



AMERICAN INSTITUTE OF PROFESSIONAL GEOLOGISTS

NATIONAL HEADQUARTERS

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August 22, 2016

VIA EMAIL (rule-comments@sec.gov)

Mr. Brent J. Fields
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: Release Number 33-10098; File No. S7-10-16 (the “Release”)
Modernization of Property Disclosures for Mining Registrants

Dear Mr. Fields:

The American Institute of Professional Geologists (“AIPG”) is pleased to submit the following comments on the Securities and Exchange Commission’s (the “Commission”) proposed rules (the “Proposed Rules”) to revise the property disclosure requirements for mining registrants and related guidance currently set forth in Item 2 of Regulation S-K under the Securities Act of 1933, as amended (the “Securities Act”), the Securities Exchange Act of 1934, as amended (the “Exchange Act”) and Industry Guide 7 (“Guide 7”).

AIPG, founded in 1963, is the largest association dedicated to promoting geology as a profession. It presently has more than 7,800 members in the U.S. and abroad. AIPG adheres to the principles of professional responsibility and public service and is the only international organization that certifies the competence and ethical conduct of geological scientists in all branches of the science with members employed in industry, government, and academia. AIPG emphasizes competence, integrity and ethics. AIPG is an advocate for the profession and communicates regularly with federal and state legislators, and government agencies on matters pertaining to the geosciences.

AIPG grants the Certified Professional Geologist (“CPG”) designation to those of its members who meet specified education and experience requirements. AIPG’s Code of Ethics and Disciplinary Procedures are implemented whenever an applicant or member is alleged to have violated AIPG’s Code of Ethics. Consequently, AIPG has been recognized as a professional organization whose CPG members are deemed “competent persons” or “qualified persons” by the international mining groups requiring use of the Committee for Reserves International Reporting Standards was set up in 2002 (“CRIRSCO”) and the 2006 CRIRSCO Template including Canadian National Instrument 43-101 (“NI 43-101”), the Australian Joint Ore Reserves Committee (JORC) Code,¹ the Pan European Reporting Code (PERC Code), and the

¹ The JORC Code is the Australasian Code for Reporting of Exploration Results, Mineral Resources, and Ore Reserves prepared by the Joint Ore Reserves Committee of the Australasian Institute of Mining and Metallurgy (“AusIMM”), the Australian Institute of Geoscientists, and the Minerals Council of Australia.

South African Code for Reporting of Exploration Results, Mineral Resources, and Mineral Reserves (SAMREC) Code. To maintain this recognition, AIPG responds to periodic requests from these organizations to demonstrate continued disciplinary activity.

Many of AIPG's CPGs have served as qualified persons preparing or contributing to technical reports filed pursuant to NI 43-101 since its initial adoption. AIPG CPGs also have served as competent persons preparing or contributing to technical reports filed pursuant to the JORC, PERC, and other internationally recognized reporting codes that employ the CRIRSCO Template.

We appreciate the opportunity to participate in this review process, to provide these comments and appreciate the opportunity to discuss them further with the Commission or its staff.

Any questions regarding our comments may be directed to the preparer of this document, David M. Abbott, Jr., CPG-4570, Professional Ethics & Practices columnist, [REDACTED] Mr. Abbott is a mining consultant and served as a geologist on the Commission's staff between 1975 and 1996. He helped prepare what is now Guide 7 in 1988-9.

Respectfully Submitted,



Helen V. Hickman, PG (Florida) CPG-7535
AIPG President



The American Institute of Professional Geologists' Comments
on the
US Securities and Exchange Commission's
Proposed Modernization of Property Disclosures for Mining Registrants

August 22, 2016

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Executive Summary

The following summarizes the subject matter of AIPG’s comments:

SME Comments Endorsed: AIPG supports and endorses the comments on the Proposed Rules submitted by the Society for Mining, Metallurgy, and Exploration (SME) on August 3, 2016.

Conform to the CRIRSCO Template: The benefit of the Proposed Rules to the mining industry and to those who invest in mining company securities will be directly proportional to their conformity to the CRIRSCO Template. Therefore, AIPG strongly advocates that the Commission’s rules strictly adhere to the international practices represented by the CRIRSCO Template.

The significant improvements in mining disclosure guidelines since 1981 and the increasing international conformity of these guidelines have benefited the international investing public. These improvements in mining disclosure guidelines demonstrate the need to revise the Commission’s mining disclosure rules and to conform them to the internationally accepted standards. AIPG believes each material departure from the CRIRSCO-based standards undermines the Commission’s stated objective to “modernize the Commission’s disclosure requirements and policies for mining properties by aligning them with the current industry and global regulatory practices and standards.”

Keeping Mining Disclosure Requirements Current: AIPG recommends that the Commission incorporate the CRIRSCO Template by reference and recognize the use of NI 43-101’s Form 43-101F1 or the SME Guide² as the basis and outline for technical reports. This recommendation for incorporations by reference will facilitate the continued improvement and updating for the mining disclosure rules and guidelines without the need for additional Commission rule-making. This recommendation reflects the recognition given the accounting profession’s auditing standards (GAAP and GAAS) that the Commission recognizes through incorporation by reference.

Diversity of the Mining Industry: AIPG recommends that registrants be allowed determine the appropriate format for their disclosure presentations. The Proposed Rules treat the mining industry as if it operated in a fairly uniform and comparable manner; it does not. This treatment demonstrates a lack of recognition of the diversity of the mining industry.

