
The Pebble Project: The Future of U.S. Mining and Metals

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US Securities and Exchange Commission

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Via email: rule-comments@sec.gov

Thank you for providing the opportunity to review the proposal “Modernization of Property Disclosures for Mining Registrants.”

Northern Dynasty Minerals Ltd.’s main assets are mineral properties in the United States. The company’s primary listing is in Canada (since 1984), with a secondary listing in the United States (since 2004), and its primary listing is in Canada.

This submission provides some general comments and recommendations, followed by more detailed comments on those sections that we believe would have the most significant effects on exploration to development stage registrants, in particular on companies with a primary listing outside the United States and a secondary listing on a United States exchange.

1. Purpose of the rule

It is our understanding that an intent of the proposed rule is to eliminate the competitive disadvantage in the listing of mining companies that US stock exchanges currently have relative compared to foreign bourses; however, the proposed rule has a number of steps not required in foreign codes, which we believe does not meet the stated objective. These include the requirement to complete an initial assessment to justify the reasonable likelihood of extraction estimate, the need to estimate the amount of inferred resources which might be converted to a higher classification, the requirement that the qualified person take full responsibility for all aspects of the report, etc. These changes seem to reflect the current SEC concern regarding the reporting of mineral resources and a conclusion could be drawn that the SEC is not attempting to align itself with the assumptions underlying the other CRIRSCO codes, but rather continue to follow a separate set of rules. We recommend that the SEC should re-assess whether these significant differences from other CRIRSCO codes are warranted and whether they will forestall the objective of increasing mining company listing on US exchanges.

2. Qualified Person

A key aspect of professional status in Canada is the ability of self-regulating organizations to effect discipline on their members. We recommend that the SEC undertake additional consultation and analysis of the status of a qualified person.

3. Economic study disclosure

The objective of an economic study is to provide the registrant, and by extension its shareholders and prospective investors, with a view of how their project might be developed and the value of that prospective development. The conversion to reserve is a consequence of such a study, not an objective. The proposed SEC rule is therefore fundamentally at odds with process which it purports to regulate. The original versions of NI 43-101 were also encumbered with this flaw; however, it has evolved and there is recognition that the resource/reserve, while underpinning the value of a project, is only one component of the estimate of value

derived from an economic study that is critical in enabling investors to understand the project and its potential value.

In order to more closely align itself with other CRIRSCO codes and to enhance the value of reporting, the SEC should move away from treating economic studies as “modifying factors” to ensuring they become the basis for standalone disclosure.

Advancing a project through the exploration and early development stage is an incremental process, with funds invested at each stage of project activities to complete that step. Junior companies rely on external capital to fund their activities and this investment capital is motivated by the reported results of the previous campaign undertaken in the process.

Finally, the market for junior mining company projects is usually the bevy of mid to large mining companies that would be willing to take on the project and develop it into a mining operation. The internal analyses of these major companies are not driven by the constraints of CRIRSCO codes and their ability to include inferred resources in these analyses gives them an enormous advantage over junior companies, whose disclosed valuations do not include inferred resources. This advantage seems at odds to an objective of the proposed rule, which is to protect the shareholders of junior companies, as it does not allow full value to accrue to the shareholders of the junior companies.

Hence, we recommend that the SEC should consider adding an economic study, such as a Preliminary Economic Assessment that includes Inferred mineral resources. We believe that the relative uncertainty of inferred resources in comparison to indicated and measured is overstated. In early-stage projects, inferred mineral resources can represent a significant value component and to be transparent, a registrant should provide its view of that value to investors. The risk associated with this disclosure can also be identified, at least qualitatively.

4. Follow up review

The document does not include general guidance on overall disclosure of material technical information by registrants, for example in news releases, presentations and other materials, or on timing and triggers for technical report summaries. As such, we recommend that once the SEC has reviewed the comments from this initial review, that a second draft be posted for comment that provides this additional information or, alternatively, that a draft of the legislation be made available for review and comment prior to promulgation.

