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TRENDS IN THE REGULATION OF MINERAL DEPOSIT VALUATION

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ABSTRACT

Regulation of mineral property valuation methodology by governments and others is due to frauds, condemnation and takings, banking industry problems, and litigation. Definitions of "reserves," "resources," and "qualified person" continue to evolve, along with guidelines to the data and disclosure required to support valuations. A less recognized but vital issue relates to the regulatory acceptability of alternatives to the comparable sales method. Comparable sales generally works well for surface real estate, and sometimes for precious metal deposits, but not at all for most industrial mineral properties. Alternative methods, such as net present value, or a geoscience rating system, often provide better valuations. Yet US regulations dictate comparable sales as the preferred method. The task of convincing regulators of the inapplicability of comparable sales to mineral properties, particularly those lacking reserves, may be as important as the valuation itself.

INTRODUCTION

Regulation of the reporting of a value for mineral properties has increased substantially in the past two decades in the USA and internationally. This regulation of mineral property valuation methodology began as part of the general regulation of the reporting of the geology and reserves of mineral properties.¹ However, appraisal reports have important special purposes in the financial operation of our society. So other forces come into play, leading to uncertainties and complexities of jurisdiction

¹The terms "appraisal" and "valuation" tend to be used interchangeably in the minerals industry when referring to the development of a formal report of appraised value. In the USA, the term appraisal is usually applied. In the English speaking mining world outside of the USA, the term valuation is more commonly used. Either term is acceptable and generally understood.

and rules. Mineral property appraisals may be used in a wide variety of situations, such as securities reporting, acquisitions and mergers, accounting, financing of mine development, taxation and establishment of trusts, condemnation, or often solely for an owner's internal planning.

The leading countries in imposing regulation are the USA, Australia, and Canada. Each has taken a very different approach. The USA probably has the oldest regulations. During the last decade or so, regulation of mineral property appraisal in the USA has developed into a rather difficult, ill-conceived mix. Australia has a generally well thought out, stringent Code, developed by the Australasian Institute of Mining and Metallurgy (AusIMM). In Canada, poorly defined regulations are to be replaced with new regulations and the outcome, although potentially favorable for mineral appraisers, is still uncertain.

This paper concentrates on the history and present status of regulation of minerals appraisal in the USA. The developments in Australia and Canada are referenced for comparison and because of their considerable influence in the US due to the international character of the mining business. In the following sections, we discuss how present US regulations may discourage good minerals appraisal practice. The complex regulatory environment may even discourage the use of a skilled minerals appraiser.

REGULATION DEVELOPMENT IN THE USA

The US Securities & Exchange Commission

The reporting requirements of the US Securities & Exchange Commission (SEC) are perhaps the best known within the mineral appraisal community. Soon after the SEC was formed in 1934, it adopted Hoover's (1909) definitions of "proven" reserves and "probable" reserves. These remained in use until the definitions were revised in March 1981 when Form S-18 was approved for use by mining companies. The definitions and disclosure requirements of Form S-18 were transferred to Industry Guide 7 in 1992, where they may be currently found (Abbott, 1985 & 1997). Holmes and Abbott (1992) describe how the SEC and other classification schemes apply to industrial minerals.

The SEC focuses on investor protection. This results in it focusing on reserves and its rules prohibiting disclosure about specific tonnages and grades associated with deposits not classified as proven and probable reserves, such as the resource classifications of the AusIMM JORC Code, the SME (1991), and other groups (SEC Industry Guide 7, Abbott, 1997). This policy is intended to reduce the speculation associated with initial, in situ estimates of resources, which are invariably greater than the reserves, if any are delineated (Noble, 1993). Also there is frequent investor misunderstanding of the mining industry's distinction between "reserves" and "resources." For example, in 1987, a group led by T. Boone Pickens engaged in a hostile takeover battle with Newmont Mining Company. Among the assertions of the Pickens group was the assertion that Newmont had not adequately disclosed the value of its gold reserves. Newmont's custom was (and continues to be) to disclose its reserve estimates as of December 31st each year. However, the assertions by the Pickens-led group resulted in a decision to disclose updated estimates. About ten days after Newmont's disclosure of the updated reserve estimate, Newmont disclosed its resource estimates in addition to the updated reserve estimate along with carefully crafted disclaimers that the economic viability of the resource estimates had not yet been determined. The *Wall Street Journal* promptly added the reserve and resource estimates together and gave the result as Newmont's new "reserve" estimate. This is not what Newmont had said at all, but reflects the nearly synonymous usage of reserves and resources in everyday English (Abbott, 1997).

