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National Instrument 43-101: What Issuers Need to Know About the Economic Analysis of a Mineral Project

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An economic analysis of a mineral project is a significant milestone for a mining company. The results may indicate the potential feasibility or feasibility of a mineral project, act as a directive on how best to proceed with additional work to determine feasibility, and ultimately decide whether to build and finance a mineral project. An economic analysis is performed with varying degrees of confidence depending on the stage of the mineral project. National Instrument 43-101 – *Standards of Disclosure for Mineral Projects* (NI 43-101) includes certain rules related to the preparation and disclosure of an economic analysis on a mineral project. This article discusses the various types of economic analyses for mineral projects and the disclosure issues related thereto.

Types of Economic Analyses

Under NI 43-101, there are three commonly known mining studies that involve an economic analysis of a mineral project. These studies, in order of confidence level from lowest to highest, are: (1) a “preliminary economic assessment” or “PEA”; (2) a “pre-feasibility study” or “PFS”; and (3) a “feasibility study” or “FS”.

1. A PEA is typically the first stage of economic analysis, and the accuracy level is the lowest. NI 43-101 defines a PEA as “a study, other than a pre-feasibility study or feasibility study, which includes an economic analysis of the potential viability of mineral resources”. As a result of this intentionally broad definition, disclosures that indicate economic analysis that are not derived from a PFS or a FS may actually be considered by regulators to be a PEA, with the consequential reporting and disclosure obligations that follow (see below for further details and examples). A PEA is sometimes referred to as a “scoping study”.
2. Following a PEA, a mining issuer will generally produce a more comprehensive and accurate study called a pre-feasibility study. Under NI 43-101, the terms “preliminary feasibility study”, “pre-feasibility study” and “feasibility study” have the meanings ascribed to those terms by the CIM Definition Standards for Mineral Resources & Mineral Reserves adopted by the CIM Council. Mining issuers must not use these terms when referring to an economic analysis unless the applicable economic analysis satisfies the criteria set out in the definition of each term. A PFS is defined as “a comprehensive study of a range of options for the technical and economic viability of a mineral project that has advanced to a stage where a preferred mining method, in the case of underground

mining, or the pit configuration, in the case of an open pit, is established and an effective method of mineral processing is determined. It includes a financial analysis based on reasonable assumptions on the “modifying factors” (considerations used to convert mineral resources to mineral reserves – these include, but are not restricted to, mining, processing, metallurgical, infrastructure, economic, marketing, legal, environmental, social and governmental factors) and the evaluation of any other relevant factors which are sufficient for a qualified person, acting reasonably, to determine if all or part of the mineral resource may be converted to a mineral reserve at the time of reporting". The completion of a PFS is the minimum prerequisite for the conversion of mineral resources to mineral reserves.

3. Finally, the most comprehensive study is called a feasibility study. A feasibility study is “a comprehensive technical and economic study of the selected development option for a mineral project that includes appropriately detailed assessments of applicable modifying factors together with any other relevant operational factors and detailed financial analysis that are necessary to demonstrate, at the time of reporting, that extraction is reasonably justified (economically mineable)”. The results of a feasibility study may reasonably serve as the basis for a final decision by a proponent or financial institution to proceed with, or finance, the development of a mineral project.

As a result of the importance of these studies to mining issuers and investors, regulators have an interest in ensuring mining issuers properly disclose such studies to the public and that the studies follow all applicable guidelines.

The PEA

Given a PEA is generally performed at an earlier stage in the development of a mining project, regulators pay particular attention to these types of studies. This is because a PEA is a lower confidence study that typically contains (and is permitted to contain) results of an economic analysis that includes, or is based upon, inferred mineral resources. Where this occurs, mining issuers need to ensure that their disclosure appropriately cautions investors and contains the mandated cautionary language, specifically:

- a statement of “equal prominence” that:
    - the preliminary economic assessment is preliminary in nature, that it includes mineral resources that are considered too speculative geologically to have the economic considerations applied to them that would allow them to be categorized as mineral reserves, and that there is no certainty that the preliminary economic assessment will be realized; and
    - mineral resources that are not mineral reserves do not have demonstrated economic viability;
- a statement regarding the basis for the PEA and any qualifications and assumptions made by the qualified person; and

- a statement that describes the impact of the PEA on the results of any feasibility or pre-feasibility study in respect of the subject property.

The cautionary language needs to be included in each instance the PEA is disclosed. NI 43-101 strictly prohibits mining issuers from disclosing the results of an economic analysis based on exploration targets or based on historical estimates.

The Inadvertent PEA

Under NI 43-101, the filing of a technical report on SEDAR+ will be triggered by the first time written disclosure of the results of a PEA on a material property that constitutes a material change in relation to the mining issuer, or a change in the results of a PEA from the most recently filed technical report if the change constitutes a material change in relation to the mining issuer.

