STATEMENT OF CASE: Communities Against Mining

Subject: Procedural Illegality Arising from PAC Suppression of Environmental Information and Consequent Transboundary Prejudice
Inquiry: Curraghinalt Public Local Inquiries (Refs: 2021/C005–C007)
Party: Communities Against Mining
Date: 04/12/2025

1. Introduction

This Statement of Case addresses fundamental procedural defects arising from the Planning Appeals Commission's (PAC) refusal to accept updated statutory environmental information from NIEA, specifically the correspondence dated **22 August 2025**, and the resulting prejudice caused to both domestic and transboundary participants.

The suppression of this information represents a breach of statutory duties under the **Environmental Information Regulations (EIR) 2004**, the **Aarhus Convention**, the **Espoo Convention**, and **Article 6(3) of the Habitats Directive**. As a result, the integrity and lawfulness of the Statements of Case process—and thereby the Inquiry itself—have been compromised.

2. Factual Background

2.1 NIEA's Updated Statutory Position (22 August 2025)

NIEA issued updated environmental correspondence addressing critical matters including:

- Hydrological and hydrogeological baseline conditions;
- Failures of Conservation Objective flow targets in three watercourses;
- Likely Significant Effects on protected habitats that cannot be excluded;
- Ongoing work on Appropriate Assessment;
- Active review of consent methodology for abstractions and discharges.

These matters are directly relevant to the Inquiry's scope and to the lawful assessment of environmental effects.

2.2 DAERA EIR Disclosure (Ref: 25-473)

DAERA, through EIR disclosure, confirmed that:

- The NIEA correspondence existed;
- It was removed from public access **solely following PAC intervention**;
- No statutory basis exists for withholding this environmental information;

- The information is clearly “environmental information” under Regulation 2 of the EIR Regulations.

This establishes that the withdrawal of information was at the PAC’s direction and not grounded in law.

2.3 PAC’s Procedural Decisions

Simultaneously, the PAC has:

- Compelled all parties, including **1,600+ transboundary participants**, to submit Statements of Case under strict word limits;
- Maintained that Statements of Case will be treated as final;
- Refused to accept or publish the updated NIEA information;
- Required parties to proceed on an environmental baseline that is knowingly incomplete and outdated.

3. Legal Issues Raised

3.1 Breach of Environmental Information Regulations (EIR 2004)

Under EIR 2004, the Inquiry **must** accept, retain, and make publicly available all environmental information relevant to its functions. The PAC’s refusal to admit NIEA’s updated correspondence constitutes:

- Unlawful suppression of environmental information;
- A breach of transparency obligations;
- A failure to ensure that decisions are made on the basis of complete environmental evidence.

3.2 Breach of the Aarhus Convention (Articles 4, 6, and 9)

The PAC’s actions deny:

- Access to environmental information (Art. 4);
- Effective and meaningful public participation (Art. 6);
- Access to justice in environmental matters (Art. 9).

Proceeding without the updated NIEA evidence renders public participation **illusory** rather than substantive.

3.3 Breach of the Habitats Directive (Article 6(3))

An Appropriate Assessment must be based on:

- “Complete, precise and definitive” scientific knowledge (CJEU Waddenzee line of authority).

By excluding the most recent statutory scientific position, the PAC has undermined the Inquiry’s capacity to lawfully consider site integrity and likely significant effects.

3.4 Breach of Transboundary Obligations (Espoo Convention / EIA Directive)

Participants from the Republic of Ireland are entitled to:

- Equivalent procedural rights;
- Access to the full environmental record;
- The ability to make informed submissions.

The PAC’s suppression of NIEA’s updated assessment places transboundary participants at a structural disadvantage, rendering the process **non-compliant with Espoo**.

3.5 Procedural Unfairness and Irrationality

It is irrational and procedurally unfair for the Commission to:

- Direct the withdrawal of material environmental information;
- Compel final Statements of Case without that information;
- Deny participants any assurance that they may amend or update their submissions once NIEA’s evidence is admitted.

This violates basic tenets of **natural justice** and **equality of arms**.