Appraisals are not commonly part of the disclosure statements filed with the SEC. However, there are times when the results of mineral property appraisals have been and can be included in SEC filings. In one case, the use of an independent appraisal value was disclosed as an alternative to the historic cost basis book value in calculating the dilution of the per share value for an initial public offering (IPO). In most IPOs, the insiders acquire their shares prior to and for considerably less than the public offering. When the public offering includes all shares, this results in an immediate reduction (dilution) of the per share book value on completion of the offering. In some US states, sales of IPOs with too high a dilution is prohibited. Disclosure of the appraised value of the exploration-stage properties (SEC Industry Guide 7) in this case allowed a dilution calculation demonstrating that if the appraised value were more correct than the book value, it was the insiders rather than the public who would suffer the dilution in per share value.

Appraisals also may be part of the valuation of a company involved in a tender offer. Even companies with profitably

operating mines with proven and probable reserves commonly hold interests in properties which are more or less raw prospects. These properties can have value even though resources, as that term is understood in the mining business, have not yet been delineated. And that value may be sufficiently great to compel securities disclosure. Because appraisal methodologies generally include, in one way or another, allowances for risk, actual recovery and mining costs, etc., they can be less speculative than values based on initial resource estimates and can be considered for disclosure purposes (see SEC Industry Guide 7, Instructions to paragraph (b)(5), no. 3).

The reality though is that the SEC and Canadian reporting regulations, have prevented the public disclosure of quantitative (but not qualitative) resource and "possible" reserve category estimates for almost all mineral properties in the USA.² The Canadian regulations are important because a large share of the US mineral properties are held by Canadian based companies. For many assignments, the appraiser will not be provided with estimates outside the "proven" and "probable" reserves, because those estimates have not been publicly released. In such situations, the company management is usually also unwilling to provide the appraiser with their raw drilling data used in making those estimates, since that usually has not been publicly released. This is because in most cases, the appraisal report is written for submittal outside of the company, and is sometimes ordered by an outside or minority interest party.

Most assignments that we receive as minerals appraisers are for the appraisal of mineral properties still only at the resource or prospect stage. In such cases, the effects of the regulations leaves the appraiser attempting to determine deposit parameters from public domain information and his interpretation of the geology from visual inspection. The value of the unreported resources can be many millions of dollars. Even if the assignment is for the appraisal of an operating mine with a defined reserve base, much of the value of the property is usually attached to the expectation that the management will be able to continue an organized approach to upgrading a portion of its resource base to reserves in a timely manner as needed. Whether one attempts to use comparable sales or an income approach to determining the value, it is difficult to develop a fair value for a delineated resource without knowing the basic information about its quantity and quality. The appraiser could find himself being questioned by a lawyer about his use of speculation, particularly if this speculation involves the assignment of future income potential to an undefined resource.

Resolution of this dilemma will differ in each case. The minerals appraiser who is not provided with exploration data beyond that delineating proven and probable reserves can state this in his report and its resulting impact on the appraisal.

The Savings and Loan Crisis and the Development of USPAP

In the late 1970s, the US savings and loan industry and some banks began to collapse under the weight of loans gone bad. The crisis reached its peak in the mid-1980s. The resulting workouts

²The SEC position stems from its regular contact with what Hoover (1909) referred to as the "charlatans of mining" who misuse terms to "cover the flights of their imaginations."

required more than \$100 billion in federal bailout funds. The Resolution Trust Corporation was formed with a primary function of liquidating enormous quantities of foreclosed real estate.

Some of the blame for this stunning collapse of a large portion of the US lending industry was placed on over-valued real estate and business appraisals. This led to the federal government seeking more control of appraisers and appraisal standards than self-regulation by appraisers. Congress authorized The Appraisal Foundation as the “Source of Appraisal Standards and Appraiser Qualifications.” In 1986-87, it developed its original Uniform Standards of Professional Appraisal Practice (USPAP).