5. Detailed comments

The following provides more detailed comments on selected sections of the proposal, and are organized under the subheadings and numbering used in the SEC proposal.

Qualified Person (QP) and Responsibility for Disclosure

20. Yes. We agree that SEC should require material technical information to be prepared by a qualified person. Qualified persons understand the complexity of the technical information and, as such can provide confidence on the results.

21. No. The SEC should be responsible for determining which professional organizations are recognized.

22. The questions here are unclear. There are references to a “technical report summary”, and an abridged technical report. What is the technical report that is referenced here? Secondly, which filings/disclosures require a technical report/technical report summary? Are SEC filings on EDGAR the only triggers for a technical report summary? Are the material changes in the technical information from a previous filing the only trigger for a technical report summary? If not, the timing should be defined. For example, if the filing is a 6K news release, then there should be some time before the technical report is due, e.g. 45 days after a news release as prescribed under NI43-101, or if the filing is a registration statement or annual report, a technical report summary should accompany the filing. Yes, the technical report should be dated and signed.

23. Yes, technical reports should be filed as an exhibit.

24. We agree with the proposal that initial disclosure of mineral resources and reserves or material exploration information, and material changes to them should dictate when a report is required.

25. Yes, a written consent should accompany the initial filing of the SEC document and technical report. We recommend that the SEC consider the challenge of a registrant being able to continue to be in contact a qualified person before prescribing that written consents for future SEC filings that include references to the qualified person, as personnel changes, retirements etc. creates challenges in this regard.

26. Yes to all questions in this part.

27. Yes. There is no question that independence will improve the objectivity of the result. Yes, the SEC should define independent. The NI 43-101 provisions and examples provide reasonable guidelines.

28. No, not necessarily. The registrant should make an assessment of what is material and when an independent report is required.

29. No. We disagree with the proposal that the work of a non-independent qualified person be subjected to independent review, as this seems to be redundant and dilutive. Qualified persons are meant to be professionals and bound to a duty of care under their respective professional bodies and independent review is not required. Under such a scenario, how would the accountability be split between the qualified person and the reviewer? What reviewer is going to take on this role if some or all of the accountability transfers to them?

The qualified person concept relies on that person taking on the accountability for their work. The purpose of the review would be to mitigate the concerns with lack of independence, but the optimum way to achieve this would be to require work to be done by an independent qualified person. Similarly, rather than requiring a review “in certain circumstances”, it would be simpler and less ambiguous to require the work to be prepared by an independent qualified person. As mentioned in 28 above, we believe the registrant should make an assessment of when an independent report is necessary.

30. Yes, any material conflicts of interest that could reasonably affect the judgment or decision making of the qualified person should be disclosed since the underlying objective is to provide investors with confidence in the work.

31. Yes, requiring the proposed technical report summary would impose a burden on any registrant with a primary listing in another jurisdiction (other than a MJDS issuer) as that registrant would also be required to prepare a technical report for the other jurisdiction as well as a technical report summary for SEC. Since the SEC has allowed Canadian issuers to report under NI 43-101 for several years and is proposing to continue to allow MJDS issuers to report under NI 43-101, then it would be more consistent and reasonable to allow all of these registrants to continue to do so, and to consider similar provisions for other foreign issuers in jurisdictions that conform to CRIRSCO standards.

Treatment of Mineral Resources

47. Yes. Mineral resources are recognized internationally as assets of a mineral property. If rigorously estimated the disclosure can materially change the valuation of the company; therefore shareholders and potential investors should be made aware of these assets. US companies have been put at a disadvantage by not being able to disclose the potential value of their properties through the disclosure of exploration results and mineral resources. Although at one time, there was a significant range of definitions of the resource classification and frequently what constituted one professional's Measured was another's Inferred; over time, because of standards such as CRIRSCO and NI43-101, this disparity has narrowed and results are now more readily comparable.