4. Prejudice to Participants

The suppression of NIEA’s updated environmental information prejudices all inquiry participants, including:

- Objectors relying on accurate hydrological and ecological baselines;
- Community groups preparing evidence on water quality, flows, and SAC sensitivity;
- Transboundary participants in the Republic of Ireland whose rights under Espoo, Aarhus, and the Habitats Directive depend on **equivalent access to scientific data**.

This prejudice cannot be cured unless NIEA’s full and updated position is admitted and parties are granted the right to amend Statements of Case.

5. Relief Sought

In light of the above, this Statement of Case respectfully requests that the Commission:

5.1 Admit NIEA's Updated Environmental Information

The NIEA letter dated **22 August 2025** must be immediately accepted into the Inquiry record and published for all participants.

5.2 Suspend or Reopen Statements of Case

No Statements of Case should be treated as final until all participants have had an opportunity to:

- Review the updated NIEA information;
- Amend their Statements accordingly.

5.3 Confirm Procedural Safeguards for Transboundary Parties

The PAC must confirm that:

- All transboundary participants will be afforded equivalent procedural rights;
- No prejudice will arise from earlier submissions made without access to the suppressed information.

5.4 Provide Legal Justification

The Commission should identify **the legal power** under which it directed the withdrawal or exclusion of environmental information.

If no such power exists—as appears to be the case—the Commission must immediately rectify the defect.

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6. Conclusion

The PAC's refusal to admit updated statutory environmental information has fundamentally compromised the fairness and legality of the Curraghinalt Inquiry process.

Unless corrected, these defects undermine:

- compliance with domestic and international law,
- the validity of any recommendation issued by the Commission, and
- public confidence in the integrity of the Inquiry.

This Statement of Case is submitted for placement on the public record and consideration by the Commission.

Communities Against Mining

Overview

This document extracts and summarises all explicit Tellurium (Te) detection limits (LOD/LOR) from the Geochemical Characterisation Reports and a review of these reports individually. The company reports do not present a unified LOD summary, so this document consolidates the scattered values to allow comparison and to highlight methodological inconsistencies impacting environmental risk assessment.

Key Finding LOD (Level Of Detection)

Tellurium detection limits vary by more than three orders of magnitude across the testwork (0.010 mg/L down to 0.000010 mg/L), meaning the dataset is not methodologically consistent and several programmes were incapable of detecting environmentally relevant Te levels. Solid-phase Te LODs are not reported numerically anywhere in the document. The Curraghinalt dataset does not provide a scientifically defensible assessment of tellurium behaviour or mobility. LOD constraints, inconsistent across years and laboratories, prevent interpretation of "non-detect" results as evidence of safety. This necessitates application of the precautionary principle and requires either improved analytical sensitivity or explicit acknowledgement of the data gap in regulatory decision-making.

Extracted LOD Values for Tellurium

- 2013 Chemtest leachate data: Te <0.001 mg/L
- 2016 NAG leachate: Te <0.000010 mg/L
- 2016–2019 dissolved metals tables: Te <0.00020 mg/L
- Additional dissolved tables: Te <0.00010 mg/L
- 2018 Czech laboratory certificate (LOR): Te = 0.0100 mg/L
- Solid waste rock assays: Numeric LOD not provided; only noted that LOD limited interpretation.

Original application Tellurium assessments.

This is a crucial assessment, as the planned commercial extraction and sale of tellurium elevates its importance beyond mere incidental presence in the mine waste. Based on the sources, while tellurium was included in several baseline and impact assessments, it was generally considered a minor element compared to gold and other metals of concern, often being below detection limits or lacking established environmental standards.

Here is a comprehensive assessment of how much tellurium was featured in the Environmental Impact Assessment (EIA) related studies:

1. Inclusion in Baseline and Geochemical Testing

Tellurium was included in the comprehensive elemental analyses performed on both the rock material and tailings, primarily within the context of determining the potential for Acid Rock Drainage and Metal Leaching (ARDML).