The Appraisal Foundation in 1989 formed the Appraisal Standards Board to continue the development and amendment of USPAP. Since then, each year the Board has amended the document. The 1998 edition is 173 pages, containing standards for appraisal of real property, personal property, and businesses, and standards for appraisers providing consulting services about real property and real estate.

The major appraisal institutes of the USA require their members to abide by USPAP. As yet, The American Institute of Minerals Appraisers (AIMA) has not made USPAP a requirement for its members. All federally chartered financial institutions and Federal agencies, use USPAP as their appraisal standard. In 1989, the federal “Financial Institutions Reform, Recovery and Enforcement Act” (FIRREA) was signed into law. This requires the states to set appraisal standards, and to set standards for licensing and certification. The states then adopted USPAP for their standards.

Many minerals appraisers will argue that they do not need to apply the USPAP standards to their work, and to a large extent they will still be correct. It is not even clear in USPAP as to which sets of standards apply to the appraisal of mineral estate. Is the mineral estate “real property,” and therefore appraised under the standards for real property? If the mineral estate is attached in ownership to the surface estate, it seems that one is meant to follow the standards for appraisal of real property.³ If it is the rights to the minerals that one is appraising, these are defined by USPAP as intangible property, and therefore apparently one should work under the USPAP standards for personal property. If one is appraising a mine as a business, the standards for appraisal of a business apply.

However, it is clear that a minerals appraisal to be used to support a financing from a federal- or state-chartered lending institution should abide by USPAP. So should a minerals appraisal which could go before the IRS.

In Colorado, the appraisal of mineral rights is specifically excluded from the jurisdiction of the state Board of Real Estate Appraisers. However, such exclusions of jurisdiction are a state

³ Aston (1998) recently pointed out another problem with some industrial mineral properties, namely that some construction materials, definitely considered minerals by geologists, are considered rocks which are part of the surface estate in a growing minority of approximately 17 states. As with all property appraisals, land title issues are critical, particularly where the surface and mineral estates have been severed.

by state matter, and many, if not most states do not have such exclusions. The American Institute of Professional Geologists deserves a good portion of the credit for lobbying for those exclusions that do exist. It is a moderately rare case in reality that a minerals appraiser is taken to task for violating the state regulations, for being viewed as doing real estate appraisal without a state-endorsed real estate appraiser’s licence. However, it does happen. In such a case the argument will center on whether appraisal of the mineral estate or mineral rights is considered to be conducting real estate appraisal. Technically, the settlement of the specific case may depend on whether the mineral estate has been severed from the surface estate, or whether one is appraising mineral rights rather than the minerals estate. Doing the minerals appraisal as a real estate appraiser under state licensing theoretically requires abiding by USPAP. The cautious approach is to always have a state-licensed real estate appraiser on the team, as one minerals appraisal firm always does, and to always abide by USPAP, particularly if surface is part of the package being appraised.

USPAP is a rapidly growing animal, and whether this is a pretty young horse, a gorilla, or an ugly pig depends on your individual state of mind. The 1999 edition is attempting to continue extending USPAP’s coverage, influence, and control. Acceptance, and expectation of its use, also have been growing rapidly. USPAP’s emphasis is on full disclosure, of everything. This includes all information that has been considered, actions that may have influenced, and any ground rules used in the conduct of the appraisal. Ethics and competency provisions are included up front.

Appraisal Methodologies Under USPAP

NPV or DCF Methods (Income Approach): USPAP does not discourage the use of the net present value as an appraisal method. It calls it Discounted Cash Flow Analysis (DCF analysis). This method is lumped in with other income approaches. However, under USPAP, one must consider all three approved approaches to appraisal—cost, income, and sales comparison. Needless to say, a heavy emphasis is placed on the latter. DCF analysis is accepted with a lot of caution, as is any income approach. USPAP views it as a method that could be open to considerable misuse or abuse, as we must agree. Therefore, USPAP places considerable emphasis on the use of realistic cash flow projections and the determination of a representative discount rate.

The potential problem for us as minerals appraisers is the interpretation of terms such as “realistic cash flow projections” and “reasonably clear and appropriate evidence.” If one takes the USPAP Rules to their literal conclusion by including the restrictions governing the appraisal of “proposed improvements,” they would not allow the NPV method of analysis to be used on an undeveloped mineral reserve, let alone a resource, without the mine design being well advanced, and a well-assured start date for beginning operations.