Mineral Product Pricing: AIPG recommends the Commission align its proposed pricing policy with the CRIRSCO Template and derivative foreign mining codes. Estimates of mineral resources and mineral reserves are inherently “forward-looking” information. While the time

² Society for Mining, Metallurgy, and Exploration’s (SME) *2014 Guide for Reporting Exploration Results, Mineral Reserves and Mineral Resources*.

period covered by an estimated production schedule can vary from a few years to several decades of actual operations, the social licensing and permitting processes for new deposits can easily take 10 to 15 or more years. Backward-looking prices such as the currently employed 36-month trailing average or the proposed 24-month trailing average are therefore meaningless, except by coincidence. The Canadian Institute of Mining, Metallurgy, and Petroleum's (CIM) Best Practice Guidelines³ lists prices as a key assumption in determining resources and reserves and states, "if commodity prices used differ from current prices an explanation should be given, including the effect on the economics of the project if current prices were used."

Qualified Person: AIPG supports the proposed requirement that a qualified person or competent person, who is a member of a recognized professional organization, be involved in preparation and disclosure of exploration results, mineral resources and mineral reserves. This is a significant step in aligning Commission rules with the CRIRSCO Template and international practices. AIPG has identified five specific requirements for recognitions as a qualified or competent person that should be incorporated in the Commission's rules. These requirements are below:

- Possess an accredited university's degree (bachelor's or equivalent) in fields related in various ways with the discovery, extraction and use of minerals, metals, and related environmental permitting.
- Have a minimum of seven years of postgraduate experience in the mineral industry with at least three years in positions of responsibility (defined as requiring independent judgment) and have a minimum of five years of relevant experience in the style of mineralization and type of deposit under consideration and in the type of activity the person is performing.⁴
- Be satisfied in his/her own mind that she/he can face his/her peers and demonstrate competence in the commodity, type of deposit, and situation under consideration.
- Belong to a recognized professional organization and the appropriate membership category.
- The recognized professional organization to which the qualified or competent person belongs must have jurisdiction to discipline the qualified or competent person, no matter where the qualified person resides, practices or where the mineral deposit is located.

Recognized Professional Organization: AIPG believes that a "recognized professional organization" means a self-regulatory organization of geoscientists, engineers, or both geoscientists and engineers that:

- is generally accepted within the international mining community as a reputable professional organization
- admits individuals on the basis of their academic qualifications, experience, and ethical fitness

³ CIM Council, 2003, Estimation of mineral resources and mineral reserves best practice guidelines, 55 p., <http://web.cim.org/standards/MenuPage.cfm?sections=177,180&menu=219>, accessed 8/22/16.

⁴ The JORC Code, paragraph 12, contains an important discussion and guidance on what constitutes "relevant experience." This discussion and guidance should be included in the Commission's revised mining rules by reference.

- has one or more membership categories requiring attainment of a position of responsibility that requires the exercise of independent judgment and a favorable confidential peer evaluation of the individual's character, professional judgment, experience, and ethical fitness
- requires compliance with the professional standards of competence and ethics established by the organization and which are compatible with industry-recognized standards
- requires or encourages continuing professional development
- has and applies disciplinary powers, including the power to suspend or expel a member regardless of where the member resides, practices or the mineral deposit is located
- can demonstrate that allegations of unethical and incompetent practice received by the organization are appropriately resolved pursuant to the organizations disciplinary powers.

In response to Request for Comment 37, AIPG recommends that the Commission refer to the list of recognized professional organizations in Appendix to NI 43-101 CP maintained by The Canadian Securities Administrators (CSA) so that the burden of maintaining and vetting various potential recognized professional organizations will not fall on the Commission staff, but on those organizations that are much more in tune with the CRIRSCO member's actions regarding current membership requirements of various recognized professional organizations.

Continuing Professional Development (CPD): AIPG recommends that the Commission's rules encourage but not require CPD as part of the requirements for a professional organization's recognition.

Liability of the Qualified Person and Disclaimers: AIPG urges the Commission to adopt the NI 43-101 Form 43-101F1 Technical Report's approach that allows the use of limited disclaimers.

Inconsistency of USGS circulars 831 and 891 with CRIRSCO Template: AIPG believes that the Commission should definitely prohibit use of the definitions in USGS Circulars 831 and 891, even for coal. These circulars use definitions of terms that can lead to confusion and the ability to mislead the general public.

Format for Technical Reports: AIPG believes that the disclosure framework should explicitly follow the format of NI 43-101's Form 43-101F1 through incorporation by reference, which would allow for regular updates without going through additional rule making.

Accuracy of Mineral Resource and Mineral Reserve Estimates: AIPG believes that qualitative risk assessments (*e.g.* low, medium, high) are more likely to provide investors with a sense of the risks inherent in mineral resource and mineral reserve estimates than numerical risk assessments that inherently fail to account for the underlying geological uncertainties, estimates, and interpretations, The proposed calculated estimation risks for estimated mineral resources and mineral reserves are far more imprecise and inaccurate than the resultant numerical values indicate, due to the inherent uncertainties in geological interpretation..

