

Thank you for the opportunity to review and provide comment for the Draft UNFC Supplemental Specifications for Minerals Projects. We hope our comments help improve the value of the document overall. Please see some general and specific comments below.

### **General Comments**

The underlying theme to the document is “sustainability” or “sustainable mineral development” project reporting. We strongly agree with and support this approach.

The complexity of the classification (as shown in the figure and tables at the end of Section A) can be quite daunting. This many classes and parameters could allow for multiple interpretations of the score depending upon the perspective of those implementing. In this sense, the document allows for argument, but does not necessarily clarify classification of a source. Item (iv) in the quoted paragraph is important. It might be more reliable to apply standards such as are envisioned under the Committee for Minerals Reserves International Reporting Standards (CRIRSCO) template to judge a source. A more strictly technical evaluation, without reliance on those other criteria might be more functional (i.e., not everything needs to find a place in the 3-d graphic within the E1-4, F1-4, and G1-4 space. The UNFC framework could play a potential role here if described in relationship not just to CRIRSCO, but also Society of Mining, Metallurgy & Exploration (SME), the Australasian Joint Ore Reserves Committee (JORC), and SEC, for example.

This note to Table 1 (“c. *Estimates associated with Viable Projects are defined in many classification systems as Reserves, but there are some material differences between the specific definitions that are applied within different industries and hence the term is not used here.*”) is an example of the potential complexity. Using the “competent party” for certification is a key part of the JORC code, the Canadian system, the SME standard, CRIRSCO and the SEC approach. As a suggestion, maybe it would be better to leave that question to that sort of certification process and stop at verification of resources within a potential source (geologic formation or waste stream).

### **Specific Comments**

#### **Terms and Definitions:**

##### **Mineral Sources (1):**

- The definition of ‘mineral’ includes organic matter, however, organic carbon or biomass is not a mineral (not a specific atomic structure), so suggest it should be referred to as ‘mineral-associated organic matter.’ Also recommend changing the use of the word “source” to “resource” to describe a deposit (Paragraph 4)

**Minerals life cycle (4):** Suggest including mining as part of the mineral life cycles. (Paragraph 5)

##### **Mining Methods (6)**

- Reconsider defining seafloor mining as an unconventional mining process. While some seafloor mining has been successful in relatively shallow waters, for REEs it is considered an unconventional mining technique still in the experimental phase and could have additional issues under various agreements (e.g., UN Conventions on Laws of the Sea). Suggest adding

mention of unconventional or alternative mining techniques, for example agromining, phytomining, biomining, or urban mining. (Paragraph 14)

- Low grade or REE deposits are not necessarily uneconomical. Suggest consideration that other countries can extract more cheaply. Suggest consideration of possible environmental impacts and ways to negate or avoid negative consequences in reference to in-situ mining. (Paragraph 16)
- Consider mentioning the potential for co-production or possible mineral and metal byproducts that can make primary production more economical and reduce waste of surface and subsurface mining.

## **Supplemental Specifications VI**

### **A. Minerals Project Plan and definition**

- Section 30 – Suggest expanding “mineral project plans may be detailed or conceptual” to emphasize feasibility studies are extremely detailed and fall within three major categories: (1) Order of Magnitude (Scoping) – initial financial appraisal of an inferred mineral resource, (2) Preliminary Feasibility, and (3) Detailed Feasibility

### **B. Minerals Project Plan and definition**

- Consider that project evaluations need standard (or universal) methodology for estimating resources in mineral life cycle.
- Consider defining resource efficiency (SDG12) (Section 33)
- Consider adding waste disposal and management (Section 38)

### **E. Project Reporting**

- Consider revising reported quantities to one type of metric unit, as opposed to ranges of quantities as the system is currently complex. (Section 63)
- A universal standard resource estimation process would avoid problems highlighted in sections 66 -67. (Section 64)

## **Quality assurance and quality control VII**

### **A. Evaluator qualifications**

- As a suggestion, a resource evaluator having a license or certification should address nearly all the provision brought in 70-76 (Section 69).