To appraise undeveloped industrial minerals properties, it is standard practice for minerals appraisers to model a possible mine on the property, then calculate the NPV of the cash flows, or royalties that would be generated. We reduce the NPV to a realistic value by modeling the start of the project in the future, say 20 years hence, and applying a probability of occurrence or a high discount rate (Ellis, 1998). We use a similar NPV methodology for appraising undeveloped reserves and resources

associated with operating mines. A strict interpretation of USPAP would prevent this use.

Cost Approach Method: the cost approach method primarily relies on calculating replacement cost of an existing plant. It assumes that the plant is worth replacing. It also assumes that the raw material which will be used in the plant's operations will be purchased from elsewhere. This last assumption is the primary reason that the cost approach to appraisal is usually useless in valuing mineral properties and mines. Mineral properties are valuable for their minerals, which are the inventory for their plants; they are not valuable for their plants (Ellis, 1998). We can't create an identical mineral deposit near a plant. In fact the only value of the plant at a depleted mineral deposit comes from salvage and scrap. The money put into acquiring the moose pasture, then exploring it over 15 years, is a very poor indicator of today's value of the resource. It does not at all take into account the value derived or lost through undertaking that risk. As the TSE/OSC Mining Standards Task Force put it bluntly in its *Interim Report* (1998, p. 71): "...there are methods [of valuation], such as valuing at cost, that are inappropriate. These should be identified and prohibited."

Comparable Sales Methods: the comparable sales method depends on three basic assumptions, that there are reasonably comparable properties, that a ready market exists for these properties, and that there are sales of those properties at fair-market value. In the case of the residential real estate and general office space markets in cities, these requirements are easily met. Such transactions form the bulk of appraisal business and result in the bias towards the comparable sales method of valuation. However, in cases of smaller residential markets, for example unique vacation homes, or specialized industrial plants, determining a comparable sales value is more difficult. The appraiser must start making more assumptions and adjustments in arriving at a valuation. These assumptions and adjustments introduce uncertainty into the process, and uncertainty can be called "speculation" by those objecting to any one of the assumptions and adjustments.

Some appraisers believe that the comparable sales approach may work reasonably well for some mineral properties, for example gold properties. There has been a lot of activity in trading gold properties in recent years, so we can arguably find at least one comparable sale for a gold property that has some semblance of similarity of geological and geographical characteristics. For a reasonable statistical basis, we should have at least four. However, two of us (Abbott and Sandri) conducted a survey of mineral property appraisers in early 1998 to determine their preferred method(s) of appraisal. Seventy-one appraisers, companies, and banks were contacted and asked about their use of some form of cash flow, comparable sales, or other methodology for valuing mining properties. Sixty-three used some form of cash flow analysis as their primary method, although, in most cases, comparable sales or another method was used as a validation check. Of the six firms that used comparable sales as their primary validation method, all backed up the comparable sales with a cash flow analysis. These six included three firms who regularly bought and sold properties or kept detailed databases of all property transactions, and one firm primarily involved in USPAP valuations (and thus USPAP's bias towards comparable sales). The most frequent "other" method employed was some variation of "value of resource

ounces in ground" calculation.⁴ Almost all respondents agreed that the more information and the more methods used as a cross-check, the more comfortable they were with the estimates. And it must be kept in mind that in almost all cases, the properties being considered were gold properties.

For appraisal of industrial minerals properties, comparable sales are in short supply. For example, in the appraisal of a hard rock iron-titanium property in Wyoming, the closest thing to a comparable sale in recent years may be the trade of an ilmenite-rutile beach sand deposit in Australia or Africa five years ago. Finding the trade in the first place can take intense research. But data from that trade won't get us in the correct ball park. It may not even put us in the correct city, even if we are pretty handy at doing fancy adjustments using matrix rating methods such as that of L.C. Kilburn (1990 & 1998). Obtaining all of the information on a trade necessary to evaluate it, is generally difficult to impossible. Also, mineral property trades generally include multiple assets, so one must adjust away those assets not relevant to the particular property. Then one needs to contend with all of the variants of the geological characteristics of the deposits, its stage of exploration or development, geographical location, including access to utilities and transport, environmental issues, etc. Furthermore, the terms of the trade are almost never simple in the mining industry, so one must adjust for carried interests, royalties, stock options, and payments spread out over many years dependent on exploration or feasibility study success.