- **Mineralogical Presence:** Tellurium is known to exist in the deposit, as **Tellurides** were identified as **trace minerals** (less than 1% by area) in the quartz vein mineralogy.
- **Enrichment in Waste Rock:** A multi-element assay performed on the waste rock characterized the elements that exceeded average crustal abundance. Concentrations of antimony, **tellurium**, and silver were reported to be **greater than three times average crustal abundance** in the lithologies studied.
- **Enrichment in Tailings (Solid Phase):** When examining the detox leach tailings for highly enriched elements (greater than twelve times crustal abundance), the highly enriched list included silver, arsenic, bismuth, copper, mercury, molybdenum, lead, antimony, selenium, and sulfur. **Tellurium was notably absent from this list of highest enrichment** in the detox leach residue, although related elements like arsenic and antimony were highly enriched.

2. Status in Water Quality and Discharge Criteria

In the context of protecting water resources, tellurium was explicitly reviewed, primarily to determine if it needed to be assigned a discharge limit.

- **Discharge Criteria Assessment:** Tellurium was reviewed during the process of establishing proposed discharge criteria for the existing and proposed surface infrastructure sites. In both calculations, the parameter was listed with the finding: **"Not present in measurable quantities"**.
- **Baseline Water Detections:** The surface water baseline report listed tellurium as one of the metals analysed. It was detected in certain locations (Owenkillew tributaries and Owenreagh tributaries only) with a high Limit of Detection (LOD) of **0.005 mg/l (5 µg/l)**.
    - The maximum measured concentration was **0.012 mg/l (12 µg/l)**.
    - Crucially, the assessment noted that **none** of the samples exceeded the project guideline value established for tellurium.
- **Total Tellurium Detections:** In specific laboratory reports for surface water samples, the analytical limit of detection for Total Tellurium was typically **<5 ug/l**. One instance showed a detection of **6 µg/L** Total Tellurium in sample SW01 (located at the existing adit discharge).
- **Dissolved Tellurium Detections:** Dissolved Tellurium was consistently below the detection limit of **<5 µg/L** in numerous groundwater and water quality reports.

3. Comparison with Other Metals

Tellurium was considered significantly less prominent in the overall environmental risk assessment compared to several other trace metals and metalloids:

Element	Enrichment Status (relative to crustal abundance)	Key Concerns/Inclusion in Environmental Assessment
Tellurium (Te)	**>3 times** in waste rock.	Absent from primary concerns; **Not present in measurable quantities** for discharge criteria.
Arsenic (As)	**>12 times** in all tailings samples. Elevated in all lithology groups.	Identified as hazardous; strongly associated with gold mineralization; significant potential for metal leaching.
Antimony (Sb)	**>12 times** in all tailings samples.	Identified as hazardous; shows exceedance against local soil values; significant potential for metal leaching.
Mercury (Hg)	**>12 times** in detox leach residue.	IFC guideline for mercury exceeded in detox tails and backfill tails leachate.
Molybdenum (Mo)	Highly enriched in detox leach residue.	Included for assessment in proposed discharge criteria due to potential for elevated concentrations.

Summary

Tellurium was included in the assessments as part of routine multi-element analysis, which revealed that it was enriched in the rock materials (above three times average crustal abundance). However, it **did not emerge as a primary contaminant of concern** in the critical geochemical tests (unlike arsenic, antimony, and mercury) and was largely excluded from the formal calculation of water discharge limits because it was consistently **"Not present in measurable quantities"** in the water samples analyzed.

If the company is now intending to extract and sell tellurium commercially, this suggests that the **economic viability** of this element has increased, potentially requiring a dedicated review of its presence in the ore stream, as its environmental significance was considered low in these previous assessments due to low concentrations and non-detectable quantities in water discharges.