Proposed Tables 1 through 8: AIPG urges the Commission to delete proposed Tables 1 through 8 from its Proposed Rules and instead require disclosures about the subjects of these tables be made by registrants in a format that is best suited to the registrant’s individual characteristics. These disclosures can be in the form of text summaries, registrant-designed tables, and/or appropriate maps or cross sections, whichever format(s) best provide relevant material information to the investor. These prescriptively formatted tables reflect the lack of appreciation for the diversity of the mining industry.

Technical Report Summaries for Royalty-holding Companies: AIPG believes that the Proposed Rule requiring royalty interest-holding companies to file a technical report summary makes no sense in the mining industry and should be withdrawn.

Appreciation for the Commission’s Recognition that Guide 7 Needs Updating

AIPG appreciates the Commission’s recognition that Guide 7 is in need of updating to bring the Commission’s mining disclosure practices in line with current internationally recognized mining disclosure standards. The mining disclosure rules now found in Guide 7 were originally adopted in 1981 for use in Form S-18 (Securities Act Release 33-6299, March 18, 1981).⁵ Subsequently, the internationally recognized mining reporting guides starting with the first edition of the Australian JORC Code in 1989. The first edition of the Society for Mining, Metallurgy, and Exploration’s (“SME”) *A Guide for Reporting Exploration Information, Resources, and Reserves* in 1991, greatly expanded on both the definition of technical terms, disclosure guidance, and provided outlines of the information to be disclosed in their Table 1. Other internationally recognized codes, including NI 43-101, followed. As each new or revised mining reporting guide came out, the revisions and additions were reviewed by the other organizations issuing mining reporting guides, which then updated their guides. The SME’s latest edition is the *2014 Guide for Reporting Exploration Results, Mineral Reserves and Mineral Resources* (“SME Guide”). The latest edition of the JORC Code was issued in 2012. As reviewed in more detail in the SME’s August 3, 2016 comments on the Proposed Rules (Section 1.2), the mining professional organizations from five countries (Australia, Canada, South Africa, the United Kingdom, and the United States) formed a working party that worked towards standardization of definitions and basic reporting concepts that are most recently published in the 2013 CRIRSCO Template.⁶

⁵ Abbott, D.M., 2014, A historical review of recommendations for reporting exploration results, mineral resources, and mineral reserves: Mining Engineering, February 2014, p. 38-40.

⁶ In this document the “CRIRSCO Template” refers to the Template per se; “CRIRSCO Template guides, codes and standards” refers to amplifications to definitions and guidance developed by the National and Regional Reporting organizations. In general, the language used in the codes, guides and standards is very similar.

Specific Comments on the Proposed Rules

Conform to the CRIRSCO Template and Industry Guides by Reference

The significant improvements in mining disclosure guidelines since 1981 and the increasing international conformity of these guidelines have benefited the international investing public. These improvements in mining disclosure guidelines demonstrate the need to revise the Commission's mining disclosure rules and to conform them to the internationally accepted standards. The benefit of the Proposed Rules to the mining industry and to those who invest in mining company securities will be directly proportional to their conformity to the CRIRSCO Template. Therefore, **AIPG strongly advocates that the Commission's rules strictly adhere to the international practices represented by the CRIRSCO Template.** AIPG believes each material departure from the CRIRSCO-based standards undermines the Commission's stated objective to "modernize the Commission's disclosure requirements and policies for mining properties by aligning them with current industry and global regulatory practices and standards."⁷

AIPG recommends that the Commission incorporate the CRIRSCO Template by reference and recognize the use of NI 43-101's Form 43-101F1 or the SME Guide as the basis and outline for technical reports. This recommendation asks for treatment similar to that given the accounting profession to develop accounting rules and principles that the Commission recognizes through incorporation by reference.

Keeping Mining Disclosure Requirements Current

The mining disclosure guides, such as SME Guide and NI 43-101, have been updated every few years, and similar updates are expected in the future. AIPG urges the Commission adopt provisions allowing the Commission's rules to be similarly updated on a regular basis without going through the complex rule-making process. The mining industry's guides and standards should be incorporated by reference into the Commission's rules similar to the recognition of the accounting profession's auditing standards (GAAP and GAAS) that the Commission recognizes through incorporation by reference. When the Commission believes that specific additional disclosure requirements are needed, requests can be made to the mining industry's recognized professional organizations to make appropriate changes in their disclosure guidelines.

Diversity of the Mining Industry⁸

The Proposed Rules treat the mining industry as if it operates in a fairly uniform and comparable manner; it does not. This treatment demonstrates a lack of recognition for the diversity of the

⁷ Proposed Rules, Summary, p. 1.

⁸ Requests for Comment 1, 4, 124, 125, 126, 127, 128 and 129.

mining industry. The following factors demonstrate the mining industry's diversity and lack of comparability:

- Commodity pricing: dollars/troy ounce (precious metals), dollars/carats (gems and semiprecious minerals), dollars/pound (most metals), dollars/short ton (many industrial minerals), dollars/long ton (ferrous metals), and dollars/metric ton (tonne)
- The foregoing pricing variations reflect the marketability of mineral products. Precious metals and gems can be mined anywhere in the world and be marketable. In contrast, the marketability of aggregate products (sand, gravel, and crushed stone) are dependent on shipping costs from the quarry to the customer. Shipping costs for many industrial minerals often greatly exceed the price of the mineral product as it leaves the property.⁹
- Mining method: quarries, open-pit, underground, in-situ leaching, and solution mining
 - Underground methods would include cut-and-fill, drift-and-fill, long-hole stoping, sublevel caving, block caving, long wall, room-and-pillar, augering
 - Open-pit methods would include surface mining, deep open pits, dragline and bucket wheel excavation
- Continuous operation versus campaign mining (particularly applicable to industrial minerals, sand, gravel, crushed stone etc.)
- Mineral products include: direct-shipping ore, concentrates, precious metal doré,¹⁰ cathodes, wholesale product, packaged consumer product, thermal coal, metallurgical coal, chemical feedstock coal, etc.
- Mineral product sales point may be either delivered to the processing facility or after beneficiation (and sometimes packaging) at the processing facility.