As another example, consider the case of property adjacent to and containing the lateral extension of a successful building stone quarry. The building stone quarry fully supplies the market for its variety of stone and has several decades of reserves left. The building stone quarry was sold a year ago, thus apparently establishing the basis for a "comparable" price. However, as the established operation has both fully developed the market and is capable of supplying the demand for some time to come, the mere existence of equivalent building stone on the adjacent property does not make the properties of equal value on a per acre or similar basis. As is true of most industrial minerals properties, the ability to successfully market the product is the most critical component of a valuation, a component not generally considered by the comparable sales method, which assumes a ready market for the property.

In summary then, although the basis for preference for the comparable sales method is elimination of the "speculative"

⁴ Another method of valuation, a probabilistic approach, has been urged in the petroleum business (Rose & Jones, 1993 & 1995). Gustavson and others (1997) challenged this approach. The point here is not to advocate either position, but merely to suggest that probabilistic methods have been successfully employed. However, like all statistically based methods, the success of probabilistic methods depends on the "law of large numbers," the requirement for a large number of valid data points to provide statistical reliability. This requirement is more easily met in the petroleum business than in the mining business, and more frequently for gold properties than for comparable industrial minerals properties. For most mineral commodities, any probabilistic method will need to be founded on a refined NPV approach based on theorizing about the range of potential project outcomes (Sorrentino & Barnett, 1994, Ellis, 1979a & 1979b, & Runge, 1994).

values involved in the underlying assumptions used in cash flow analyses or other methodology, when faced with a lack of comparable transactions and properties, the assumptions required for a comparable sales valuation are no less “speculative.” As noted in the survey on mining property appraisal, generally the more methods used, the better, particularly when the answers converge.

Overall, the combination of FIRREA with state licencing and USPAP, can lead us minerals appraisers into some tough situations. In these cases we either pack our bags and move on, or develop some slick verbiage to snake our way past those rules which would prevent us from producing our best estimate of value.

Federal Land Acquisitions

When a US federal agency is buying or condemning land, yet another document rules. The Uniform Standards for Federal Land Acquisitions (USFLA) was first released in 1973, then updated in 1992 to its present 132 pages. It reads rather like a court’s legal decision. Since a substantial number of condemnations are settled by courts, case law forms an important basis for this document. In effect USFLA is a set of guidelines rather than being a set of rules.

USFLA very strongly recommends the use of comparable sales over the income approaches. Then it grudgingly permits the use of income approaches if adequate sales comparisons are not available, but provides a lot of cautions about the care needed in their application. Next, it takes away the ability to use speculative income, which would again remove our ability to consider the NPV of reserves and resources not yet in production. However, based on US Circuit Court decisions in the early 1980s in favor of mineral property owners, USFLA is forced to allow the NPV of speculative royalty income for undeveloped mineral properties. It does not allow the use of conventional cash flows in such cases. We understand though that some recent court cases have allowed the use of conventional cash flows.

USFLA applies the “Unit Rule,” which requires a property to be appraised as a single unit, then the value apportioned among the various interest holders. Since a real estate appraiser is almost always in charge, with little desire in researching the value of the minerals estate, the minerals owner generally receives the short end of the stick.

MINERAL APPRAISAL STANDARDS IN AUSTRALIA

Minerals appraisers in Australia work in a relatively idealistic environment. They work under a well thought-out code for mineral property valuation, built on a foundation of a strong code for estimating resources and reserves.

The Australasian Code for Reporting of Identified Mineral Resources and Ore Reserves grew out of a set of recommendations first published in 1979. It is published by the Joint Ore Reserves Committee (JORC) of the Australasian Institute of Mining and Metallurgy (AusIMM), the Australian Institute of Geoscientists (AIG), and Minerals Council of Australia, and thus is known as the JORC Code.

The JORC Code was first introduced in 1989 and has undergone several revisions (Ellis, 1991). The current version was issued in

1996 but exposure drafts for further revision are currently under review. The latest exposure drafts (July 30, 1998 and modified in October 1998) contemplate approval in July 1999. Among other reasons for the changes are efforts of between various national and international bodies, the Council of Mining and Metallurgical Institutions (CMMI) in particular,⁵ to develop a uniform set of reserve and resource definitions.

