

IMVAL and SME Mineral Valuation Standards — Global development context, adoption and future roles

by T.R. Ellis, chair SME Valuation Standards Committee

Abstract

The author reviews the history of development of the *International Mineral Property Valuation Standards Template (IMVAL Template)* and *SME Standards and Guidelines for Valuation of Mineral Properties (SME Valuation Standards)*, and their structure, content, and purpose, within the global setting of valuation standards. Both have been developed as a set of principles-based standards and guidelines, drawing extensively from the *International Valuation Standards* through referencing and quotes. He reviews the functioning and content of the mineral valuation standards of each of the IMVAL member societies, to determine the status of harmonization in their operation with that of the IMVAL Template, and provides suggested remedies to issues he observes. He finds the South African, Australasian, and Canadian standards and guidelines to dramatically differ from the IMVAL Template's structural philosophy, by being rules-based, and discusses functional issues that he considers important to remedy. The author proposes expansion of the types of mineral assets covered by the IMVAL Template and SME Valuation Standards. He then suggests future roles for the IMVAL and SME committees, while also introducing analysis of the ongoing minerals industry standards development projects of two globally over-arching bodies, being the International Valuation Standards Council and the International Accounting Standards Board (IASB). He reviews the IASB's two decades of unsuccessful attempts to develop a comprehensive financial reporting standard for the minerals industry sector and encourages provision of technical assistance through IMVAL to both bodies' projects.

Disclaimer

Opinions expressed in this article are those of the author. They should not be construed as representing opinions of the SME Valuation Standards Committee, nor any other body mentioned with which the author is affiliated. For full disclosure relating to the content of this paper, Ellis is a member of SME, IIMA, CIM, and AusIMM. He has chaired the SME Valuation Standards Committee since its founding in 2012, during which time he has also represented SME in IMVAL (Table 1). He chaired the IVSC Extractive Industries Expert Group (initially named Extractive Industries Task Force) from its found-

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Introduction

In August 2017, the SME Valuation Standards Committee released the updated *SME Standards and Guidelines for Valuation of Mineral Properties (Including Petroleum), Second Edition, 2017 (SME Valuation Standards)*. The 21-page document is available for free download from the Publications & Resources section of SME's website, smenet.org. SME has adopted the standards and strongly recommends that SME members use and abide by them.

The First Edition of the SME Valuation Standards was published in January 2016. The 2017 edition has been updated to reflect the content of the *International Mineral Property Valuation Standards Template, Second Edition (IMVAL Template)*, published July 2016, replacing outdated content adopted from the May 2015 public exposure draft of the Template. Quotes from, and references to, the *International Valuation Standards (IVS)*, published by the International Valuation Standards Council (IVSC), have also been updated to the IVS 2017 Edition content, from the 2013 Edition content.

This paper has three goals. The first is to review the IMVAL Template and SME Valuation Standards, including how they were developed, and place them

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within the global context of existing mineral valuation standards, generally accepted valuation principles and standards philosophy, then explain the purpose and need for uniform valuation standards. The second goal is to review the status of harmonization of each International Mineral Valuation Committee (IMVAL) member's mineral valuation standards (or code) with the IMVAL Template, and provide my suggested remedies for issues I observe. IMVAL was initially conceived in 2012 as a discussion body to aid harmonization of these sets of standards, so that ultimately they will all function the same. IMVAL developed the Template to represent essential content that all should have on completion of the harmonization process, and as a minimal set of standards for other national mineral or petroleum societies to adopt. The third goal is to consider future expansion of the types of mineral assets covered by the IMVAL Template and SME Valuation Standards, and to suggest future roles for the IMVAL and SME committees, while also introducing analysis of the ongoing minerals industry standards development projects of two globally influential bodies, being the IVSC and International Accounting Standards Board (IASB).

IMVAL Template Development

The IMVAL Template and the SME Valuation Standards are successful products of an international endeavor, begun in 2012 by representatives of the world's major mining institutes, to harmonize mineral valuation standards internationally. The endeavor was conceived in 2011 by South African SAMVAL Committee members. In early 2012, I formed the SME Valuation Standards Committee to coordinate SME's participation. In Brisbane, Australia in April 2012, terms of reference for the harmonization project were developed by representatives of the various mining institutes. In July 2012, IMVAL was formalized as a committee by minerals valuers representing the VALMIN Committee of The Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG), the CIMVal Committee of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), the SAMVAL Committee of the Southern African Institute of Mining and Metallurgy (SAIMM) and the Geological Society of South Africa (GSSA), the SME Valuation Standards Committee, and the International Institute of Minerals Appraisers (IIMA). Three additional organizations requested observer status. (Table 1).

IMVAL's primary goal soon crystallized as being the development of a mineral (including

petroleum) asset valuation template of principles and definitions, drawing from the IVSs. The template would provide a framework of standards and guidelines as the agreed reference framework goal for harmonization with by national mineral valuation standards. Thus, the outcome of successful convergence with the Template by each IMVAL member's valuation standards, in particular those of VALMIN, CIMVal, and SAMVAL, would be that they all operate much the same as the IMVAL Template, resulting in valuation reports with similar content for the same mineral property, and providing essentially the same value for the property.

With publication of the IMVAL Template, the goal of producing the reference framework was accomplished by the committee in just four years, by the devoted volunteer work and diplomacy of the individual IMVAL committee members. The stated purpose of the IMVAL Template is "as a principles-based template that will be recognized as a common set of minimum requirements for national codes or standards concerning the valuation of Real Property mineral assets (Mineral Property)."

The resultant IMVAL Template is indeed largely principles-based, providing a conceptual basis for development of a valuation, together with a modest set of key objectives for reporting the valuation. Rules have been purposely minimized. The IVS referenced by the IMVAL Template and the SME Valuation Standards, is very much a principles-based set of standards, as opposed to rules-based. The IVSs have provided mainly principles-based guidance (standards and guidelines) since being first published in 1985, with re-emphasis of provision of principles-based guidance when reformed for the IVS 2011 Edition. In contrast, standards that contain a large number of rules may result in unnecessary complexity for reporting, while lacking flexibility to be practically employed in a wide variety of circumstances. Rules may also suppress innovation in how analysis and reporting are conducted.