Salient features of the extremely wide range of mineral products and mining operations contained within the heading "industrial minerals" are pertinent here.

- Industrial minerals may be valued for their physical or chemical properties, or for a combination thereof. The ability to establish a market for one or more mineral products is far more important for an industrial mineral property than is the deposit's geologic, mining, and processing characteristics.
- Industrial minerals are sold as mineral products that must meet specific customer specifications and volume requirements. Sometimes the mineral product is a bulk product sold to firms that use these minerals in making their products; sometimes the mineral product is a finished consumer product, and sometimes the same mineral product is sold into both markets under several trade names.¹¹ For example, the bentonite mines in northeastern Wyoming and adjacent South Dakota sell kitty litter products as consumer-packaged products and as bulk product to firms making enhanced kitty litter products, such as by the addition of baking soda (another industrial mineral product). Establishing a

⁹ Abbott, David M. Jr., 2007, Industrial minerals reserves and resources classification and evaluation *in* Cappa, J.A., ed., Proceedings of the 43rd Forum on the Geology of Industrial Minerals (2007): Colorado Geological Survey Resource Series 46 (CD), p. 437-457.

¹⁰ Doré is the unrefined and impure gold produced at mines and that is sold to refiners. "Pure" gold is 999 fine—the 999 is a number similar to a batting average. Doré for example might be 886 fine with the remaining 114 being mostly silver along with trace metals like copper.

¹¹ A mineral product with identical physical and chemical characteristics can be sold under different trade names and at differing prices.

viable market for an industrial mineral product is the first step in evaluating an industrial mineral property, and this step is far more important than the deposit's geology or other characteristics.

- Many industrial minerals' estimates of mineral resources and mineral reserves are reported on a tons and grade/quality basis, not on a contained mineral basis.
- For most industrial minerals, the modifying factors may be significantly more critical than geoscientific knowledge of the deposit in determining mineral resources and mineral reserves.
- Reporting of deleterious materials or certain physical properties may be more important than the overall composition of the mineral itself, and thus should be reported when the need to do so is determined by the qualified person. Examples are the elemental contents of ash in coal, sulfur content, dioxins, asbestiform minerals in vermiculite, and erionite in zeolite deposits.
- The reporting of industrial minerals must clearly state whether the reporting is based on tons of ore at a cut-off grade or as a processed saleable product. Industrial minerals are reported differently based on common practices within the specific industrial minerals sector.
- Due to the extreme sensitivity to pricing, industrial minerals may need to be exempt from certain price disclosure requirements when filing a technical report summary. Indeed, within some industrial minerals firms, different divisions within the same firm compete with each other using differing products derived from the same basic material source (for example kaolin and other clay products).

As the mining industry evolves, new technologies will be developed leading to new methods of extraction, processing, and mineral products. The evolution of the mining industry will increase the diversity of the mining industry.

AIPG recommends that registrants be allowed to determine the appropriate format for their disclosure presentations. Proposed Tables 1 through 8 are prime examples of the mistaken belief that the mining industry is comparable and these proposed tables should be abandoned from the final rules.

Mineral Product Pricing¹²

Estimates of mineral resources and mineral reserves are inherently forward-looking information. While the time period covered by an estimated production schedule can vary from a few years to several decades of actual operations, the social licensing and permitting processes for new deposits can easily take 10 to 15 or more years. Backward-looking prices such as the currently employed 36-month trailing average or the proposed 24-month trailing average are therefore meaningless, except by coincidence.

¹² Requests for Comment 67, 68, 69, 80, and 102

CRIRSCO-based codes allow the qualified person to use any reasonable and justifiable price, which is based on the qualified person's or management's view of long-term market trends; however, the qualified person must provide justification for the prices used.

The Commission should adopt the use of current and estimated metal prices for its price requirement, consistent with certain financial reporting requirements for the mining industry under US GAAP and IAS 36. The current and estimated prices under US GAAP are estimated using similar procedures to those of the CRIRSCO codes. Specifically, US GAAP requires that estimated future cash flows from mineral properties be used in determining the value of mining assets in a purchase price allocation and in testing mining assets for impairment. The estimated future cash flows are based on management's projections using projected sales prices reflecting the current and future forecasted prices. The forecasted prices should be consistent with the length of the mine life. For example, spot and forward curves are more appropriate for a shorter mine life. When the forward price curve does not extend far enough into the future to cover the life-of-mine schedule, from a practical standpoint the price at the end of that forward curve is held constant. From an international viewpoint and to level the playing field, it is preferable to use long-term price outlooks and short-term price curves based on management's projections, provided the qualified person submits the basis and justification of the price used.