Analogy: If the gold mine feasibility study were a comprehensive medical check-up, then **tellurium** was tested for (as a trace element, like a less common vitamin), noted as present slightly above the baseline average, but ultimately categorized as "not a concern" because it wasn't showing up in the bloodstream (water analysis) at problematic levels, unlike other highly concentrated elements (like arsenic and mercury) which were flagged for intensive monitoring. The decision now to commercialize it means that the company recognizes value in this component that the previous environmental assessment dismissed as environmentally negligible, there has been no assessment of potential accumulation in water pathways or underground voids which are linked to water tables or in local bioaccumulation and as seen in the later planning submissions there is now over 2 million tonnes extra rock to be processed, this clearly means that the financial benefits of tellurium are recognised and are now been extracted from what was previously waste rock which it was initially identified in to be processed, this has not been included in any risk assessment as it now has changed the pathways and will also expose it to greater possibilities of mobilisation.

Tellurium behaviour in mine soils and tailings is strongly influenced by its interaction with iron-bearing minerals, a process broadly analogous to the well-documented behaviour of Selenium. The oxidation state of Tellurium is a critical determinant of mobility: reduced species may be immobilised, whereas oxidised forms—particularly tellurates (Te(VI))—are significantly more mobile and prone to release under neutral to alkaline conditions.

These interactions are not static. Iron (oxy)hydroxides that sequester Tellurium can dissolve under reducing conditions, while fluctuating redox environments in tailings facilities (wetting–drying cycles, oxygen ingress, microbial reduction) can destabilise previously bound Te. International research highlights that long-term Te stability in tailings is poorly understood and requires site-specific, multi-decade geochemical modelling.

Dalradian's current submission does not provide a full Tellurium risk assessment, including oxidation-state speciation, sorption/desorption tests, or long-term redox-cycle modelling. Without these, the application does not meet the requirements of Schedule 4 of the EIA Regulations (NI) 2017, the Precautionary Principle, or the obligations to prevent deterioration of drinking-water sources under retained Water Framework Directive law.

Accordingly, the application cannot be robustly assessed, and it would be premature and procedurally unsound to advance it further until a complete Tellurium geochemical risk characterisation is undertaken.

2019 Update documents and Tellurium

The source documents, which form an addendum to the original mining application, provide information on the geochemical characterisation of tellurium within the mining waste streams, but explicitly state that it was not present in measurable quantities in baseline water quality studies, leading to its exclusion from certain water quality calculations.

The assessment of tellurium's presence and potential risks can be evaluated through two main lenses: bulk material concentration (geochemistry) and environmental mobility (water quality monitoring and impact scoping).

1. Assessment of Tellurium Concentration in Waste Materials

The geochemical characterisation reports consistently identified tellurium as an element present in the ore body and resulting waste streams, often at concentrations significantly higher than average crustal abundance.

- **Elevated Concentrations:** Multi-element assay results showed that tellurium, along with arsenic, bismuth, molybdenum, sulfur, antimony, and tungsten, was consistently **elevated relative to average crustal abundance** in all of the tailings samples.
- **Waste Rock and Decline Samples:** Average tellurium concentrations in 2018 waste rock samples ranged between **0.066 and 0.092 mg/kg**, which is typically between six and twelve times the average crustal abundance (0.01 mg/kg). Decline samples reported concentrations between the detection limit (<0.050 mg/kg) and 0.060 mg/kg.
- **Ore Sorter Reject Materials:** All ore sorter reject samples reported elevated concentrations of tellurium relative to average crustal abundance. The average tellurium concentration in these reject materials was **0.41 mg/kg**, relative to the crustal average of 0.01 mg/kg.

- **Mineralogy:** Tellurides are known to occur in the ore based on external studies.

This geochemical characterisation confirms that tellurium is a notable constituent within the source material (waste rock, ore reject, and tailings), supporting the query's premise that it is associated with the extracted valuable metals.

2. Assessment of Tellurium Mobility and Risk

While tellurium is enriched in the solids, its environmental risk assessment focuses heavily on its observed absence in water samples and its subsequent exclusion from specific impact calculations.