My article, "SME participates in international project for mineral valuation standards," *Mining Engineering*, November 2012, reviews how SME became involved in the valuation standards harmonization process and covers the establishment of IMVAL. Njowa, et al, 2014, in a manuscript drafted during the initial structuring of IMVAL's template development process, provide a comprehensive review of the content and use of the prevailing mineral valuation standards globally, then analyze the purpose and desired structure of the template in that prevailing standards setting, from their South African perspective.

The SME Valuation Standards Committee

Table 1

Abbreviations

AIG	Australian Institute of Geoscientists.
AIME	American Institute of Mining, Metallurgical, and Petroleum Engineers -- SME is a member society of AIME.
ASIC	Australian Securities Investments Commission.
ASX	Australian Securities Exchange (Sydney).
AusIMM	The Australasian Institute of Mining and Metallurgy.
CIM	Canadian Institute of Mining, Metallurgy and Petroleum.
CIMVal	CIM's Special Committee on the Valuation of Mineral Properties (CIMVal) developed the <i>Standards and Guidelines for Valuation of Mineral Properties (CIMVal Standards and Guidelines)</i> , published in 2003 by CIM.
CRIRSCO	Committee for Mineral Reserves International Reporting Standards (CRIRSCO) publishes the International Template for the Public Reporting of Exploration Results, Mineral Resources and Mineral Reserves (CRIRSCO International Reporting Template).
FASB	U.S. Financial Accounting Standards Board.
GN 14	<i>International Valuation Guidance Note No. 14 - Valuation of Properties in the Extractive Industries (GN 14)</i> , consists of standards and guidelines developed by IVSC's Extractive Industries Expert Group. Published in IVS 2005 and 2007 Editions.
GSSA	Geological Society of South Africa.
IASB	International Accounting Standards Board (IASB), formed in 2001 from restructuring of the IASC.
IASC	International Accounting Standards Committee.
IFRSs	<i>International Financial Reporting Standards (IFRSs)</i> , published by IFRS Foundation, consisting of a set of individual IFRS and International Accounting Standards, e.g. IFRS 6.
IIMA	International Institute of Minerals Appraisers.
IMVAL	International Mineral Valuation Committee (IMVAL), developer of the <i>International Mineral Property Valuation Standards Template (IMVAL Template)</i> .
IVS	An edition of the book, <i>International Valuation Standards (IVS)</i> , published by IVSC, consisting of a set of individual IVS standards (e.g. IVS 400), being IVSs.
IVSC	International Valuation Standards Council. Restructured in 2008 from the International Valuation Standards Committee (a.k.a. IVSC).
JORC	The Joint Ore Reserves Committee (JORC), publishes the <i>Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code)</i> .
NI 43-101	<i>National Instrument 43-101, Standards of Disclosure for Mineral Projects, (NI 43-101)</i> , regulations published by the Canadian Securities Administrators.
PRMS	Petroleum Resources Management System (PRMS), developed and published by a collaboration of the Society of Petroleum Engineers and other societies.
SAIMM	Southern African Institute of Mining and Metallurgy.
SAMVAL	The South African Mineral Asset Valuation Committee (SAMVAL) is a working group under SAIMM and GSSA, which has developed The South African Code for the Reporting of Mineral Asset Valuation (The SAMVAL Code).
SME	Society for Mining, Metallurgy, and Exploration.
SPE	Society of Petroleum Engineers
SPEE	Society of Petroleum Evaluation Engineers
TSX	Toronto Stock Exchange (TSX). The TSX Venture Exchange (TSX-V) is a separate electronically traded exchange, owned by the same parent company.
US GAAP	The USA's <i>Generally Accepted Accounting Principles (US GAAP)</i> , published by FASB.
USPAP	The USA's <i>Uniform Standards of Professional Appraisal Practice</i> , published by The Appraisal Foundation, D.C.
VALMIN	The VALMIN Committee, consisting of members from AusIMM and AIG, is the developer of the <i>Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (The VALMIN Code)</i> .

has two representatives on the IMVAL committee. These have primarily been Fredric Pirkle and myself. Many IMVAL participants are members of more than one of the participating institutes, as are most of our SME committee members. I expect that these membership linkages substantially assisted understanding and diplomatic empathy. In my case, being a member of four of the six institutes represented on the IMVAL committee, plus having had extensive prior direct involvement with many of the minerals valuer representatives, significantly aided my understanding of the reasoning behind participant proposals and arguments. To a large extent, I could anticipate what to expect. The contributions of the SME committee to the IMVAL Template during its four years of development were substantial, being especially important to the structural philosophy within the document.

Purpose of the SME Valuation Standards

The SME Valuation Standards constitutes a comprehensive set of standards, guidelines, and definitions for valuation of mineral interests held in real property, specifically developed for appraisal of the value of the minerals industry's unique assets. As an important example, when resources or reserves of the subject mineral property are used or referred to in a valuation, the standards state, "... they should comply with either the definitions of *The SME Guide for Reporting Exploration Results, Mineral Resources, and Mineral Reserves (The SME Guide)*, the definitions of another institute associated with CRIRSCO, the definitions in the CRIRSCO *International Reporting Template*, or, in the case of petroleum, those of the *Petroleum Resources Management System (PRMS)*. If the CRIRSCO or PRMS systems are not used, the valuation report must explain why not and should provide, to the extent possible, a reconciliation of the resources and reserves with a set of CRIRSCO or PRMS definitions." (SME Resources and Reserves Committee, 2017; Committee for Mineral Reserves International Reporting Standards, 2013; Society of Petroleum Engineers, et al, 2007).

Our SME standards employ the valuation principles generally accepted by valuation professionals globally for appraisal of the value of tangible assets, particularly real property assets. These principles are embodied in the IVS referenced by our standards and in the USA's government endorsed *Uniform Standards of Professional Appraisal Practice (USPAP)* (Appraisal Standards Board, 2017), both with which the guidance in our standards is designed to be compatible and complement. A primary example of

these principles is that there are three accepted valuation approaches, being the income, cost, and market (a.k.a. sales comparison) approaches, into which valuation methods are categorized. A second example is that an appraisal of the market value of real property must be based on the highest and best use of that property, determined by analysis of legal, physical, and economic factors.