48. Mining is a highly technical business and investing in it requires an understanding of the technical issues and risk. Although this could be new information for some US investors, most mining investors would have already visited websites and read news releases and media articles referencing exploration results and mineral resources, and used this information to make investment decisions. Reporting of material exploration results and mineral resources and requiring that information be prepared by or under the supervision of qualified persons will help the Commission mitigate risks and provide more fulsome disclosure to US investors.

49. Yes, all mineral resource estimates reported in any disclosure to the public, including SEC filings by a registrant, should be prepared by a qualified person.

Mineral Resource Definition

50. We generally agree, including provisions of reasonable expectation of economic viability, such as requiring appropriate description and images in the technical report associated with resource declaration should provide readers with an understanding of the full scope of mineralization at a property. The use of a pit (calculated using liberal commodity price and other inputs) will allow the qualified person to declare a portion of that mineralization as a resource. These two factors ensure that investors can recognize a mineralized body's potential in the face of changing economic conditions and technology as well as state current mineral resources. A similar approach using stope optimizers for underground projects is recommended. However, we have reservations about the proposed "initial assessment". See that section below.

51. We agree with the inclusion of the additional materials as proposed.
52. We do not have any comment on the exclusion of oil and gas or other materials.
53. Yes, the definition of mineral resource include the requirement that a qualified person estimate or interpret the location, quantity, grade or quality continuity, and other geological characteristics of the mineral resource from specific geological evidence and knowledge, including sampling. Any declaration of mineral resources should also offer an assessment of exploration potential.

Mineral Resource Classification

54. Yes, registrants should classify its mineral resources into inferred, indicated and measured mineral resources but CRIRSCO definitions should be adopted. These definitions have been developed through experience and discussion among professionals around the world over time. Their adoption would provide consistency and create less confusion for investors who are making decisions between projects in the US and around the world.

55. The CRIRSCO definition of an “inferred mineral resource” should be adopted. The SEC questions whether inferred resources should be disclosed and suggests the disclosure of inferred resources be accompanied by an estimate by the QP of what portion of that resource would be converted to a higher classification. Despite the qualms of most regulators, inferred resources can be an important component of the value of a project and on that basis their disclosure is imperative. However, it is not reasonable to expect a QP to be able to determine with any degree of accuracy the portion of that inferred resource that might be converted to a higher classification. Simply put, if the QP can determine the likelihood of conversion, additional drilling to affect the conversion would not be required. In addition, if a QP believes that a portion of the inferred resource cannot be upgraded, then it should not be included as part of the inferred resource.

If a registrant is going to use an estimate of inferred resources in other public disclosure, it should be included in SEC filings.

56. No. The definition of a mineral resource includes the provision of potential economic viability. Therefore exclusion of the use of inferred mineral resources to make a determination about the economic viability of extraction is in opposition to that definition. Even the decision to do additional drilling (for which money may have to be raised) should be based on some analysis of the potential outcome of a project as defined by the inferred resource. Use of inferred mineral resources to make a determination about the economic viability of extraction should be allowed as long as the qualified person and registrant disclose the high level of risk associated with such mineral resources. There were concerns when the use of inferred mineral resources in economic evaluations (Preliminary Economic Assessment) was first introduced in Canada, but experience showed that it works. We believe that Preliminary Economic Assessments have helped investors understand the potential value of a project as well as level the playing field between major companies which use them in their internal assessments of junior companies and the junior companies and their shareholders which are able to show the potential value of their asset.

57. No, the SEC should allow the use of inferred resources in an economic evaluation but should require plain language description of the confidence surrounding the classification.

58. We agree with the definition of “indicated mineral resource”, including the qualified person’s ability to estimate quantity and grade or quality using adequate geological evidence and sampling and apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit is acceptable. However, we do not agree with the requirement for a qualified person to describe the level of risk associated with indicated mineral resources based on the confidence limits of relative accuracy at a particular confidence level for production estimates for one-year periods as that requires mine planning details that are generally not available, particularly at the exploration stage. The throughput rate of a mining project is not defined until the project complete a feasibility study, and during the assessment phase the throughput frequently may range 100% or more - from smallest to largest. In addition, many mines undergo throughput increases after production commences. This variation in throughput rates creates dynamic calculated confidence limits, and therefore classified volumes, as these limits and volumes for a given deposit will change with the throughput rate. While that does not change the underlying logic of the proposed methodology (i.e., confidence limits should be driven by an acceptable level of production risk), its adoption is not compatible with the current approach to mineral resource classification. Plain language descriptions of confidence with a qualitative discussion of the uncertainties is more consistent with the current classification system.