AIPG recommends the Commission align its proposed pricing policy with the CRIRSCO Template and derivative foreign mining codes. The CIM Best Practice Guidelines lists prices as a key assumption in determining resources and reserves and states, "if commodity prices used differ from current prices an explanation should be given, including the effect on the economics of the project if current prices were used." See the British Columbia Securities Commission's 2012 Mining Report¹³.

Definition of the Qualified or Competent Person¹⁴

Requests for Comments 20 and following address the requirements for a qualified person. AIPG supports the proposed requirement that a qualified person or competent person, who is a member of a recognized professional organization, be involved in preparation and disclosure of exploration results, mineral resources and mineral reserves, and this is a significant step in aligning Commission rules with international practice and the CRIRSCO Template. "Qualified person" is Canadian usage while the "competent person" title originated in Australia. There are minor differences between the requirements in Canada and Australia but the basic concept is the same. AIPG CPGs meet the requirements and are recognized in both countries.¹⁵

AIPG believes that the basic requirements to be a qualified or competent person are:

¹³ British Columbia Mining Commission, 2012, Mining report, 22 pp.

¹⁴ Requests for Comment 27, 29, 30, 32, 34, 35, 39 and 41.

¹⁵ From a semantic viewpoint, AIPG prefers "competent person" over "qualified person" as the issue is competence. As a geologist who was also a mining lawyer observed, "I am qualified to represent a defendant charged with murder but I am not competent to do so."

- Possess an accredited university's degree (bachelor's or equivalent) in fields related in various ways with the discovery, extraction and use of minerals, metals, and related environmental permitting.
- Have a minimum of seven years of postgraduate experience in the mineral industry with at least three years in positions of responsibility (defined as requiring independent judgment) and have a minimum of five years of relevant experience in the style of mineralization and type of deposit under consideration and in the type of activity the person is performing.¹⁶
- Be satisfied in his/her own mind that she/he can face his/her peers and demonstrate competence in the commodity, type of deposit, and situation under consideration.
- Belong to a recognized professional organization and the appropriate membership category.
- The recognized professional organization to which the qualified or competent person belongs must have jurisdiction to discipline the qualified or competent person, no matter where the qualified person resides, practices or where the mineral deposit is located.

These five specific requirements for recognitions as a qualified or competent person should be incorporated in the Commission's rules.

Requiring that technical reports be prepared by a qualified or competent person will not be either restrictive or costly to registrants. Most mining companies, even those that are not public companies, already use qualified or competent persons to write their technical reports because investors demand this, including requiring that the qualified or competent person be independent.

Requirements for Recognized Professional Organizations

Requests for Comment 35, 36, 37, and 38 address the issue of recognized professional organizations. The definition of and requirements for a qualified or competent person are intimately connected with the requirements for a recognized professional organization because the qualified or competent person must belong to a recognized professional organization and be in the appropriate membership category. AIPG believes that a "recognized professional organization" means a self-regulatory organization of geoscientists, engineers, or both geoscientists and engineers that:

- is generally accepted within the international mining community as a reputable professional organization
- admits individuals on the basis of their academic qualifications, experience, and ethical fitness
- has one or more membership categories requiring attainment of a position of responsibility that requires the exercise of independent judgment and a favorable

¹⁶ The JORC Code, paragraph 12, contains an important discussion and guidance on what constitutes "relevant experience." This discussion and guidance should be included in the Commission's revised mining rules by reference.

confidential peer evaluation of the individual's character, professional judgment, experience, and ethical fitness

- requires compliance with the professional standards of competence and ethics established by the organization and which are compatible with industry-recognized standards
- requires or encourages continuing professional development
- has and applies disciplinary powers, including the power to suspend or expel a member regardless of where the member resides, practices or the mineral deposit is located
- can demonstrate that allegations of unethical and incompetent practice received by the organization are appropriately resolved pursuant to the organizations disciplinary powers.

Under the Proposed Rules, a qualified person must be a member in good standing of a recognized professional organization, and the organization must be "recognized within the mining industry." Learned professional societies such as the Geological Society of America, Society of Economic Geologists and Geological Society of Canada do not qualify as recognized professional associations because they lack enforced codes of ethics. US state geologic and engineering licensing boards also fail to meet the requirements of a recognized professional association because these boards lack the power to suspend or expel a member regardless of where the member resides, practices or where the mineral deposit is located.

In response to Request for Comment 37, AIPG recommends that the Commission refer to the list of recognized professional organizations in Appendix to NI 43-101 CP maintained by The Canadian Securities Administrators (CSA) so that the burden of maintaining and vetting various potential recognized professional organizations will not fall on the Commission staff, but on those organizations that are much more in tune with the CRIRSCO member organizations actions regarding current membership requirements of various recognized professional organizations. For example, Canada deleted US geological licensing boards from its list of recognized professional organizations because these boards would not or were unable to discipline licensees whose alleged misconduct involved properties outside the boundaries of the particular state. Canada also deleted the Australasian Institute of Mining and Metallurgy's (AusIMM) Member category while retaining recognition of AusIMM Fellows because of differing degree requirements for these two membership grades. The Australasian JORC rejected professional engineers in Manitoba because its board would not discipline licensees whose alleged misconduct involved properties outside the boundaries of Manitoba. The Commission will not have to promulgate rules each time a recognized professional organization list needs updating if it incorporates the Canadian list by reference.