The IMVAL Template and SME Valuation Standards have been developed to provide uniform valuation standards and definitions for application to mineral industry assets globally, while also conforming with the same valuation principles generally applied in other economic sectors. Minerals industry companies operate in one of the most internationalized sectors of the global economy. Companies large or small may hold mineral assets in a number of countries, whether these be exploration, development, or operating properties. Listings on stock exchanges in two or more countries are common, and projects may be developed using multinational financing. Globally uniform valuation standards and definitions, based on internationally recognized classifications for mineral resources and reserves, are necessary for the efficient conduct of such complex international business. Uniform valuation standards will aid project comparisons across borders, benefitting investors, lenders, and the minerals industry. It is because of this need for uniform standards in this international environment that SME has adopted these standards, specifically designed for appraisal of the value of the unique assets of the minerals industry sector. This is also the reason for the SME Valuation Standards Committee's continuing participation in the ongoing IMVAL harmonization project.

Content of the SME Valuation Standards Document

Consisting of only 17 pages of text, the SME Valuation Standards document is of modest size. Four pages are devoted to standards, another four to guidelines, and five to definitions. Considerable work has been applied to making the text easy to read and understand, while retaining the exact meaning intended.

The Standards section contains requirements. It begins by addressing four fundamental principles that must be followed in conducting and reporting valuations: competence, materiality, objectivity, and transparency. A number of requirements are then explained, including: identification of the property and interest being valued, description of the scope of investigations performed in conducting the valuation, disclosure of the intended use of the valuation report, the basis (type) of value developed, appropriate ap-

plication of approaches and methods, the valuer's (appraiser's) responsibilities, and the minimum content of the valuation report.

The Guidelines section provides supplemental guidance to aid with the application of the Standards. Instructions in this section generally use the word 'should' or 'may', indicating that some discretion may be employed, dependent on the particular circumstances. Some quotes from IVS 2017, generally of a few sentences length, are included in this section. These concisely and authoritatively convey important concepts. Some references are provided to relevant additional guidance within the IVS.

Guidance for each of the three valuation approaches and for methods within the approaches is provided purely by reference to the relevant IVS sections. The referenced sections total 16 pages. Attempting to summarize this guidance for inclusion in the IMVAL Template and our SME standards was determined to be not beneficial. In coming to this decision, some IMVAL committee members expressed the opinion that it is the responsibility of minerals valuers to educate themselves in the appropriate utilization of the valuation approaches and methods, and that such instruction is beyond the scope envisaged for the Template and mineral valuation standards. Sources of mineral property valuation education include technical papers on onemine.org that address valuation matters, audio-video presentations of valuation papers available through the valuation standards page of smenet.org, relevant short courses, and courses that teach commercial or rural real estate appraisal standards and principles.

The Definitions section of the SME standards contains 38 definitions. Many of these are quoted from IVS 2017 and the glossary on the IVSC website.

International Status of Adoption or Harmonization with the IMVAL Template

SME Valuation Standards. Of the main minerals industry valuation standards, the SME Valuation Standards 2017 Edition remains the only set to be developed directly from the IMVAL Template, and hence reflecting almost all of the Template's content. Furthermore, the SME Standards are updated beyond the IMVAL Template content, by including IVS 2017 content and references.

IIMA

In 2015, the IIMA's executive committee approved the concept of adoption of a set of valuation standards based on the IMVAL Template. No further action has yet been taken towards

adoption.

Despite this lack of further action, IIMA members must abide by comprehensive standards. Since 2004, IIMA members have been required to comply with either USPAP or the IVS for their valuation assignments. In 2011, IIMA also adopted a set of best practice mineral valuation guidelines, which supplement IVSC's 2005 minerals valuation guidance, *Valuation of Properties in the Extractive Industries* (GN 14) (Ellis, et al, 2007; IVSC, 2005). Incorporating another set of valuation standards without first appropriately updating the best practice guidelines, could introduce complexities.

SAMVAL Code

The South African Code for the Reporting of Mineral Asset Valuation (The SAMVAL Code), 2016 Edition, "as amended 20 December 2016," is substantially aligned with the IMVAL Template and the IVS. In comparison to the Template and SME Standards, the SAMVAL Code provides extensive elaboration for the standards and guidelines elements, in a dense, 34-page document. It provides many pages of supplemental instructions in appendices, including tabulated, detailed, component-by-component requirements for valuation report content.

The result is that the SAMVAL Code contains extensive requirements, plus supplemental "shall" and "should" instructions, particularly for content of the valuation report. Despite aligning with the valuation principles and framework of the IVS and the IMVAL Template, the SAMVAL Code is largely a rules-based guidance document, rather than being principles-based, as in the Template and IVS. For regulatory corporate filings, such as stock exchange filings, regulators will like having the Code's tabulated report content requirements to check for compliance of valuation filings. However, such extensive requirements make compliance practically unattainable for commonly sought, low paying, mineral property valuation assignments, such as valuing a small sand and gravel quarry property to assist the owner with a potential sale of the property, or valuing a deceased prospector's cluster of mining claims for an estate settlement. That is not to say that such an assignment would be viable under the SME Valuation Standards at a typical senior professional's hourly rates. But, such assignments provide junior professionals important experience, while catering to an underserved public need.

CIMVal Standards

The Canadian Institute of Mining, Metallurgy and Petroleum (CIM), in 2003 published its *Stan-*

dards and Guidelines for Valuation of Mineral Properties (CIMVal Standards and Guidelines). A subsequent edition has yet to be published. Development of a new edition, also limited to valuation of mineral properties, has been in progress for a few years and is expected to be published in early to mid-2018.

The CIMVal Committee based the 2003 standards on the general framework of valuation principles incorporated in the IVS. This has served the document well. It remains substantially compliant with the framework of the IVS, and therefore is moderately well aligned with the IMVAL Template. For better alignment in the new CIMVal edition, a number of items need to be moved to the Standards section from the Guidelines, and their wording updated. I hope that the new edition will also be recast as a principles-based document, written with a similar style and philosophy to the IMVAL Template.