- **Baseline Water Quality:** The Addendum to the Surface Water Baseline Report states that **tellurium was recorded below detection for all samples** taken during the baseline surveys, both generally and specifically for the Owenreagh Tributaries samples. Groundwater baseline monitoring also reported **Dissolved Tellurium** concentrations as consistently below the analytical limit of detection (LOD), specifically <5 ug/l (or <0.005 mg/L) in various groundwater units.
- **Water Quality Scoping:** Due to the finding that tellurium was "Not present in measurable quantities," it was **scoped out** of the proposed discharge criteria calculations for the proposed infrastructure site. The parameters Boron, Molybdenum, and Uranium *were* identified as potentially elevated and requiring calculation against international standards (CCME), but tellurium was not.
- **Monitoring Plan:** Despite being scoped out of discharge limit calculations, dissolved tellurium (Te_D mg/L) is listed as a parameter for groundwater quality monitoring in the Draft Surface Water and Groundwater Environmental Monitoring and Action Plan (SGEMAP), with a detection limit of <0.005 mg/L.

3. Effectiveness of Tellurium Assessment

The effectiveness of the assessment regarding tellurium hinges on the assumption that its historical lack of mobility in environmental waters will continue, despite its high concentration in the mining waste materials.

- **Strength:** The underlying data characterizing tellurium's presence in the bulk waste materials is robust, confirming its enrichment. This is consistent with expectations for gold deposits where tellurides occur.
- **Limitation/Potential Gap:** The primary environmental risk assessment documents **scoped out** tellurium from specific discharge calculations because it was not found in measurable quantities in the *baseline* water environment. If the company now confirms they are actively **extracting tellurium** (as stated in the inquiry), this suggests it moves from being a trace enriched element to a material subject to concentration or alteration during processing. Since the documentation details significant changes in processing (such as the removal of cyanide and the resulting formation of separate rougher and scavenger tailings), and the new rougher tailings showed higher concentrations of tellurium than previous float tails, the reliance on old baseline water data for non-mobilisation (and subsequent exclusion from discharge criteria assessment) should be considered a weakness if the processing changes increase its leaching potential.
- **Hazardous Classification:** Tellurium is listed among the elements elevated in the rougher and scavenger tailings. The rougher tailings are classified as non-hazardous, while the scavenger

tailings (which have higher sulfide content and deleterious elements) are classified as hazardous. The scavenger tailings, which contain high concentrations of deleterious elements including tellurium, are planned to be encapsulated within a cemented paste backfill underground. This management step mitigates the risk associated with this hazardous material by limiting its exposure through encapsulation, firstly there is no assessment of the long-term stability of tellurium in this method and secondly, they now plan to extract the tellurium and no encapsulate it.

In conclusion, tellurium's presence in the mined materials is well-characterized geochemically, noting its significant enrichment. However, its assessment in water quality risk is limited by its historical absence in measured water samples, leading to its exclusion from crucial discharge calculations. The risk mitigation is addressed indirectly by encapsulating the most concentrated (hazardous) waste stream (scavenger tailings) underground. If the "extraction of tellurium" mentioned in the application implies a change in process that enhances its environmental mobility or introduces new exposure pathways not fully captured by the assumption that it is "Not present in measurable quantities", the current assessment would be deemed not effective regarding this specific element's mobilization risk.

Updated 2020 Documents assessment of Tellurium

The documents, comprising the Second Addendum to the Environmental Statement (2020) and its appendices, include updated geochemical characterisation and environmental risk assessments following revisions to the mine plan and processing circuit. These assessments address the potential for Tellurium (Te) extraction by quantifying its presence in various mine waste streams and assessing its potential for metal leaching and environmental impact.

The geochemical characterisation programme assesses the potential of waste rock, tailings, and fractured wall rock material to release potentially acidic and/or metal-bearing seepage upon exposure to air and moisture.