The JORC Code provides for ore reserve categories of proved and probable, and identified mineral resource categories of measured, indicated and inferred. It makes special provisions for coal and diamonds. The JORC Code has strong reporting requirements, and has been incorporated in its entirety into the listing rules of the Australian Stock Exchange.

In June 1995, The AusIMM introduced The VALMIN Code, for valuation of minerals properties. This grew out of 1989 and 1994 valuation conventions organized by The AusIMM, and a 1990 policy statement on minerals valuations by the Australian National Companies and Securities Commission (Ellis, 1995a & b). The 1998 edition has been expanded to include technical assessment reports which have an economic basis, in particular feasibility studies. It is titled, *Code and Guidelines for Technical Assessment and/or Valuation of Mineral and Petroleum Assets and Mineral and Petroleum Securities for Independent Expert Reports*. The strong support for The VALMIN Code throughout the Australian securities bodies and financial institutions is to a depth that compliance is essentially obligatory.

The VALMIN Code is a compact 23 page document of requirements and guidelines. It is based on requirements for disclosure (transparency), independence and competence of the expert, and assurance that all material information is included and conclusions are based on such. There is no provision for a “summary report” as allowed under USPAP, which would make it difficult to produce a brief report.

MINERAL APPRAISAL STANDARDS IN CANADA

In Canada there have not been any specific regulations or guidelines for minerals appraisers to follow. However, steps are being taken to change this. As background, a couple of documents have relevance. The Canadian Provincial Securities Administrators’ National Policy No. 2-A, *Guide for Engineers, Geologists and Prospectors Submitting Reports on Mining Properties to Canadian Provincial Securities Administrators*, a simple four-page document, has been the main reference for writers of independent technical reports for public digestion, describing mineral properties. This document encourages, but does not require, the use of the term “ore” in place of “reserve,” and “mineralization” in place of “resource.” The process of revising National Policy No. 2-A has been ongoing for a couple of years now. The Bre-X fiasco helped push this process into

⁵The primary bodies involved in the international effort to develop a single set of reserve and resource definitions are AusIMM; the Canadian Institute of Mining, Metallurgy, & Petroleum (CIM); the Institution of Mining & Metallurgy (IMM); the Society for Exploration, Mining and Metallurgy (SME); and the South African Institution of Mining & Metallurgy (SAIMM). Discussions with United Nations working groups are also occurring; see the *Mining Journal*, October 9, 1998, p. 270, for further information.

high gear, due to its helping to destroy public confidence in Canadian-based mining investments. The result will be Canadian Provincial Securities Administrators National Instrument 43-101, effective 1999, which rescinds National Policy 2-A.

The various Canadian stock exchanges can require valuations of mineral properties in certain circumstances, such as takeover bids and related party transactions, particularly when the payments are being made in shares. However, valuation methods are not suggested. The Vancouver Stock Exchange, recognizing the international reporting problems involved, in 1997 released its *Junior Mining Standards*, which calls for additional due diligence and disclosures beyond those called for in National Policy No. 2-A. For resource/reserve reporting, it requires abiding by the Canadian Institute of Mining, Metallurgy, and Petroleum's (CIM) recommendations, AusIMM's JORC Code, or similar code.

The Toronto Stock Exchange and the Ontario Securities Commission (TSE/OSC) formed a Mining Standards Task Force in the wake of the Bre-X fiasco and asked it to be the major player in the development of National Instrument 43-101. The Mining Standards Task Force initially recommended bringing the process of mineral property valuation under control as far as the securities industry is concerned. Its proposals, including its suggestions on valuation rules, were aired at a special valuation session of the Prospectors and Developers Association annual convention, Toronto, March 1998, and an *Interim Report* was published for comment in June 1998. The *Interim Report* recommended that the CIM's 1996 definitions of resources and reserves, with its six categories, would be adopted. However, it would only allow feasibility studies and appraisals to be based on proven and probable reserves (the same as the US SEC). Michael Lawrence (1998) and Trevor Ellis, both Australians, made strong pitches against this restriction on appraisals at the 1998 PDAC meeting. No Canadian or other protests were heard. Nonetheless, the restriction has been dropped from the draft National Instrument 43-101. The Mining Standards Task Force determined that particular methods for valuation of mineral properties should not be dictated. It requested instead that the CIM and the Canadian Institute of Chartered Accountants make recommendations aimed at eliminating unacceptable methods.