The purpose for development of the 2003 standards document was to provide instructions primarily for regulatory corporate filings with stock exchanges. The valuation report contents specified in both the Standards and Guidelines sections, are similar to those specified by the Canadian Securities Administrators' *National Instrument 43-101, Standards of Disclosure for Mineral Projects, 2011 (NI 43-101)*, for mineral property technical assessment filings with Canadian stock exchanges, though the CIMVal's guidance specifies additional content for valuation reporting. Such prescriptive requirements and guidelines can prove overwhelming for other valuation uses, and also be troublesome for the valuer if the standards document is in the hands of a strict official or a bothersome lawyer who is reviewing the valuation report. Rather than burdening all valuations with these requirements and guidelines, it would be better to leave most to stock exchange regulators to specify, or otherwise, move the specific guidance to a separate information document.

The Guidelines section contains a table showing which of the three valuation "approaches are generally considered appropriate to apply to each" stage of mineral property exploration and development. Another table classifies thirteen valuation methods as "primary" or "secondary" methods, or as unreliable or not widely accepted. I consider this information appropriate for classroom educational material, or as content in a professional manuscript. But, as guidance in a standards document, it can prove unduly restrictive, inhibit the innovation necessary for advancement of mineral valuation methodologies, and can be used in a litigation as legal ammunition.

VALMIN Code.

The Australasian VALMIN Code, initially adopted by AusIMM in 1995, was the first of the recognized national mineral valuation standards. Partly due to this, it retains a sense of notoriety and respect globally, unmatched by others.

The current revision of the VALMIN Code, the 2015 Edition, is titled, *Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets*. As the title indicates, this code is much more than a valuation standards document. Its main use is as a set of standards for the public reporting of mineral (including petroleum) property technical assessments; that is, geological investigations through to feasibility studies. The six-page section 7 provides the rules and guidelines specific to technical assessment reports, while the three-page section 8 provides those specific to valuation reports. Instructions and information common to both uses comprise 29 pages. Though generally a technical assessment report will not include a valuation, a valuation report developed in accordance with the VALMIN Code must contain a technical assessment, unless the valuation is of a petroleum property.

The VALMIN Code, although developed by a non-regulatory body, performs a somewhat similar role in Australia as the Canadian Securities Administrators' NI 43-101 does in Canada. However, the VALMIN Code's role is broader. NI 43-101, provides rules for the content of minerals sector technical reports, including assessment and valuation, for filing with Canadian securities exchanges, and rules for disclosures of such technical information to the public by companies listed on Canadian exchanges. The NI 43-101 rules govern the content of reports of mineral resources and reserves developed under the *CIM Definition Standards*, or related international standards, such as the Australasian *JORC Code* (CIM Standing Committee on Reserve Definitions, 2014; Joint Ore Reserves Committee, 2012). NI 43-101 does not cover petroleum reporting, whereas the VALMIN Code does so by including instructions for preparing reports concerning petroleum exploration, resources, or reserves, for which compliance is required with the Petroleum Resources Management System (PRMS).

The VALMIN Code provides instructions for the public reporting of technical assessments and valuations of mineral assets, designed so that reports compliant with this code will comply with the combination of the Australian Corporations Act, the regulatory guidelines of the Australian Securities Investments Commission (ASIC), and the listing rules of the Australian Securities Ex-

change (ASX), Sydney. A report of exploration results, mineral resources or reserves, developed in compliance with the JORC Code, can be filed with the ASX without compliance being required with the VALMIN Code, unless the report involves the technical assessment of elements that may affect the economic benefit of the mineral asset, or the report is an independent expert report. A wide array of report uses fall under the Corporations Act, with the result that if the report can be viewed as public or independent expert reporting, compliance may be required with the VALMIN Code. Included in the Code's list of such uses are, assessment of government charges and taxes, estate settlements, and litigation. I find it difficult to conceive of a mineral property valuation report, developed for use within Australia, that would not need to comply with the VALMIN Code, except maybe a valuation exclusively for internal company use, developed alone by that company's staff.

In the context of valuation, the VALMIN Code states that it "is considered to be broadly consistent in terms of fundamental principles and general approach with relevant international codes, templates, standards and guidelines," including the IMVAL Template and the IVS. However, some general requirements of real property valuation standards, including the IMVAL Template and the IVS, that I find to be missing, are: specification of the real property interest being valued; disclosure of the intended users, unless confidential; description of the scope of work performed; and highest and best use determination.

The Code's section 8 valuation instructions force the valuer into a unique analysis relationship between *Technical Value* and *Market Value*, these being the two bases of value for which the Code provides definitions and specific instructions. At 8.1, the Code states:

"Market Value may be higher or lower than Technical Value. A Public Report should take such factors into account, stating the results of the principal Valuation Method(s) used and disclosing the amount of and reasons for the difference between the Market Value and Technical Value."

This instruction, together with a related instruction at 8.7, convey the expectation that the valuer will either: (a) calculate a technical value for the subject mineral property, then apply a market premium or discount to that value to determine the market value; or (b) calculate both a technical value and the market value for the property, then investigate the reasons for the difference. Though I have previously seen this relationship concept, I have not been taught analysis

for this relationship in any of the dozens of real property valuation courses I have completed.

The VALMIN Code defines technical value as, "an assessment of a Mineral Asset's future net economic benefit at the Valuation Date under a set of assumptions deemed most appropriate by a Practitioner, excluding any premium or discount to account for market considerations." At 8.1, the Code states that the "term Technical Value has an intended meaning that is similar to the IVSC term Investment Value." The IVS 2013 and 2017 editions define investment value as, "the value of an asset to a particular owner or prospective owner for individual investment or operational objectives." Investment value is usually calculated using a specific investor's investment parameters, such as risk profile and required return on investment, income tax scenario, financial leveraging, and project development plan. Market value is a substantially different value concept, being defined in the Code as, "the estimated amount of money (or the cash equivalent of some other consideration) for which the Mineral Asset should exchange on the date of Valuation between a willing buyer and a willing seller in an arm's length transaction after appropriate marketing wherein the parties each acted knowledgeably, prudently and without compulsion."