Having said that it may be time for CRIRSCO to consider replacing the overall classification system with a risk-based assessment of resources; however, we recommend that SEC use the classifications as recommended by CRIRSCO until such time that a risk based system has been considered by all practitioners and universally adopted.

59. Yes, this is consistent with CRIRSCO standards.

60. As described under point 54, the SEC should use the CRIRSCO definition for a “measured mineral resource”. For reasons described under point 58 above, the SEC should not require a quantitative description of level of risk associated with measured mineral resources based on the confidence limits of relative accuracy at a particular confidence level for production estimates for periods of less than one year. Rather than introducing a statistical concept, we recommend that the qualified person use plain language descriptions of confidence and a qualitative discussion of the uncertainties.

61. Yes, this is consistent with CRIRSCO standards.

62. Not as proposed, as described in 58 above.

The initial assessment requirement

63. Not as proposed. No registrant will have sufficiently developed the concepts for a project at its earliest stages to justify an engineered basis for the proposed initial assessment. The source of the parameters, therefore, should continue to be a review of similar projects, with the adoption of the pertinent factors as determined by the judgement of the qualified person.

Yes, disclosure of the material risks associated with mineral resource determination would be an adequate substitute for the initial assessment requirement.

64. See 63. At the resource stage, practicable mining methods should be assessed by the qualified person. We agree with the alternative, that consideration of modifying and operational factors should be applied at the reserve determination stage.

65. It is reasonable to require a cut-off grade be established for a mineral resource estimate; however, it should be based on benchmarking of similar operations at an early stage or a preliminary economic assessment or other economic evaluation, as available, at a later stage.

66. A qualified person should be able to use assumed unit costs for surface or underground operations to determine a cut-off at the initial assessment stage, or if not available, to use cut-off grades of similar deposits. More detailed analysis is not appropriate at the resource determination stage as the focus of company resources at that stage would be on exploration and not on mine planning, therefore more detailed costs would not yet be available. It should be stated whether the unit cost estimates are for surface or underground operations.

67. No, use of backward looking metal prices are not consistent with guidance under international standards, and although the proposed model might make the results easily comparable, it would be unlikely to give an idea of the value of a mineral deposit that will be developed in the future.

Forecast metal prices, based on the estimates of several metal trend experts seems more likely to give investors a better understanding of the economic potential of a mineral deposit that will be developed in the future. Transparency could be met by requiring detail on how the forecast prices were determined. Comparability could be achieved by providing a sensitivity analysis, comprised of a table of mineral resources at a number of cut-offs calculated on a reasonable range of metal prices.

The model adopted should be used to determine the commodity price used for estimates; the ceiling price would be set by the highest price under the model.

68. No, only for assessing and comparing near term production. Backward looking metal prices are not appropriate for mineral resources of most commodities for which the development time frame has not yet been determined. There may be some value in using this price for industrial minerals in which the price environment is controlled or constrained.

69. No. We disagree with the backward looking approach in general, but in particular for mineral resources that would be developed years in the future and operated for decades or even generations.

70. Yes, a qualified person should provide at least a qualitative assessment of all relevant modifying factors to establish economic potential and justify why he or she believes that all issues can be resolved with further exploration and analysis. There may be other factors that would be determined and stated by the qualified person in their analysis. A table of factors would be useful in the instructions (and maybe even in summaries in annual reports) but we suggest that the qualified person should decide how these factors are presented in a technical report. We believe that the level of effort required for each study should be

determined through the experience of the qualified person. The accuracy and contingency levels of the study should be stated with the results.