AIPG takes exception to the Proposed Rules regarding **not** requiring a qualified person to be a member of **an approved list** of recognized professional organizations. The Proposed Rules leave it up to the registrant to determine what constitutes a "recognized professional organization." As noted by the Commission, this differs from most CRIRSCO based codes which require a competent or qualified person to be a member of one or more "approved" organizations identified by regulators.

Continuing Professional Development

Request for Comment 35 asks about continuing professional development (“CPD”). AIPG notes that CPD is encouraged but not required for all professional organizations currently recognized by Canada’s NI 43-101. Some of the recognized professional organizations do have required CPD programs, but the number of hours required and whether such activities as professional practice and professional ethics training hours are required is not uniform.¹⁷ AIPG recommends that the Commission’s rules encourage but not require CPD as part of the requirements for a professional organization’s recognition.

Liability of the Qualified or Competent Person and Disclaimers

Request for Comment 114 proposes to preclude a qualified person from disclaiming responsibility for reports, opinions, or statements of another expert who is not a qualified person. NI 43-101 permits the qualified or competent person to include disclaimers for expert reports, opinions, or statements by non-engineering and non-geoscience work by persons that are not and cannot meet the qualified person definition. Examples of such experts would be lawyers giving legal opinions, experts on land tenure and title work, permit status, litigation actions, etc., or marketing experts providing market and sales/pricing forecasts. These recommended limited disclaimers in no way limit the liability of the qualified person for his or her own work in his/her appropriate areas of expertise. AIPG urges the Commission to adopt the NI 43-101 Form 43-101F1 Technical Report’s approach that allows the use of limited disclaimers. This liability waiver states:

Item 3: Reliance on Other Experts - A qualified person who prepares or supervises the preparation of all or part of a technical report may include a limited disclaimer of responsibility if:

- (a) The qualified person is relying on a report, opinion or statement of another expert who is not a qualified person, or on information provided by the issuer, concerning legal, political, environmental or tax matters relevant to the technical report, and the qualified person identifies
 - (i) the source of the information relied upon, including the date, title, and author of any report, opinion, or statement;
 - (ii) the extent of reliance; and
 - (iii) the portions of the technical report to which the disclaimer applies.
- (b) The qualified person is relying on a report, opinion or statement of another expert who is not a qualified person, concerning diamond

¹⁷ For example, SME currently requires at least 30 hours of CPD including 2 hours of professional ethics training over 2 years, Ontario’s licensed geoscientists are required to engage in a minimum 240 CPD hours including adjusted professional practice hours but no professional ethics training hours accrued over a 3-year period. However, Ontario’s licensed engineers currently have no CPD requirement. The requirements of other internationally recognized professional organizations that have required CPD vary between SME and Ontarian requirements.

or other gemstone valuations, or the pricing of commodities for which pricing is not publicly available, and the qualified person discloses

- (i) the date, title and author of the report, opinion or statement;
- (ii) the qualifications of the other expert and why it is reasonable for the qualified person to rely on the other expert;
- (iii) any significant risks associated with the valuation or pricing; and
- (iv) any steps the qualified person took to verify the information provided.

AIPG urges the Commission to adopt NI 43-101 Form 43-101F1 Technical Report's approach that allows the use limited disclaimers.

Inconsistency of USGS circulars 831 and 891 with CRIRSCO Template

Request for Comment 75 asks if USGS Circulars 831 and 891 are appropriate under the Proposed Rules. AIPG believes that the Commission should definitely prohibit use of the definitions in USGS Circulars 831 and 891, even for coal. The first two paragraphs of Circular 831 quoted below prove that this classification system uses the same terms for a different purpose, thereby confusing and misleading the general public about the meaning of the defined terms.

“Through the years, geologists, mining engineers, and others operating in the minerals field have used various terms to describe and classify mineral resources. Some of these terms have gained wide use and acceptance, **although they are not always used with precisely the same meaning.**

“Staff members of the U.S. Bureau of Mines and the U.S. Geological Survey collect information about the quantity and quality of all mineral resources, but **from different perspectives and with different purposes.**” Emphasis added.

Geological surveys and bureaus of mines are often tasked to identify mineral occurrences that may be of economic interest in 25 or 50 years in the future. USGS Circulars 831 and 891 were written to support this legitimate task. But these mineral occurrences are not the same as the deposits containing mineral resources and mineral reserves as defined by the mining industry and Guide 7. Dr. Thomas V. Falkie, then Director of the US Bureau of Mines (USBM), admitted in a letter that the USGS and USBM “recognize that the differences in recently published definitions [of resources and reserves] may be confusing to the public at a time when the need for understanding is reaching a new high.”¹⁸ Nevertheless, the USGS and USBM insisted on using this conflicting terminology and continue to do so.

¹⁸ Banfield, A.F., & Havard, J.R., 1975. Let's define our terms in mineral valuation: Mining Engineering, July 1975, pp. 74-78.

Format for Technical Reports¹⁹

The Commission's proposed technical report summary format is by design very similar to that specified in NI 43-101's Form 43-101F1. This is important since it is possible registrants may wish to file their SEC-compliant technical report summaries in lieu of a NI 43-10 Technical Report in Canada²⁰. There are differences between the Commission's Proposal and NI 43-101's Form 43-101F1. AIPG believes that the disclosure framework should explicitly follow the format of NI 43-101's Form 43-101F1 through incorporation by reference, which would allow for regular updates without going through additional rule making. Technical report summaries filed with the Commission should be viewed as being interchangeable with technical reports prepared under NI 43-101's Form 43-101F1.²¹

Because the Commission is not requiring a "full" technical report, AIPG recommends re-naming the technical report summary as "summary technical report", or to avoid confusion follow Canadian practice and just use "technical report."

