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PAH APPROACH TO THE REPORTING OF NI 43-101 COMPLIANT MINERALS

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Pincock, Allen and Holt (PAH) prepared this article to provide guidance and clarification on our current approach to the estimation and reporting of Mineral Resources in light of the various international mining codes established by professional organizations such as CIM, SME and JORC and the respective exchange commissions. This advisory is timely as major revisions to the Canadian NI 43-101 regulations took effect on June 30th 2011.

Fundamental to PAH's approach to resource estimation and reporting is the basic definition of Mineral Resource - a definition that, with strikingly similar language, is accepted by most international organizations and exchange commissions. However, U.S. Securities and Exchange Commission (SEC) regulations for reporting mineral resources depart from other international exchange commissions in that the SEC only allows reporting of Proven and Probable Reserves and "other mineralized material" - a term which encompasses only Measured and Indicated Mineral Resource classes. Ironically the U.S. Society for Mining, Metallurgy and Exploration (SME) accepts the M-I-I resource classes. With the exception of the SEC, definitions by all other jurisdictions contain language that classified Mineral Resources (M-I-I) must meet the reasonable

prospects for eventual economic extraction standard. This implies that the Qualified Person (QP) must exercise judgment regarding the technical and economic factors likely to influence the prospect of reasonable economic extraction before a classified Mineral Resource may be stated. The following comparison of definitions of Mineral Resources taken from the codes of several international organizations shows that the "reasonable prospects" standard is explicit.

Using language similar to the Australian JORC code, the 2007 SME Guide for the Reporting of Mineral Resources and Reserves defines Mineral Resource as follows:

A "Mineral Resource" is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction... Portions of a deposit that do not have reasonable prospects for eventual economic extraction must not be included in a Mineral Resource."

The CIM guidelines (2010) state:

"A Mineral Resource is an inventory of mineralization that under realistically assumed and justifiable technical and economic conditions might become economically extractable. These assumptions must be presented explicitly in both public and technical reports."

Several organizations share the following terminology in defining reportable Mineral Resources, including: The JORC Code (Australia); "The Reporting Code" under the Institution of Mining and Metallurgy (United Kingdom); The European Federation of Geologists, The Geological Society of London, and The Institute of Geologists of Ireland:

A 'Mineral Resource' is a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction. The JORC and European reporting Code expand the meaning of the "eventual economic extraction" statement using the following language:

The term "reasonable prospects" for eventual economic extraction' implies a judgment (albeit preliminary) by the Competent Person in respect to the technical and economic factors likely to influence the prospect of economic extraction, including the approximate mining parameters. In other words, a Mineral Resource is not an inventory of all mineralization drilled or sampled, regardless of cutoff grades, likely mining dimension, location or continuity. It is a realistic inventory of mineralization, which, under assumed and justifiable technical and economic conditions, might become economically extractable... Any material assumptions made in determining the "reasonable prospects for eventual economic extraction" should be clearly stated in the Public Report."

The Hong Kong Securities Code (Chapter 18) defines Mineral Resources as:

"...with regards to minerals, a concentration or occurrence of material of intrinsic economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for their eventual economic extraction."

The Hong Kong code does not offer further elaboration on the definition of 'reasonable prospects for their eventual economic extraction' but does in essence follow the JORC code definitions throughout the code.

The 'Committee for Mineral Reserves International Reporting Standards' (CRIRSCO) follows the JORC code and defines 'Mineral Resource" as:

"A 'Mineral Resource' is a concentration or occurrence of material of economic interest in or on the Earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction." However, the term 'reasonable prospects for eventual economic extraction' is not defined. Based on further definitions from Australian JORC, European and the 2007 SME Guidelines and mining codes, a Mineral Resource is not the total geologic resource; defined as the block model mineral inventory at a specified cutoff grade, even though it may be based on a set of price, recovery and cost parameters.

PAH comments on U.S. Securities and Exchange Commission (SEC) Regulations As mentioned previously, the U.S. Securities and Exchange Commission (SEC) regulations for reporting Reserves and Mineral Resources have distinct differences when compared to other international mining codes. The Commission follows a tripartite classification for reporting hard rock minerals and allows only Proven and Probable Reserves. However, the SEC also allows the reporting of "Other Mineralized Material" which is the mineralized measured and indicated tonnage that cannot be classified as Reportable Reserves due to the lack of a Feasibility Study or material that is uneconomic at the three-year trailing average price

(Baer 2003). The Measured, Indicated and Inferred (M-I-I) resource classes are not recognized under the SEC Guidelines and cannot be used in Resource statements filed with the SEC.