Technical value, investment value, and market value, each have significantly different meanings. Use of either technical or investment value as the basis for adjustment to market value, is an unusual and flawed concept to apply to the complex field of mineral property valuation.

The Code is written with an apparent assumption that the commissioning entity for the assignment will be the mineral property operator, with expectations that the commissioning entity will hold the cumulative data and prior reports for the property. The valuer, or the practitioner responsible for a technical assessment, must not sign off on the report until the commissioning entity has provided written verification of provision of all information and access to all data and personnel. Roughly half of the mineral property valuation assignments that I have completed during my career have been for commissioning entities that have not been the property operator, being for example, a government agency, or a law firm representing a party against an operator. I have found that representatives of commissioning entities that are not the property operator, can consider such a written verification requirement to be silly and irritating. This has resulted in substantial delay or failure to provide the verification with an appropriate manager's signature.

There is little flexibility available in the Code

to vary the scope of the valuation research, or vary the writing style of a valuation report, level of explanation, and quantity of contained information, based on the intended use of the valuation and the knowledge and expertise of the intended user. The Code authors or regulators seem to fear that any VALMIN-compliant valuation report might somehow be relied on by a typical public investor, because they are effectively requiring that the content of all VALMIN-compliant valuation reports be appropriate for a stock exchange filing.

Findings from the Review of IMVAL Member Standards

The above review finds that the main valuation standards contained in the amended 2016 Edition of The SAMVAL Code are well aligned with those of the IMVAL Template. We can expect that the updated standards that CIMVal intends to publish next year will have improved alignment. The current CIMVal standards, though published in 2003, are moderately well aligned. The alignment of the standards of the VALMIN Code 2015 Edition with the IMVAL Template are poor. With the VALMIN committee having representation on the IMVAL committee, we can be hopeful that this will be rectified in a future VALMIN Code edition.

The SME Valuation Standards 2017 Edition, is closely aligned with the IMVAL Template's standards, guidelines, format, and wording of the text, apart from the SME Standards having been updated with IVS 2017 content. The SME Standards retain the principles-based concept and style of the guidance provided in the IMVAL Template, which has been strongly re-emphasized since 2011 in the IVSs. In contrast, much of the guidance provided in the SAMVAL, CIMVal, and VALMIN standards and guidelines are prescriptive, rules-based instructions. Those appear designed to assure that mineral valuation reports filed with stock exchange regulators comprehensively cover all aspects of the subject mineral property and the valuation process, with content presented so that it is understandable by investors with diverse backgrounds. I encourage the committees that govern those three sets of mineral valuation standards, to convert the documents to principles-based. Instructions specific to securities and finance market uses of valuation reports could be maintained by each committee in a separate document.

We have no guarantee for future years, that the IMVAL committee or SME Valuation Standards Committee won't add extensive prescriptive instructions to the Template or SME Standards. From my two decades of involvement

in and observing the development of various sets of mineral valuation standards and guidelines globally, my experience has been that the large majority of the mining and petroleum industry professionals involved in the drafting those documents almost exclusively only consider corporate regulatory uses of valuations, thereby ignoring other uses, because of their career backgrounds. I have personally been involved in some strong philosophical tussles while trying to assure that valuations of typical, private sector mineral properties, for non-regulatory uses, remain feasible to perform. Drawing upon the principles-based IVS provides important assistance to accommodation of diverse uses, because the IVSs are designed to cover valuations of all asset types for all valuation uses. However, I expect that accommodating corporate, governmental, regulatory, and private sector uses together, will remain a challenge for development of future editions of the IMVAL Template and our SME Standards. Prescriptive wording is easily added. Keeping it out can be difficult.

Future Roles

IMVAL Template's Future. The SME committee has submitted to IMVAL recommended updates and edits to the Template, based on its development of the 2017 Edition of the SME Standards. IMVAL will likely take up consideration of those by early 2018.

In the meantime, the SME representatives on IMVAL are working to keep the wording of IMVAL's Terms of Reference open to allow inclusion of valuation guidance for additional classes of mineral assets in the Template. The Template presently only addresses mineral (including petroleum) property assets that are interests in land. Other mineral related asset classes that I consider should be covered are: tangible assets, such as surface structures, plant and equipment; intangible assets such as financial instruments and securities; and businesses. The Template could also include guidance for the conduct and reporting of reviews of valuation reports. The IVSs include guidance for these asset classes and valuation review. Therefore, the Template could continue drawing upon the IVSs by relevant quotes and references. IVSC's extractive industries GN 14 and IIMA's best practice guidelines include coverage of those additional asset classes for the minerals sector, while the VALMIN Code includes coverage of all but plant and equipment. IMVAL should be able to easily improve on the guidance provided by those. In the meantime, current usage limitations should be clearly specified in the IMVAL Template, and instructions added providing directions to the relevant IVS

standards for valuation of those additional classes of minerals industry assets.

The IMVAL Template will bolster continuing growth of use and acceptance of globally harmonized valuation standards within the minerals sector. Two additional mining societies are considering joining IMVAL. Also, the Society of Petroleum Evaluation Engineers (SPEE) has recently acquired observer status. SPEE's interest is encouragingly significant, because up to now, I have found little petroleum industry interest in adopting valuation standards that are based on generally accepted valuation principles.

SME and the US-based Society of Petroleum Engineers (SPE) are two of four sister engineering societies under a parent engineering organization, the American Institute of Mining, Metallurgical, and Petroleum Engineers (AIME). It may be possible to take advantage of this relationship to promote the IMVAL Template to the petroleum industry sector, since SPE has previously worked with the mining industry on standards. In 2006, SPE represented the international petroleum industry in working with CRIRSCO on convergence and mapping of petroleum reserve and resource classification definitions with those of the CRIRSCO Template, at the United Nations in Geneva, Switzerland, to aid the International Accounting Standards Board's (IASB's) second extractive activities research project for financial reporting standards development.

