge Consent Applications. This absence of full and accurate reliable information undermines the public's ability to accurately evaluate these applications and their impacts.

6. Public Concerns Not Addressed

Dalradian Gold's Statement of Case states that public concerns have been addressed. Save Our Sperrins argues that the responses do not engage with the substantive issues raised by the public. This includes the adequacy of the proposed mitigation as well as the long-term sustainability of water resources. Save Our Sperrins believes that the cumulative and transboundary impacts of these Water Abstraction and Impoundment Applications have been underestimated and inadequately assessed. Further, inaccurate data and information provided by Dalradian impacts the reliability of the very modelling underpinning these applications.

7. Laws and Regulations Contravened

As stated in our Statement of Case, Save Our Sperrins reiterates that the Water Abstraction and Impoundment proposals contravene Article 6(2) of the Habitats Directive (1995); Article 38 of the Environment (NI) Order 2022; Section 1(1) Wildlife & Natural Environment Act (NI) 2011; Reg 3(1) & Reg 3(2) of Water Environment (WFD) Reg (NI) 2017; Climate Act (NI) 2022, FODC Local Development Plan 2030; NI Peatland Strategy 2022-2040; Annex 1 of EU Habitats Directive/ The Conservation (Natural Habitats, etc) (Amendment) (NI) (EU Exit) Regulations 2019; FODC Biodiversity Strategy.

8. No Habitats Regulations Assessment (HRA)

Save Our Sperrins agree with NIEA's Statement of Case where it states that the surface water abstraction would result in a reduction of natural flows in the upper parts of the Pollanroe Burn and the unnamed stream and the proposed mine water abstraction would reduce the natural groundwater flows in the Gortin Groundwater Waterbody. The combined effects of both abstractions and their return to the Pollanroe Burn will result in significant changes in natural flows in the lower reaches of the Pollanroe Burn. Both the surface water and mine abstraction proposals will have significant negative impacts on the SAC features as well as the flow regime in the Pollanroe Burn. It is significant that a Habitats Regulations Assessment (HRA) has not been carried out in accordance with Reg 43 of the Habitats Regs. Shared Environmental Services (SES) state they do not have enough information but these Applications have been ongoing for several years now. Save Our Sperrins believes that a HRA is crucial in this decision making process and that the full environmental impacts cannot be assessed in the absence of a HRA.

Appendix 1.

Christopher Wnuk. 2024. Assessment of potential threats to undiscovered archaeological remains present on and around the proposed Dalradian Gold Curraghinalt Project

23/11/2024 Christopher Wnuk, Registered Professional Geologist, License PG003010G

Re: Assessment of potential threats to undiscovered archaeological remains present on and around the proposed Dalradian Gold Curraghinalt Project

The archaeological risk assessment for the Curraghinalt Project provided by Gahan and Long Archaeological Services (2022) is based on the hydrological assessment of the proposed mine site made by SLR (2017) and SRK (2017). The conclusion that there is no risk of dewatering the catotelm aquifer held in the hilltop bogs is based on the general understanding of the hydrology of hilltop bogs in general, and a specific hydrologic assessment of the hilltop bog aquifer behavior at the Curraghinalt Project site by SRK (2017). Monitoring piezometers installed at the study site show that water levels within the peat (generally 0.4 to 1.1 mbgl according to SRK (2017), p. 60) drop below average starting around or after late March and potentially persisting till early June during the seasonal dry period (SRK, 2017, p. 60). The SRK study shows that the hydraulic conductivity of the peat is very low. SRK also cited a study by Holden and Burt that suggests that the SRK data may overestimate the actual hydraulic conductivity of the Curraghinalt Project study site (SRK, 2017, p. 76). It is also noted that peat has a very high potential for water storage. During high rainfall periods, the thickness of the catotelm layer can (within limits) expand to accommodate additional rainfall supplied to the aquifer (SRK, 2017, p. 54). Thus, provided that there are no perturbations to the hilltop bog aquifer at and around the mine site AND under normal rainfall conditions, it is improbable that hilltop peats in and around the Curraghinalt Project property would dewater.

There are, however, no studies assessing how the hilltop peat at the Curraghinalt Project might respond to perturbations caused by the mining process. There are numerous published investigations in the mine engineering literature studying the effects of mine blasting on surface structures. Impacts depend on a range of factors such as geotechnical properties of the soil, building heights, and the physical properties of the materials used to construct the buildings. These conditions are specific to each site (for example, see Roy and Singh, 2016). Numerous studies have also been conducted on blasting impact to water wells and aquifers. Once again, impacts depend on the magnitude of the blast and the rock mechanics of all of the rock layers experiencing the passing shock wave. Hawkins (2000) states in his report “*Long term changes to the well yield are more likely due to the opening of fractures from loss of lateral confinement. Short term dewatering of wells is caused by the opening of the fractures creating additional storage.*”

Clastic dikes intruding coal beds are a commonly encountered (and hazardous) phenomenon in coal mines. In some cases, the presence of the dikes is attributed to earthquake induced fracturing of the peat and injection of underlying clastic sediments into living or recently buried peat swamps (see Hardie, 1994 for a partial overview of the subject). Ireland is not especially seismically active (SLR, 2017, Map 3, p 30) and recorded earthquakes are infrequent and of small magnitude. However, mine blasting, though less energetic than even small magnitude earthquakes, will be occurring regularly over the life of the mining project. The repeated passage of blast shock waves through fractured bedrock and weakly consolidated till and peat might lead to the development of small-scale fracturing in the water saturated catotelm layer of the bog.

The hilltop peats are inferred to be developed on glacial till at the project site (SRK 2017, pp. 45, 124). The hydrographic transmissivity of the till is variable, but it is notably higher than the peat itself (SRK 2017, pp. 52, 76). The till underlying the peat is unsaturated for one or more meters below the peat aquifer. The potential development of new fractures within the peat could create

numerous new pathways that might facilitate accelerated transmission of water from the peat aquifer to the underlying till aquifer. That transmission from peat to till might occur is reported as a possibility by SRK (2017, p. 85). If fracturing occurs and significantly accelerates water transfer from the peat to the till aquifer, any archaeological remains preserved in the peat could be adversely affected.

REFERENCES

Gahan and Long Archaeological Services, 2022, Archaeological impact of potential peat dewatering, Letter to Dalradian Gold dated 28 January, 2022.

Hardie, J.K., 1994, Dolomite and siliciclastic dikes and sills in marginal-marine Cretaceous coals of Central Utah. U.S. Geological Survey Bulletin 2087-A, <https://pubs.usgs.gov/bul/2087a/report.pdf>

Hawkins, J., 2000, Impacts of blasting on domestic water wells, Workshop on Mountaintop Mining Effects on Groundwater, https://files.dep.state.pa.us/Mining/BureauOfMiningPrograms/BMPPortalFiles/Blasting_Research_Papers/Water%20Wells/Hawkins%20Blasting%20Wells%202000.pdf (accessed 23 November 2024).

Roy, M.P., and Singh, P.K., 2016, Damage to surface structures due to blasting – a new criteria, Journal of Mines, Metals and Fuels, 64 (9), <https://www.informaticsjournals.co.in/index.php/jmmf/article/view/31574>

SLR Global Environmental Solutions, May 2017, EIA Hydrology baseline report for the Curraghinalt Project, County Tyrone, Northern Ireland, Volume 3, C1-Baseline Data Collection: Soils and Geology

SRK Consulting, November 2017, Hydrology baseline report for the Curraghinalt Project, County Tyrone, Northern Ireland, Volume 3, C5-Groundwater baseline report

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