In cases where M-I-I resource estimates have been prepared, classified and reported under NI-43-101 regulations or other foreign mining codes legally ratified in the respective jurisdictions, then those estimates may be included in SEC reports. As the JORC code is not ratified by legislative process in Australia, classified resource estimates under JORC cannot be used in SEC reports.

"Other Mineralized Material" may be determined using a higher metal price similar to that used in the reporting of Mineral Resources in other jurisdictions, however, the SEC explicitly excludes Inferred Resources in the "Other Mineralized Material" classification. The SEC does not specify the level of study or metal prices required for the reporting of "Other Mineralized Material" but it is recommended that at least a scoping-level study or preliminary assessment should be completed to support the declaration of those tonnages and grades, as well as the technical/economic assumptions used to quantify the 'Mineralized Material' estimate. The reporting of Mineral Resources and Other Mineralized Material should include a disclosure of the technical and economic assumptions used to define these materials/resources. A minimum disclosure will include metal prices, recoveries, cutoff grades, and proposed

processing method. It does not necessarily include a disclosure of costs used to define cutoffs and minable limits.

To support a Reserve Statement, the SEC requires an economic Final Feasibility Study, as well as a declaration of the legal right to mine, process and sell a product from the property. This includes surface and mineral rights, as well as all required operating permits or a statement attesting to the high probability of obtaining such and no legal impairment to the granting of such permits. The term "economic" as used by the SEC is a positive, undiscounted after-tax cash flow from the future operation. It ignores capital costs spent to date (sunk costs) and is based on a maximum commodity price derived from the three-year trailing price average. A higher (or lower) forward-looking long-term price (stated in current dollars) can be used to determine the Company's reserves so long as the cash flow is positive at the specified three-year, un-escalated price. If the reserves are uneconomic at the three-year average, a portion of the reserves may need to be eliminated from the design, or the whole reserve may become "Other Mineralized Material." In the determination of reserves for SEC reporting, an additional test is conducted for accounting purposes and this is the "Impairment Test." The impairment test uses forward looking, long-term prices (not the three year average) stated in current dollars, and determines if the after-tax undiscounted cash flow is sufficient to cover the book value of the assets. If the Life-of-Mine plan fails this test, the asset book value must be written down based on the Net Present Value of the future after-tax discounted cash flows determined using an 8.5% discount rate. The impairment test does not impact the reportable SEC reserves. NI 43-101 Mineral Reserve reporting requires as a minimum the completion of a Preliminary Feasibility Study. Inferred mineral resources must be excluded from estimates forming the basis of feasibility or other economic studies "that support the Mineral Reserve declaration."

PAH Practices with Respect to Mineral Resource Estimation and Reporting

PAH believes that the "reasonable prospects" standard must first be satisfied and justified by the QPs explicit statements in technical reports before classified Mineral Resources are declared. In practice, the "reasonable prospects" standard implies that Measured, Indicated, and Inferred Mineral Resources are to be constrained within pit shells or cones for open pit mines, or constrained to coherent zones which support mining, processing and development cost estimates for underground extraction. A deposit model is required, which may be a computer-generated block model or a model based on cross- or long-sections. Economic tests should be documented in technical studies, but the disclosure of Mineral Resources should not require formal detailed technical and economic studies such as those required for reserve disclosure. Economic criteria should be applied equally to all categories of Mineral Resources (Measured, Indicated and Inferred), for the reporting of Mineral Resources.

PAH believes that a reportable Mineral Resource, including the Inferred Class, will be defined using a set of reasonable, conceptual, economic parameters (product prices and costs) and physical design criteria such as recoveries, pit slopes and pit shells or underground areas that could be mined as a function of minable widths and average stope grades. This conceptual economic approach does not include an estimate of capital costs or a cash flow analysis.

PAH believes that the reporting of Mineral Resources and Other Mineralized Material should include a disclosure of the technical and economic assumptions used to define these resources/ materials. A minimum disclosure will include the metal prices, recoveries, cutoff grades, and the proposed mining and processing methods. It does not necessarily include a detailed disclosure of costs used to define cutoffs and minable limits, nor doe it include initial and sustaining capital costs. In early-stage projects where the "reasonable prospects" standard has not been confirmed by the QP due to insufficient data, classified

Mineral Resources cannot be stated. In lieu of a classified resource statement (M+I+I), PAH may use a grade-tonnage diagram to show the total available mineralized material over a range of cutoff grades of potential economic interest. Hence, the reported mineralized material will be a tonnage point in the diagram that is below the total available material displayed at the specified cutoff. This will indicate that the estimate of potential economic material is less than 100% of the block model inventory. PAH believes that it is important for all geologists and engineers (QPs) that are involved in the preparation of resource reports under NI-43-101 rules to discuss and agree upon the outlined approach with the client to satisfy the CIM-defined criteria for the reporting of Mineral Resources and Mineral Reserves.

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