Company Assessments Regarding Tellurium

1. Presence and Concentration in Mine Waste Materials:

- **Ore Sorter Reject Materials:** Tellurium concentrations are reported as **elevated relative to average crustal abundance** in all of the ore sorter reject samples. Other elements also reported as elevated in this stream include arsenic, sulfur, and antimony.
- **Tailings Materials (Rougher and Scavenger Tailings):** Tellurium is identified as being **consistently elevated by at least three times average crustal abundance** in all samples of rougher and scavenger tailings, which is anticipated given that this material is derived from the Curraghinalt gold ore. Specifically, the scavenger tailings samples showed the **greatest enrichment** in concentrations of several elements, including antimony, arsenic, bismuth, molybdenum, silver, sulfur, and **tellurium**.
- **Waste Rock:** Assessing Tellurium concentrations in waste rock presented challenges, as concentrations were difficult to assess fully due to **laboratory limits of detection (LOD)**. Despite this limitation, actual elevated concentrations of Tellurium were reported in 35 out of 107 waste rock samples, where concentrations exceeded average crustal abundance by at least three times.

2. Inclusion in Risk and Environmental Assessments (Metal Leaching Potential):

Tellurium is identified alongside other elements as potentially being problematic if mobilised, and thus requiring further evaluation. The presence of accessory minerals containing elements like copper, lead, antimony, and arsenic means that metal(loid) leaching is a potential concern.

- **General Risk Context:** The core objective of the geochemical assessment is to determine the potential of materials to generate acid rock drainage and metal leaching (ARDML). The results from the multi-element assay clearly classify Tellurium as an enriched element in processing waste streams.
- **Water Quality Screening:** The purpose of the characterisation is to provide a prediction of future water quality. The potential for specific elements to cause a water quality exceedance if mobilised necessitates further evaluation.
    - Tellurium, however, does **not** appear to be a key element for which concentrations are predicted to exceed screening values in the summaries of predicted mine water or seepage quality, unlike other elements like antimony, uranium, thallium, manganese, ammonia, and nitrate.
    - A review of predicted seepage quality from the Dry Stack Facility (DSF) indicated that concentrations of fourteen parameters exceeded baseline concentrations in the Pollanroe Burn, including antimony, arsenic, molybdenum, lead, nickel, selenium, uranium, and zinc, but **Tellurium is not listed among these specific exceedances**.
- **Laboratory Detection Limits:** Despite Tellurium being present in the mineralisation, its concentration in leachate and seepage tests often approached or fell below the laboratory's Limit of Reporting (LOR). For instance, a composite leachate sample tested in July 2018 reported Tellurium at below the 0.0100 mg/L detection limit.

In summary, the 2020 documentation acknowledges Tellurium's presence at elevated levels in the waste materials, particularly the ore sorter rejects and tailings, confirming it as a metal associated with the mining operations. The initial risk assessments incorporate this finding into the broader geochemical characterisation to evaluate metal leaching potential, though Tellurium does not feature prominently as a substance predicted to breach environmental standards in the summaries provided, partly due to challenges with consistent analytical detection limits.

Overall Conclusion

Tellurium is a consistently enriched trace element in the mine’s waste materials, but historical environmental assessments have considered it a low risk due to its non-detectable levels in water. With the shift toward commercial extraction, the previous risk assessments are no longer sufficient. There is a clear need for updated, dedicated studies on tellurium’s environmental mobility, potential for leaching, and long-term stability—especially under new processing and extraction scenarios. Without these, advancing the project could pose unassessed risks to public health and the environment.

Communities Against Mining

Report on Dalradian's Radon and NORM Assessment

Executive Summary

This expert report provides a comprehensive forensic audit of Dalradian Gold Limited's 2016/17 Radon and NORM Assessment (C7) and its 2019 Addendum. The analysis draws extensively on internationally authoritative sources including IAEA TECDOC-1660 and Wendel (1998), as well as detailed examination of Dalradian's own monitoring data, laboratory analysis, geochemical tests, and regulatory submissions. Inline references indicate the precise location of evidence within the documents (e.g.C7 Part 1, Table 7-12; Addendum 2019, p.4).

1. Introduction

This report has been prepared to assist the Planning Appeals Commission by providing an assessment of the radiological implications associated with the Curraghinalt Gold Project. It applies combined technical and legal analysis to determine whether the evidence provided by Dalradian satisfies internationally accepted standards for assessing NORM and radon hazards arising from mining operations in sulphide-rich geological formations.