Accuracy of Mineral Resource and Mineral Reserve Estimates

Request for Comment 62 addresses the proposed requirement to disclose numerical estimates of the level of confidence associated with each class of mineral resource. A great deal of research and practice has been devoted to confidence limits on the grade, and a statement of relative accuracy of production increments within confidence limits is often used to support the classification of resources as inferred, indicated or measured.²² However very little research and practice has been devoted to establishing the relative accuracy of interpreted orebody boundaries which may in turn depend on the accuracy of controlling lithological or structural information²³.

Berry provides an excellent summary of the uncertainty and risk in estimating mineral resources and mineral reserves; he states:²⁴

¹⁹ Request for Comment 109, 111, 116, 117, 118, 119, 120 and 128.

²⁰ This would require acceptance by Canadian Securities Authority

²¹ This would have to be approved by both Canada and the US. The format of the reports and guidance may have to be conformed; the interchangeability of reports would be of large benefit to investors and registrants in both countries.

²² See for example: Verly, G, Postolski, T, & Parker H.M., 2014, Assessing uncertainty with drill hole spacing studies – applications to mineral resources *in* Orebody Modelling and Strategic Mine Planning Symposium sponsored by AusIMM, Perth WA, 10 p.

²³ An example would be: Verly, G., Brisebois, K., & Heart, W., 2008, Simulation of geological uncertainty, Resolution porphyry copper deposit, *in* Ortiz, J.M. and Emery, X., eds., Proceedings of 8th International Geostatistics Congress, Santiago, Chile, Volume 1, pp. 31–40. Another example where thickness rather than grade was much more uncertain: Murphy, M, Parker, H. M., Ross, A. & Audet, M-A., 2004, Ore-thickness and nickel grade resource confidence at the Koniambo nickel laterite (a conditional simulation voyage of discovery), *in* Leuangthong, O. & Deutsch C.V., Proceedings of 7th International Geostatistics Congress, Banff, Alberta, Canada, Vol 1, pp. 469–478.

²⁴ Berry, M., 2014, The importance of understanding uncertainty and risk associated with all geological inputs to ore reserves *in* Mineral Resource and Ore Reserve Estimation, the AusIMM Guide to Good Practice: AusIMM Monograph 30, pp. 585-592.

Virtually all geological inputs that feed into Mineral Resources are estimates and interpretations, not facts. It is readily accepted that geology is the critical input into the estimation of Mineral Resources and therefore an assessment of the uncertainties associated with these geological inputs is paramount when undertaking a risk assessment of a Mineral Resource estimate.

Additionally, geological inputs feed into many of the Modifying Factors used to convert Mineral Resources to Ore Reserves. These inputs are also estimates and interpretations, not facts. However, the Modifying Factors applied in estimating Ore Reserves are often decided by mining engineers, metallurgists, environmental scientists and non-technical staff. Once the geological estimates and interpretations that feed into these Modifying Factors have been provided, an appreciation of the uncertainties and limitations of these geological inputs is often lost.

It is not surprising that many geologists rate geology inputs as the biggest source of uncertainty in the technical risk assessment of new mining projects; however, this view is not necessarily shared by other mining staff. Unfortunately, comprehensive case studies that publicly document the full financial costs of unplanned events linked to geological interpretations and estimates are very rare. Mostly, Public Reports detail lost production, downtime, reduced earnings or capital write-downs only if the event is a serious one.

Martin Geach points out that one must understand what happens inside the “black box” of the computer program that generates three dimensional (3D) geological diagrams regardless of the geological characteristics being modeled such as an estimated mineral resource or mineral reserve. Geach notes:²⁵

This is most important when applying computer-based algorithms to produce geological surfaces that are spatially incomplete and difficult to refine. In particular, I draw attention to the inherent limitations of geospatial interpolation techniques used in most software packages to create 3D surfaces.

In brief, geospatial interpolation is the technique used to join data points (such as strata depths from boreholes) in order to create continuous geological surfaces. Interpolation techniques range from: (i) Deterministic or Exact methods (e.g. Splines, Inverse Distance Weighting), where estimates of a variable at unknown locations are based on the spatial attributes of known locations, to (ii) Geostatistical/Inexact methods (e.g. Kriging), where variables at unknown locations are estimated, based on quantified values of autocorrelation between known points.

Geach’s geological surfaces can have any geometric orientation and are frequently not planar. Geach illustrates his observations by using three commonly used estimation algorithms (ordinary

²⁵ Geach, M., 2016, 3D models–Stepping back, *Geoscientist*, June 2016.

kriging, inverse distance weighting, and radial basis function) to measure the volume of a geological feature using the same data set. Table 1 presents Geach's results.

Algorithm used	Volume (km ³)
Ordinary kriging	15,564
Inverse distance weighting	15,239
Radial basis function	37,794

Geach concludes, "It is clear from this and many other examples that the complexity of interpolation can lead to notable errors when modelling geological data." It is clear that the calculated estimation risks are far more imprecise and inaccurate than the resultant numerical values indicate. AIPG believes that qualitative risk assessments (*e.g.* low, medium, high) are more likely to provide investors with a sense of the risks inherent in mineral resource and mineral reserve estimates than with numerical risk assessments that inherently fail to account for the underlying geological uncertainties, estimates, and interpretations.