Promotion of the IMVAL Template is presently only happening through initiatives taken by IMVAL's individual committee members and the valuation committees of the institutes they represent. IMVAL receives no funding and no concept has been considered for raising a meaningful amount of funds for promotion or other purposes. We can expect promotional efforts for the standards and minerals valuation education to remain with volunteers, word of mouth, and professional publications, at least for the foreseeable future. History reinforces this expectation. The IVSC's global fund-raising efforts of 2001-2008, to support development and promotion of its GN 14 and related minerals industry projects, proved totally futile.

International Valuation Standards (IVS).

IVSC published its GN 14 extractive industries valuation standards and guidelines only in the IVS 2005 and 2007 editions. In 2008, IVSC disbanded its Extractive Industries Expert Group, which had authored GN 14. In 2010, IVSC withdrew GN 14, "pending the outcome" of an extractive industries project that it concurrently launched. GN 14 was excluded from IVSC's standards improvement project begun in 2008, a

project which restructured and rewrote the IVSs, resulting in a much-condensed set of standards, as published in IVS 2011 and subsequent editions. (Abergel, 2014; IVSC, 2010, 2011).

The purpose of IVSC's extractive industries project launched in 2010, was to evaluate whether IVSC should develop a standard to replace GN 14 and/or an extractive industries guidelines Technical Information Paper, then, if recommended, proceed with the development. In a May 2017 document, IVSC listed an extractive industries standard as having a development time frame priority of "critical." (IVSC, 2010, 2017b).

When launching the extractive industries project in February 2010, the IVSC's Standards Board expressed its desire to find out whether participants "within the extractive industries ... would be prepared to support such a project with both financial and intellectual resource," before beginning work on the project. The first item in the Board's timetable for the project was "discussion with potential sponsors," while the last items, 16 months later, at June 2011, were publication of the finalized standard, and delivery of a report evaluating the need for best practice guidance. My review of IVSC documents found no evidence of financial support being provided from the extractive industries sector. (IVSC annual reports and Standards Board meeting minutes). The lack of industry financial support is obviously a significant reason for why the project has progressed only at a stuttering crawl since the 2010 launch.

Despite the stop-start progress, the extractive industries project has shown some activity. In July 2012, IVSC distributed a Discussion Paper, Valuations in the Extractive Industries, to potentially interested parties. It contained a comprehensive array of questions. In October 2012, the SME Valuation Standards Committee submitted a 16-page response. Recently, in August 2017, the SME committee submitted a 7-page response to IVSC's additional questions in the extractive industries chapter of an IVSC consultation document. (IVSC, 2012, 2017b).

IMVAL has been proactive since its founding in 2012, in reaching out to IVSC. It has kept IVSC apprised of the status of development of the Template, while encouraging IVSC to progress its extractive industries project and offering cooperation. IVSC has maintained interest in monitoring the Template's development. Discussions have not addressed coordination of efforts in development of minerals sector valuation standards and best practice. How a new extractive industries standard in the IVS would interact with the Template and national mining society standards, or be incorporated into them, will

depend on the standards setters, and to varying extent, on national regulators.

International Financial Reporting Standards (IFRSs). Fair value reporting of capitalized asset values for corporate financial reporting purposes, is commonly called mark-to-market or current value reporting. Globally, regular revaluation updating of reported tangible and intangible asset fair values is common for all industry sectors, except the minerals industry sector. This is done by applying the revaluation provisions of the International Financial Reporting Standards (IFRSs).

Most of the world's stock exchanges have adopted the IASB's IFRSs as the primary financial reporting standards for corporate filings. These encourage regular revaluation of asset values, whether upward or downward (IASB, 2018). The USA's Generally Accepted Accounting Principles (US GAAP) remain primary for reporting standards for US stock exchanges. These allow only downward revaluation, this being in the case of value impairment. Companies with a foreign primary listing are allowed to report to US exchanges using the IFRSs.

The U.S. Financial Accounting Standards Board (FASB) has harmonized US GAAP with the IFRSs, so that most accounting functions will operate much the same under both. However, US GAAP remains rules-based, whereas the IFRSs are principles-based. From 1998-2009, nine of the world's ten worst accounting scandals, such as Enron and WorldCom, were created under US GAAP (accounting-degree.org). For at least a decade, the U.S. Securities and Exchange Commission (SEC) and FASB have been considering making the IFRSs the primary financial standard for corporate reporting. In the meantime, US GAAP only allows cost accounting for all asset types.

Under the IFRSs, mineral assets are provided their own unique, restrictive treatment, in the IFRS 6 standard, "Exploration for and Evaluation of Mineral Resources." This temporary standard provides for revaluation of mineral resource related assets, while mineral prospect and mineral reserve assets remain completely excluded from its coverage. However, some stock exchanges, such as the Canadian TSX exchanges, impose cost accounting on all mineral assets after their initial recognition in the asset ledger. Furthermore, PricewaterhouseCoopers (2012), indicates that, even where subsequent revaluation of mineral resource related assets is allowed, it is rare for a mining industry sector company not to opt for cost accounting for those assets.

In 2001, the IASB reviewed a 412-page report, Extractive Industries Issues Paper, com-

missioned in 1998 by its predecessor body, the International Accounting Standards Committee (IASC). Prior to the IASB's review, the IVSC had submitted a comprehensive critique of the paper, developed by its extractive industries expert group (IVSC Extractive Industries Task Force, 2001). The IVSC's critique opposed many of the paper's recommendations. However, the submission also stated that IVSC had given approval to its expert group to develop an extractive industries valuation standard, including guidance for fair value reporting, for publication in the IVS. In July 2001, the IASB set aside the issue paper's recommendations. Instead, in 2002, scoping for another research project was initiated. In December 2004, IASB issued IFRS 6, as an interim measure until a comprehensive research project on accounting for "extractive activities" could be completed. In 2004, IASB also initiated the second extensive extractive activities research project, this being undertaken by national accounting standard-setters from Australia, Canada, Norway, and South Africa. IVSC, in the IVS 2005 Edition, published GN 14, "Valuation of Properties in the Extractive Industries." (Table 2).