2. Methodology of Audit

The audit approach involves:

- Extracting factual statements from Dalradian's C7 reports and 2019 Addendum.
- Identifying the evidence cited (sample data, baseline measurements, leach tests).
- Conducting a comparative analysis with IAEA TECDOC-1660 guidance and Wendel (1998).
- Evaluating the logic, validity, completeness, and scientific robustness of conclusions.
- Identifying unaddressed regulatory requirements, omissions, and unsupported assumptions.
- Determining compliance with best practice radiological impact assessment.

3. Analysis of Radon in Air

Dalradian's radon-in-air assessment relies upon Gaussian plume modelling presented in C7 Part 1 (see C7 Part 1, Section 7.7) and updated in the 2019 Addendum (Addendum 2019, Table 1). The updated model assumes revised ventilation airflow (188.9 m^3/s) and provides downwind radon concentrations. The Addendum acknowledges that the original modelling was "extremely unrealistic" (Addendum 2019, p.3).

However, neither version includes:

• Assessment of radon accumulation under temperature inversions.

• Evaluation of low-wind and stagnant-air periods.

• Seasonal variation modelling.

• Assessment of radon exposure to outdoor workers, farmers, or transient populations.

• Any dose-based calculations for non-occupational receptors.

IAEA TECDOC-1660 emphasises that radon from large residue deposits must be assessed in terms of total public dose. Dalradian provides no such dose assessment.

4. Analysis of Radon in Water

C7 Part 1 includes groundwater measurements showing radon between 17–90 Bq/L (C7 Part 1, Table 6-5). An exploration drill-hole pipe sample measured 171 Bq/L, exceeding the 100 Bq/L indicator value for drinking water supplies (C7 Part 1,p.94). The Addendum (2019) asserts that "radon in water remains unchanged" but presents no new data.

Dalradian does not:

• Model radon transport to private wells or springs.

• Assess radon dissolved in mine water discharges.

• Evaluate radon retention in enclosed or semi-enclosed watercourses.

• Consider any future drinking water abstractions downstream.

IAEA TECDOC-1660 requires case-by-case assessment for water pathways; C7 contains no such modelling.

5. Waste Rock, Tailings, and Backfill

Dalradian reports two shallow waste-rock samples (C7 Part 2, Section 8.2) with U/Th/Ra values below out-of-scope limits.

However, the sample size is insufficient to represent the geological variability of the orebody.

Tailings and paste backfill tests (C7 Part 2, Section 8.3) rely on short-duration leach tests, not long-term weathering models.

No modelling of:

• Pyrite oxidation.

• Uranium mobilisation.

• Radium migration.

• Post-closure geochemical evolution.

Wendel (1998) documents extensive redistribution of radium into mine water and scale deposits, which C7 does not assess.

6. Treatment of NORM Scales, Sludges, and Secondary Wastes

C7 provides no evaluation of:

• Radium accumulation in pipe scale.

• Uranium concentration in water treatment sludges.

• Polonium-210 or Lead-210 binding in sediment.

IAEA TECDOC-1660 warns that secondary residues often exceed regulatory thresholds even when bulk residues are low.

Dalradian's assessment does not include secondary waste streams at all.

7. Regulatory Compliance Assessment

The Addendum acknowledges new regulations (Addendum 2019, Section 1.9) but does not update the assessment to reflect their requirements. In particular:

• Private Water Supplies Regulations (NI) 2017 require radon, uranium, and gross alpha/beta evaluation.

• The Radioactive Substances (Modification of Enactments) Regulations (NI) 2018 require NORM management controls.

No new analysis is provided.

8. Conclusions

This audit concludes:

• Dalradian's radiological assessment is incomplete and unsupported by sufficient evidence.

• No dose assessment has been performed despite IAEA requirements.

• Long-term behaviour of tailings, backfill, and waste rock has not been modelled.

• The Addendum provides no new data and does not remedy deficiencies.

• Public and environmental exposure pathways have not been properly evaluated.

A comprehensive radiological impact assessment is required before regulatory decisions can be made.