71. Yes, there may be additional factors, depending on the commodity and deposit.

72. If despite the identified issues, the SEC does adopt the initial assessment concept, then yes, full disclosure of that assessment, including cash flows, is required to achieve any level of transparency. Levels of accuracy should be stated as a result of the assessment not be prescribed by the SEC.

73. No. Inclusion of inferred mineral resources gives a better assessment of the potential value of the project. Economic assessments that include inferred mineral resources would help to level the playing field for junior companies and their shareholders by enabling them to display the full potential value of their project to their investors as major companies will include inferred mineral resources in their analyses of such projects. As long as the limitations of the initial assessment are stated, there are no real advantages to prohibiting the use of inferred resources in an initial assessment's cash flow analysis unless the definition of an economic evaluation is that it has to result in establishment of mineral reserves.

74. Yes. Mineral reserves require a more detailed study than what is required for an initial assessment.

75. Yes.

Treatment of Mineral Reserves

76. The CRIRSCO framework should be adopted.

77. We recommend that mineral reserves should be defined as recommended by CRIRSCO. As the SEC acknowledges that its proposal for reserve estimate to be net of dilution and mining losses contradicts CRIRSCO standards, the SEC should consider whether this contradiction will achieve the objective of reducing the competitive disadvantage under which US registrants are currently regulated. If SEC would like registrants to also include a non-diluted estimate, they should be clearly identified. We also believe that statements of measured and indicated mineral resources should be inclusive of mineral reserves so that investors are not confused and can compare mineral resources with others estimated under CRIRSCO standards.

Yes, SEC should allow mineral reserves to be established either by a pre-feasibility study or a feasibility study.

78. Yes. A life of mine plan should be a requirement in the technical studies required to support a determination of mineral reserves.

79. Yes. Discounted cash flow is an understood and well established practice. At a pre-feasibility study level, a forward-looking price is still more reasonable as it has not yet been determined what the time frame for development will be. A feasibility study should include an analysis of the forecast metal price or the contract price.

80. Yes, as we disagree with use of the trailing average price mandated by the SEC. We acknowledge that it is a concrete number that can be derived without question and, if used, provides good comparability between projects; however, studies serve as one means of project valuation and, although no study can be absolutely correct, there must be some sense that the results of the study are more than relatively correct. To this end, there is often no resemblance between the trailing average and long term price.

The intent of a pre-production assessment of a mineral project is to be forward-looking. Many projects span multiple decades, in some cases multiple generations. Consensus-driven prices or prices derived through market analysis, with full disclosure, achieve a transparent, long term view. Sensitivity analysis to price variations will provide investors with comparability.

81. Yes. The definitions of “probable mineral reserve” and “proven mineral resource,” are consistent with CRIRSCO.

82. Table 1 appears to be adapted and abridged from similar tables used internally within mining companies and published by some consulting firms. A significant challenge with including this table lies that adaptation and summarization. The SEC should consider whether the definition of the scope undertaken for an economic study should be left to the judgement of the qualified person.

The table uses the term “defined” in conjunction with factors associated with a prefeasibility study and “finalized” for a feasibility study. However, these terms are not defined. Typically a feasibility study may represent 10% engineering and designs are not “finalized” until they are finalized for construction.

The accuracy levels represent typical quoted numbers, although the initial assessment is low (usually it can be within $\pm 35\%$). While these accuracy numbers are almost universally held “truths”, few rigorous efforts are made to complete forensic comparisons between actual capital costs and feasibility and prefeasibility estimates. An even smaller subset of these is made public. There certainly are not enough data to justify the pseudo accuracy figures.

Rather than defined accuracy bands, these levels represent “nameplate” accuracy levels which define the effort required to achieve an estimate which justifies the study level. Accordingly, their inclusion is redundant in a table which describes that level of effort. We think that the SEC should not prescribe these limits but the actual accuracy and contingency levels of the study should be stated.

83. See 76-82 for our recommendations regarding the instructions for mineral reserves.

Type of study required to support a reserve determination

84. Yes, define “preliminary feasibility study” and “feasibility study” as proposed. See further comments in 86-88 below.