In February 2010, the IVSC Standards Board withdrew GN 14. In April 2010, the IASB received the second research project's 184-page report, Extractive Activities Discussion Paper. Much of the report's focus was on asset recognition and value measurement. The research team found that users of minerals industry financial reports "do not view entity-prepared current values as being representationally faithful, and therefore they would make limited use of them," because of the subjectivity and degree of estimation involved. It also found that "preparing current value estimates of these assets involves significant work effort and cost." The team therefore promoted allowing only historic cost accounting for minerals sector assets, while encouraging concurrent disclosure by the reporting entity, of an estimate of the fair value of each asset, presented as a range, with supporting information about the estimation process and main assumptions. In May 2012, the IASB initiated another research program, this time being a broad program, combining research on extractive activities with overlapping topics, within a larger array of accounting research. In July 2016, the Board once again isolated extractive activities to a research project on that alone (International Accounting Standards Board, 2016a). This fourth research project is to begin sometime within 2017-2021 (International Accounting Standards Board, 2016b). (Table 2)

Twenty years have passed since the IASB's predecessor body initiated the first of these

Table 2

IASB's Extractive Activities Accounting Standards Project and IVSC's Extractive Industries Valuation Standards Project.

1998	IASB commissions research on financial reporting issues in the extractive industries.
Nov. 2000	IASB publishes resultant 412 page <i>Extractive Industries Issues Paper</i> .
June 2001	IVSC submits a comprehensive critique of the Issues Paper, opposing many recommendations. States that IVSC's extractive industries expert group will develop an extractive industries valuation standard, addressing fair value reporting.
July 2001	The IASB reviews the Issues Paper, then sets aside its recommendations.
2002	IASB initiates scoping for a second IASB extractive activities research project.
2004	IASB's second extractive activities research project gets underway.
Dec. 2004	IASB issues an interim, limited extractive activities financial reporting standard, IFRS 6, "Exploration for and Evaluation of Mineral Resources."
Feb. 2005	IVSC, publishes the <i>IVS 2005 Edition</i> , containing GN 14, "Valuation of Properties in the Extractive Industries."
2008	IVSC is restructured. Its Extractive Industries Expert Group is disbanded.
Feb. 2010	IVSC withdraws GN 14, "pending the outcome" of the extractive industries research project it initiates.
Apr. 2010	IASB receives the second research project's 184 page report, <i>Extractive Activities Discussion Paper</i> , which promotes allowing only historic cost accounting for minerals sector assets.
Mar. 2011	IVSC has been informed by IASB staff that a replacement extractive industries valuation standard would have aided the IASB approving development of a comprehensive IFRS 6 replacement.
May 2012	IASB initiates its third research project for extractive activities, combining that research with other topics, some overlapping.
July 2016	IASB schedules a fourth extractive activities research project, to begin between 2017 and 2021.
May 2017	IVSC specifies the timeframe for its extractive industries valuation project as "critical."

financial accounting research projects for the minerals industry sector. None has developed recommendations pertaining to fair value reporting for the sector's assets, that the Board finds satisfactory for employment in a comprehensive financial reporting standard for the minerals industry, to replace IFRS 6. In the meantime, the IASB's smaller sister body, IVSC, has been struggling since 2010, to make progress towards developing a replacement for its withdrawn GN 14 extractive industries valuation standard. There have been indications of a coupling of the minerals industry standards development difficulties of the two organizations. The minutes of the March 2011 meeting of the Standards Board of IVSC, state that IVSC representatives were informed by IASB staff that, if a replacement IVSC extractive industries valuation standard were in place, it could help the IASB approval process for development of a comprehensive IFRS 6 replacement (IVSC, 2011). At that time, IVSC had made negligible progress towards its planned June 2011 publication of the replacement standard. The IASB has yet to begin development of a comprehensive IFRS 6 replacement.

Though discussion of the causes of those difficulties and possible solutions is beyond the scope of this paper, the difficulties suggest opportunities for the minerals industry sector to provide technical assistance through IMVAL and its member committees.

SME Valuation Standards. The SME Valuation Standards Committee is currently researching the addition of guidance for the valuation of mineral business interests to its standards. The addition of guidance for valuation of intangible assets, and plant and equipment, may follow. A satisfactory structure for the standards document must first be developed to allow the additional valuation standards. If these standards development initiatives are successful, the committee will seek incorporation of the additional standards in the IMVAL Template.

Other projects may include development of a best practice valuation guidelines document, and instructions for application of the SME Valuation Standards in conjunction with USPAP.

The SME committee considers mineral valuation education to be an important part of its mission. It is actively assisting IIMA in providing mineral valuation education to SME members and the public. Member education includes technical sessions and a short course at the 2018 SME annual conference. Advancement into public education is demonstrated by the recent addition of a selection of audio-video presentations of mineral valuation papers to SME's YouTube site.

Conclusions

For appraisal of the value of real property mineral assets, the SME Valuation Standards incorporate valuation principles generally accepted by valuation professionals globally, into a comprehensive set of principles-based standards and guidelines. The 21-page document, which places an emphasis on market valuation, is easy to read and concise.

The SME standards comprise a minimum set of standards and guidelines for developing and reporting valuations of mineral properties (in-

cluding petroleum properties) for public and private use, subject to legal and regulatory requirements of the relevant jurisdiction. The standards are also designed to provide mineral valuation guidance that supplements the application of the IVS or USPAP for valuation of mineral properties.

The SME Valuation Standards is the first set of mineral valuation standards to develop from a professional minerals institute adopting and modifying the IMVAL Template. As a result, the SME Standards are essentially totally harmonized and otherwise aligned with the content of the IMVAL Template.

IMVAL's primary purpose for developing the IMVAL Template was to produce an agreed reference framework of mineral valuation guidance as the goal for harmonization of the Australasian VALMIN Code, South African SAMVAL Code, and the Canadian CIMVal Standards. The harmonization would result from each mineral valuation standards committee conducting a convergence project on its standards. The desired harmonized outcome would be that the three standards would each operate much the same as the IMVAL Template, resulting in valuation reports with similar content for the same mineral property, and providing essentially the same value for the property. The publication of the Template in July 2016 provides the reference framework goal for mineral property valuation harmonization of those standards. The published Template is now also available for other bodies to adopt and modify to suit their purpose and regional setting, as SME has already done, or to use as a convergence goal for modification of an existing standard.

