

Peer Review Report

Review Report on Mineral Reporting Standards: PERC's role in CRIRSCO and its relevance to the European mining sector

Review, Earth Sci. Syst. Soc.

Reviewer: Eva Marquis

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EVALUATION

Q 1 Please summarize the main theme of the review.

This review provides a straightforward overview of the development of Mineral Reporting Codes and Standards and the different types/applications of these systems (i.e., stock exchange disclosures vs. government/strategic planning), with a focus on the PERC Reporting Standard. It proceeds with an overview of the history of code development, a discussion on the topic of professional competence, application of the CRIRSCO reporting standards, and overview of the UNFC reporting standard and brief assessment of its use and interaction with CCRIRSCO/PERC codes. This introductory section is followed by further detail on the CRIRSCO and PERC committee structures, governance, and responsibilities. Subsequent to this there is a review of the CRIRSCO-family principles, standard definitions, and template; followed by a sub-section on the PERC reporting standard – this includes some repetition of previous sections – of particular interest, but perhaps not given great enough emphasis is the assessment of how PERC differs to the standard CRIRSCO template. The final section is on ESG reporting aspects, which documents the drivers for inclusion and how the CRIRSCO-family standards are adapting to include these aspects with specific reference to the SAMESG/SAMREC and a brief commentary on PERC's ESG guidance incorporation. Conclusions reiterate how common terminology, codes and standards were developed by CRIRSCO, outline the benefit for minerals companies and European mining professionals, and the need for competent persons reports to support decisions on the development of critical raw materials projects.

Q 2 Please highlight the limitations and strengths.

Strengths of this review is the factual history of the development of the CRIRSCO and PERC standards and commentary on how these are being adapted to meet the needs of investors to have material, transparent and competent reporting on ESG factors. Standards are an important, and it is timely for a review of these, especially with new acts and declarations on Critical Minerals from major nations and jurisdictions (i.e., US, EU).

However, in its current form this review does not clearly articulate how the CRIRSCO-family of codes, in particular PERC, are evolving with the changing global picture – this is discussed in places but needs a clearer independent section to fully articulate. This is primarily due to the structure of the review, which has areas of duplication and is quite verbose. This masks the articulation of the key aims of the review: 1) to give an introduction to PERC, 2) to discuss when and how it is used (and its fit with other standards/schemes), and 3) discussion of the role PERC plays in Europe (and its potential future role). The conclusion, although containing insightful and considered statements, is hard to link to the preceding sections; some of the points made on the benefits and the relevance of PERC to the sourcing of Critical Raw Materials in Europe needs to be more clearly critically analysed prior to the conclusion.

Q 3 Does the review include a balanced, comprehensive and critical view of the research area?

The review does give a comprehensive overview of the history and development of the PERC and CRIRSCO codes. However, in its current form it reads as an history of the development of CRIRSCO/PERC and technical guidance on their remit rather than a critical review on PERC's role in CRIRSCO and its importance to the European mining sector and identification of knowledge gaps/future trajectories. Further streamlining, clearer

comparison with other codes and critical analysis of PERCs role in Europe and globally is needed to meet the requirements of a review article for this type of journal.

Q 4 Check List

Is the English language of sufficient quality?

Yes.

Is the quality of the figures and/or tables satisfactory?

No.

Does this manuscript refer predominantly to published research? (unpublished or original research is non-standard for a review article, and should be properly contextualised by the author)

Yes.

Does the manuscript cover the topic in an objective and analytical manner

No answer given.

Does the reference list cover the relevant literature adequately and in an unbiased manner?

No answer given.

Does the manuscript include recent developments?

Yes.

Does the review add new insights to the scholarly literature with respect to previously published reviews?

Yes.

Q 5 Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List):

This manuscript does is the beginning of a good and useful review, which would be of interest to the community by giving clear insight into the standards and codes that are key to the responsible development of mineral resources; however, in it's current format the impact of this review is lost and reworking is required to expand on key aspects further. More emphasis on how PERC has adapted to meet the higher expectations of investors while de-risking and improving sectoral accountability would improve the manuscript.

The main challenge with this manuscript is it's length and areas of repetition. These could be remedied through some restructuring and also by having a section that analytically compares and contrasts PERC with CRIRSCO and other codes so that the section '2. CRIRSCO and PERC' could be condensed and the differences highlighted. Some of the sections, such as 1.6 UNFC an 1.4. Professional Competence are placed to early, these are topics that could be critically discussed after CRIRSCO/PERC have been fully. Some judicious use of additional tables for documenting key definitions and differences between PERC and other reporting systems and diagrams depicting organisational structure would aid manuscript navigation.

Overall, the concept of this paper does fill an important gap in the current literature on how CRIRSCO codes are applied and how the application and templates are adapting with changing demand from investors and society. In it's current format it does not have the critical assessment aspects necessary for a review article; this is partially understandable due to the nature of the topic. However, restructuring and some clearer comparison and contextualisation would help this manuscript from both a length aspect and accessibility view point.

In text comments are provided in the attached pdf.

Comments on Q4:

The English language is of sufficient quality, however the structure of the manuscript means that concepts and key definitions are not introduced early enough meaning that the reader has to refer forwards and backwards to attain a thorough understanding.

Figure quality could be improved, some of these are a little blurry at current dimensions. Please note that there are discrepancies in the numbering of figures between the text, figure captions, and figures (e.g., figure caption 1 refers to figure 3) – I have not gone through and highlighted each occurrence as it seems to be a consistent error. Some of these figures are also available in other locations (e.g., figure 1/figure caption 3 is present on the PERC website) and attribution should be given or these figures should be redrawn with adaptations that reflect the content of the paper. It would also be useful to create additional figures/tables that reflect the text and help guide the reader through the manuscript, for example have a figure depicting the governance structure of CRIRSCO and/or the inter-relationships between the various standards, codes and organisations globally.

The manuscript does refer predominantly to published texts, however most are technical reporting standards and guidelines and online articles rather than literature. This is understandable given the nature of the review being on such technical documents, however inclusion of some additional relevant references to outline the context of the review piece and where literature exists on aspects such as professional competency, ESG for the mining industry, and literature available that makes reference/review the application of CRIRSCO/PERC.

The manuscript does cover the codes in an objective manner. However, the analytical component is not apparent. This is partly due to the nature of the topic under consideration. However, a critical analysis of why PERC in particular is relevant for Europe could be more fully explored, particularly in the context of other codes available globally.

The reference list, as stated above, is limited due to the nature of the subject. However, it would be improved through inclusion of references more fully outlining the context driving the adaptation and expansion of CRIRSCO/PERC.

The manuscript does outline recent developments in the adaptation of PERC; however, the statements emphasising these adaptations are predominantly in the conclusions section and need to be expanded on in the preceding text. I realise that my review is a little delayed, but given the inclusion of UNFC in the EU CRM Act this should be included given this recent development.

There have been few previous reviews on CRIRSCO/PERC, the latest being Henley and Allington (2013), as such this review does provide insight into the topic of codes. That said, this review mostly outlines what CRIRSCO/PERC do and their governance with some commentary on their application, the latter needs to be more clearly emphasised as it is currently lost in the detailed report on the content and governance structures of the standards, which can be retrieved by reading the relevant standard guidance documents and reporting templates.

QUALITY ASSESSMENT

Q 6 → Quality of generalization and summary	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 7 → Significance to the field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 8 → Interest to a general audience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Q 9 → Quality of the writing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>