85. Yes, see additional comments to this section.

86. No. A preliminary feasibility study represents a step along a path. Suggesting that a final feasibility study is required suggests that the critical step of a preliminary feasibility study be dropped. There are too many examples of projects that did not perform as forecast because a step is dropped and critical matters overlooked. So if a preliminary feasibility study is completed, this instruction would require a company to withhold material information. This seems to fly in the face of transparency. The solution is to complete the preliminary feasibility study and identify those areas which introduce risk.

87. Yes. SEC should exclude the need to justify a preliminary feasibility study, and the requirement to do a feasibility study instead of a preliminary feasibility study in a high risk situation. A preliminary feasibility study should be seen as a step along the path from exploration to development, reflecting a maturing of the project information. For most projects, it is at this step that the project alternatives are selected. Also the SEC should exclude the prescribed accuracy limits for estimates and contingencies. Rather it should be required that the accuracy limits of the study are stated.

88. See 82 above.

89. The definition of a preliminary feasibility study would require a preliminary market study under certain circumstances. Two examples of such circumstances are given (where the products are not traded on an exchange or no established market or sales contract exists) but how in practice will this requirement be regulated? The definition, per the footnote on p. 112 is fine, although it is interesting to note that it must include estimated long term prices. This is an obvious contradiction with the requirement to use a 24 month trailing average as the ceiling price.

Unfortunately, the definitions for preliminary and final studies are identical except for the adjectives employed: a preliminary market study "... is sufficiently rigorous and comprehensive ..." as opposed to a final market study which "... is comprehensive ...". How does the SEC propose to regulate this instruction given this small and ambiguous difference?

Requirements for Technical Report Summaries

90. We recommend that the SEC consider adopting the well know and understood (and until this point SEC-accepted) NI 43-101 form be considered for the technical reports required by the SEC. For example, the inclusion of additional hydrogeology and geotechnical sections are somewhat moot as a proper technical report should include these analyses, subsumed in another section or not. Each mineral project is unique and the extent to which these two aspects are important enough to warrant their own sections will vary between projects. Using similar arguments, inclusion of a separate section on geo-metallurgy, an area of study belatedly garnering significant attention in most well-managed projects, has a greater justification.

91. See 90.

92. See 90.

93. Yes, if the SEC is going to retain/require the initial assessment, the cash flow analysis should be included.

94. See 90.

95. No. The SEC suggestion that the “reliance on other experts” disclaimer present in NI 43-101 would be excluded from their reports indicates a fundamental difference between the qualified person concepts as defined by the SEC and by NI 43-101. Under NI 43-101, a qualified person with demonstrable and relevant experience is accountable for those aspects of the work for which he/she has completed. The disclaimer is recognition that, for example, a mining engineer cannot be expected to be held accountable for the legal advice provided by a lawyer.

There is no question that this is a shortcoming of NI 43-101, but it is enabled by the understanding NI 43-101 mandates technical reports and other issues discussed in the report are subject to disclosure under other regulations. Further, the SEC suggestion that this accountability is similar to codes of ethics is misplaced. For example, the Code of Ethics of the Association of Professional Engineers and Geoscientists of British Columbia states “... members and licensees shall... [p]rovide an opinion on a professional subject only when it is founded upon adequate knowledge and honest conviction”. The Code of Ethics does not stipulate that an engineer or geoscientist must acquaint themselves with the advice of other professions to the extent they become responsible for that advice. In fact, the section quoted above stipulates exactly the opposite. The SEC should consider whether their suggested requirement will be workable in the context of the accountability expected of a qualified person.

96. There should be limits on the amounts of technical or other project data, either in the report or as appendices to the report. This is consistent with NI 43-101. A technical report is technical and there should be a limit to how “plain language” that it should be; and that should be taken into consideration when assessing if the plain English principles under the Securities Act and Exchange Act are reasonable.

If you have any questions about our responses, please contact me.

Yours truly,

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