In developing the IMVAL Template, the committee followed the philosophy ingrained in the IVS and IFRSs, by developing mainly principles-based standards and guidelines, as opposed to rules-based. Prescriptive wording has been purposely minimized. The Template provides core principles for the conduct and development of valuations, together with a modest set of key objectives, requirements, and guidelines for valuation report content. IVS guidance and definitions are referenced and quoted extensively within the IMVAL Template, thereby avoiding the need for IMVAL to recreate text to convey important principles and terms, and assuring compatibility with the IVSs.

IMVAL and SME, by employing valuation principles that are generally accepted by valuation professionals globally, together with internationally recognized classifications for mineral resources and reserves, are assisting the implementation of uniform valuation standards

worldwide. These will aid project comparisons across borders, benefitting investors, lenders, and the minerals industry.

The South African Code for the Reporting of Mineral Asset Valuation (The SAMVAL Code), 2016 Edition, "as amended 20 December 2016," is substantially aligned with the IMVAL Template for the main valuation principles of mineral property valuation. Despite that alignment, the SAMVAL Code is largely a rules-based guidance document, rather than being principles-based, apparently to assure that all valuation reports developed under the Code would meet corporate regulatory filing requirements, such as for a filing with the Johannesburg Stock Exchange. Plentiful "should" instructions are used in extensive elaboration and additional requirements of the main body of the document. Appendices contain many pages of supplemental "shall" and "should" instructions, including tabulated, detailed, component-by-component requirements for valuation report content. Therefore, despite alignment of the main valuation principles with the IMVAL Template, with this heavy burden of requirements, the operation of the Code is not harmonized with the Template.

The Canadian *Standards and Guidelines for Valuation of Mineral Properties (CIMVal Standards and Guidelines)*, was published by CIM in 2003. Despite its age, the framework of valuation principles is moderately well aligned with that of the IMVAL Template. However, because the standards document was developed primarily to provide instructions for regulatory corporate filings with stock exchanges, extensive prescriptive guidance is included in both the standards and guidelines sections. Therefore, despite the CIMVal Standards and Guidelines being moderately aligned with the main valuation principles of the IMVAL Template, the heavy burden of requirements results in their operation not being harmonized with the Template.

The *Australasian Code for Public Reporting of Technical Assessments and Valuations of Mineral Assets (VALMIN Code) 2015 Edition* is poorly aligned with the IMVAL Template for the primary valuation principles of mineral property valuation, particularly for market valuation and market-based fair valuation. The main use of the Code is not for valuation, but as a set of standards for the public reporting of mineral (including petroleum) property technical assessments, being geological investigations through to feasibility studies. A valuation report developed in accordance with the VALMIN Code must contain a technical assessment, unless the valuation is of a petroleum property. The Code performs the role of a regulatory document, providing instructions

for the public reporting of technical assessments and valuations of mineral assets. It does not operate at all similarly to the Template.

Much of the guidance provided in the SAMVAL, CIMVal, and VALMIN standards and guidelines are prescriptive, rules-based instructions. Those are primarily designed to assure that mineral valuation reports filed with stock exchange regulators comprehensively cover all aspects of the subject mineral property and the valuation process, with content presented so that it is understandable by investors with diverse backgrounds. The requirements are unnecessarily restrictive and burdensome for many uses of valuations. The author encourages the committees that govern those three sets of mineral valuation standards, to convert the documents to principles-based. Instructions specific to securities and finance market uses of valuation reports could be provided in a separate advisory document.

The author recognizes that, in the case of the VALMIN Code, it may be impossible to disentangle the valuation guidance from the regulatory role of this combined technical assessment-valuation document. If so, that would suggest a need for a separate, additional mineral valuation guidance document, derived from the IMVAL Template, providing principles-based valuation standards common to both non-regulatory and regulatory uses of valuations.

Accommodating corporate, governmental, regulatory, and private sector uses together, will remain a challenge for development of future editions of the IMVAL Template and our SME Standards. Prescriptive wording is easily added and difficult to keep out. Drawing upon the principles-based IVSs provides important assistance to this accommodation, because they are designed to cover valuations of all asset types for all valuation uses.

The Template and SME Standards presently only address valuation of mineral (including petroleum) property assets that are interests in the land. Other mineral related asset classes for which the author recommends adding valuation guidance are: tangible assets, such as structures, plant and equipment; intangible assets such as financial instruments and securities; and businesses. Guidance for the conduct and reporting of reviews of valuation reports should also be added. In the meantime, current usage limitations should be clearly specified in the IMVAL Template, and instructions added providing directions to the relevant IVS standards for valuation of those additional classes of minerals industry assets.

IMVAL receives no funds and prior history suggests that this will likely be the case for the

foreseeable future. The author encourages promotion of IMVAL and the Template by individual committee members and the valuation committees of the institutes they represent. Means for promotion of the IMVAL Template to the petroleum industry sector should be investigated.

Since IVSC withdrew its IVS GN 14 extractive industries valuation guidance in 2010 for rewriting, it has made little progress on the replacement project. In May 2017, IVSC listed the development time frame for the extractive industries standard as priority “critical.” Since IMVAL’s formation in 2012, it has maintained communications with IVSC, offering collaboration. The SME committee has provided comprehensive responses to IVSC’s research requests. Possibilities to provide additional technical assistance should be monitored.

Twenty years have passed since the IASB’s predecessor body initiated the first of three financial accounting research projects for the minerals industry sector. None has developed recommendations pertaining to fair value reporting for the sector’s assets, that the Board finds satisfactory for employment in a compressive financial reporting standard for the minerals industry. A fourth research project has been scheduled, to assist with future development of a much delayed, comprehensive IFRS. These difficulties suggest that there may be opportunities for the minerals industry sector to provide technical assistance through IMVAL and its member committees.

It is important for the SME committee to continue coordinating with the IIMA for provision of mineral valuation education for their members and the public, as an important component of their missions.

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