Notwithstanding the above, mining issuers will often make statements about a mineral project that does not have mineral reserves, which suggest that an economic analysis of some nature has been conducted. If the mineral project does not have a mineral reserve estimate and there is disclosure of economics of any sort, regulators generally view this as a PEA and a technical report filing on SEDAR+ may be triggered. These statements may not be captured in formal studies, but rather could include forecasted mine production rates, capital or operating costs, mine life or projected cash flows of a mineral project. These statements are often put into investor presentations or on websites, where internal estimates and forecasts are used without heed of the legal issues that arise.

Examples of disclosure that could be viewed by regulators as being a PEA and therefore trigger the filing of a technical report include:

- “We will likely produce 200,000 oz. silver/month in 2024”
- “Capital costs will be in the range of $50 - $100 million”
- “Mine life will be 10 – 11 years”
- “We expect to generate $20 million in revenue”
- “IRR of approximately 30%”

Therefore, it is important that mining issuers monitor their public disclosure of the economics of their mineral projects in press releases, investor presentations, social media, websites or other continuous disclosure documents so as to not inadvertently trigger a technical report by making such statements if there is no technical report to back them up.

PEA vs PFS

A PEA is not a PFS. Consequently, if mineral reserves have been delineated in the study, then a report that a mining issuer wishes to call a PEA may be more properly called a PFS. This is because the completion of a PFS is the minimum prerequisite for the conversion of mineral resources to mineral reserves. This also means that the economic analysis in the PFS cannot include inferred mineral resources. Regulators in the past have noted that mining issuers have “blurred the lines” between a PEA and a PFS by stating that some or all of the components of the PEA are done at a PFS-level. The result is that a mining issuer has effectively produced a PFS, but one that includes inferred mineral resources, which is not permitted. A PEA should be a “conceptual study of the potential viability of mineral resources”, so any disclosure that implies that a PEA has demonstrated economic or technical viability would be contrary to NI 43-101 and the definition of a PEA.

Regulators require that mining issuers do not:

- describe a study as a PEA unless it clearly falls within the definition of a PEA; or
- compare their PEA or any components of it to the standards of a PFS if the study includes inferred mineral resources.

Regulators have noted that they may take the position that a mining issuer is treating a PEA as a PFS if the mining issuer:

- does not include the above noted cautionary statements with equal prominence each time it discloses the economic analysis of the mineral resources;
- uses the PEA as a basis to justify going directly to a feasibility study or a production decision;
- discloses mining or mineable mineral resources or uses the term “ore”, which is essentially treating mineral resources as mineral reserves; or
- otherwise states or implies that economic viability of the mineral resources has been demonstrated.

Mining issuers should ensure that their disclosure of the results of a PEA is not misleading by providing appropriate context, cautionary statements and discussion of risks sufficient for the public to understand the importance and limitations of the results of the PEA.

However, mining issuers also need to be able to take a step back and re-scope advanced stage projects based on new information or alternative production scenarios. Therefore, a study that includes an economic analysis of the potential viability of mineral resources that is done concurrently with or as part of a PFS or FS is not, in the view of regulators, a PEA if it:

- has the net effect of incorporating inferred mineral resources into the PFS or FS, even as a sensitivity analysis;
- updates, adds to or modifies a PFS or FS to include more optimistic assumptions and parameters not supported by the original study; or

- is completed at the level of a PFS or FS.

Insufficient Disclosure of the Economic Analysis

Regulators have also previously expressed concerns that mining issuers with advanced properties do not sufficiently disclose the economic analysis for their mineral projects in their technical reports. NI 43-101 provides that the economic analysis must include a clear statement of, and justification for, the principal assumptions and cash flow forecasts on an annual basis using mineral reserves or mineral resources and an annual production schedule for the life of the mineral project. Technical reports must also include a discussion of net present value, internal rate of return and payback period of capital with imputed or actual interest. Technical reports on advanced properties must provide cash flows on an annual basis and provide an appropriate sensitivity analysis with related impacts on the economic analysis. In addition, technical reports that contain an economic analysis must address the issue of taxes applicable to the mineral project. The impact of taxes and adequate sensitivities, both positive and negative, are required to be outlined with the economic analysis.

Regulators have noted instances of overly optimistic or highly aggressive assumptions in PEAs, as well as the use of methodologies that diverge significantly from industry best practice and guidelines. Mining issuers are reminded that forward-looking disclosures should not be made unless the mining issuer has a reasonable basis for the forward-looking information. Similarly, qualified persons are reminded that professional standards typically require the use of procedures and methods that are consistent with industry best practice and guidelines, and that if significant divergence is necessary, the nature and basis for the divergence should be disclosed. Divergences that are not justified could result in a requirement to revise and re-file a technical report.

Conclusion

It is important that mining issuers take the above considerations into account prior to the public release of an economic analysis to ensure that they do not contravene any of the rules or inadvertently trigger the filing of a technical report on SEDAR+. Compliance is simply a matter of recognizing that an economic analysis is being disclosed and complying with the above-noted requirements.

For more on NI 43-101, find our previous articles in this series here.

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