Proposed Tables 1 through 8

Requests for Comments 82, 83, 93, 96, 97 and 106 propose requiring specified disclosures in prescriptively formatted Tables 1 through 8. These prescriptively formatted tables reflect the lack of appreciation for the diversity of the mining industry discussed above in "Diversity of the Mining Industry." Specifically, the proposed tables are inappropriate for the following reasons:

- Proposed Table 1 is unnecessary and could be potentially misleading. The relative importance of individual modifying factors will vary with each material deposit. The relevant modifying factors should be discussed in the description of each material property.
- Proposed Table 2 calls for disclosures about eight specified items for up to 20 mining properties. Placing all of the requested information in the proposed Table 2 format would be difficult because of the complexity of information:
 - Properties may have multiple and complex ownership interests.
 - Title, mineral rights, leases, options and acreage may be complex.
 - Key permit conditions may be different depending on location or state of development.
- Proposed Table 3 specifies disclosure of estimated mineral resources and mineral reserves. The format of this table violates the requirement in other mining industry disclosure guides that estimates of mineral resources and mineral reserves be reported separately and that estimates of inferred mineral resources cannot be added to totals of estimates of indicated mineral resources and measured mineral resources. These requirements for separate presentation of estimated mineral resources from estimated mineral reserves are designed to discourage the misleading addition of the differing estimation categories.
- Proposed Tables 4 and 5 suggest that core drilling is the main form of exploration, which is not necessarily the case. Various geochemical surveys, geophysical surveys, and other

forms of data collection and analysis are routinely used. In underground mines, sinking shafts or declines and driving laterals or drifts may be the primary exploration techniques. Collecting all the data from the various exploration activities into a table that could include thousands of datum points would be onerous for the registrant and confusing to the investor, and would not yield useful disclosure.

- Proposed Table 6 calls for the summary disclosure of estimated mineral resources and mineral reserves. As pointed out for Table 3, the format of this table violates the requirement in other mining industry disclosure guides that estimates of mineral resources and mineral reserves be reported separately and that estimates of inferred mineral resources cannot be added to totals of estimates of indicated mineral resources and measured mineral resources. These requirements for separate presentation of estimated mineral resources from estimated mineral reserves are designed to discourage the misleading addition of the differing estimation categories.
- Proposed Tables 7 and 8 suggest that the factors in reconciliation of estimated mineral resources and mineral reserves are very similar, which is not the case. The mining industry has only been formalizing reconciliation reporting for the past 10 years and the principles of reconciliations are adapted on a property specific basis.²⁶ Obtaining accurate reconciliation has been difficult for a variety of reasons (*e.g.* getting accurate measurements of underground stope outlines has been made difficult because of rockfall hazards). Because adoption of reconciliation practices is in progress within the industry, disclosure of reconciliation should be voluntary.
- The proposed requirement that proposed Tables 1 through 8 be prepared in eXtensible Business Reporting Language (XBRL) format suggests that these tables were designed to promote data mining and with the seriously mistaken belief that the specified data called for is comparable across the mining industry. This comparability does not exist and should not be pursued.

AIPG urges the Commission to delete proposed Tables 1 through 8 from its Proposed Rules and instead require disclosures about the subjects of these tables be made by registrants in a format that is best suited to the registrant's individual characteristics. These disclosures can be in the form of text summaries, registrant-designed tables, and/or appropriate maps or cross sections, whichever format(s) best provide relevant material information to the investor.

Technical Report Summaries for Royalty-holding Companies

AIPG believes that the Proposed Rule requiring royalty interest-holding companies to file a technical report summary makes no sense in the mining industry and should be withdrawn.

Requests for Comments 13 and 14 address the disclosure that should be required from royalty interest-holding companies. Royalty interest-holding companies generally have no executive or operational interest or participation in the properties on which the royalty is held. Therefore, the

²⁶ See Parker, H.M., 2014, Reconciliation practices for the mining industry *in* Mineral Resource and Ore Reserve Estimation, the AusIMM Guide to Good Practice: AusIMM Monograph 30, pp. 721-737.

royalty interest-holding company has no access to the data and other information required to prepare a current technical report summary. The royalty payments, whether current or future, frequently are held on portions of a mineral deposit, and the amount of the royalty payment depends on which part(s) of the mineral deposit are being actively mined. The only other information available to the royalty interest-holding company will be the public disclosures made by the companies having an operational interest in the property. These public disclosures can be in the form of registration statements, technical report summaries, periodic reports, press releases, and/or information posted on websites. While the royalty interest-holding company can disclose such information by reference to this publicly available information, such disclosure is not and cannot be considered a technical report summary prepared by or independently for the royalty interest holding company.

AIPG notes that this issue was considered by the Canadian Securities Administrators (CSA) in NI 43-101, Section 9.2.²⁷ In that document, royalty holders are instructed to disclose the source of scientific and technical information that is provided by the operator of the project or mine, or is publicly known that is material to the registrant.

²⁷ Canadian Securities Administrators, 2011, National Instrument 43-101, Standards of Disclosure for Mineral Projects.