The positive result is that inappropriate restrictions on mineral property valuation methods will not apply in Canada under National Instrument 43-101. The Mining Standards Task Force requested comments on its *Interim Report*, and has not yet published revisions based on those comments. Furthermore, it remains to be seen whether the Canadians will abandon the "possible reserve" category as recommended by the other CMMI participants in the recommended international classification scheme. Until the various draft proposals are finalized, the exact nature of Canadian mineral appraisal schemes remains uncertain.

DEFINITION OF COMPETENT OR QUALIFIED PERSONS

One consequence of spectacular failures of the status quo like the savings and loan scandals in the US in the 1980s and the Bre-X fiasco in Canada in 1997 is a call for some method of assuring that those who perform appraisal work meet certain minimum standards and be licensed, certified, chartered, or

otherwise vetted as having the competence to perform appraisals. The JORC Code requires that public reports of mineral resources or mineral reserves be prepared by one or more Competent Person(s). A Competent Person is defined as "a person who is a Member or Fellow of The Australasian Institute of Mining and Metallurgy and/or the Australian Institute of Geoscientists with a minimum of five years experience which is relevant to the style of mineralization and type of deposit under consideration and to the activity which that person is undertaking." The TSE/OSC Mining Standards Task Force *Interim Report* recommends adoption of a Qualified Person concept. The Qualified Person would be responsible for design, implementation, and assessment of mineral exploration and development programs; the estimation and classification of resources and reserves; and the review, approval, and, where required, the certification of all reports and disclosures related to such programs and estimates. Qualified Persons are defined as members of a recognized self-regulating professional association. The recognized self-regulating professional associations would have minimum qualification standards for members and a code of ethics which includes provisions that recognize failure to report financial fraud as unethical and which prohibit members from entering into confidentiality or similar agreements which prevent the member from reporting situations endangering the financial welfare of the public.

While the benefits of the concept of the Competent or Qualified Person are readily apparent, the details of deciding just who is competent or qualified is not.⁶ Geoscientists, mining engineers, processing engineers, environmental science professionals, mineral economists, and sometimes even lawyers provide critical pieces of professional expertise in making reserve estimates and appraisals. No one is fully qualified in all areas. And as the Mining Standards Task Force noted, interprofessional squabbles between geoscientists and engineers in Ontario have prevented geoscientists in Ontario from being licensed, thus depriving Ontario geoscientists from joining a recognized professional association. Even assuming that a recognized professional association exists, ensuring that an acceptable ethics code exists, is enforceable, and is actually enforced, presents additional problems which have not really been examined or worked out. Such questions are only beginning to be faced by various mining professional societies around the world. Nevertheless, it is clear that societal demands will sooner or later result in some form of the Competent or Qualified Person concept being mandated for mineral appraisers.

CONCLUSIONS

The regulation of mineral appraisal practice is clearly evolving and in flux due to fairly recent failures of the previous ways of doing things. There are increasing societal demands for

⁶ As one mining company president has pointed out, there is a significant semantic difference between "competent" and "qualified." This individual, who happens to be a lawyer, notes that because he is a licensed lawyer, he is deemed qualified to represent a criminal defendant like O.J. Simpson. However, since he is not a criminal lawyer by training and experience, he is not competent to represent a criminal defendant, and that it would be a violation of legal ethics for him to attempt to do so. Therefore, "Competent" is a better word than "Qualified" for the persons being discussed.

standards in the way in which appraisals are conducted as reflected in USPAP and the TSC/OSC Mining Standards Task Forces recommendations in its *Interim Report*. Likewise there are demands for minimum qualifications for and accountability of those who perform appraisals. While these demands are not always fully thought out or developed into meaningful and workable schemes, they are real.

In the US, the emphasis on the comparable sales method reflects the prevalence of real estate appraisals in the totality of the appraisal business in general and in those appraisals contributing to the savings and loan crisis prompting the demand for regulation of appraisals and appraisers. Mineral appraisals are a very small portion of the business but this does not exempt mineral appraisal professionals from the need to vigorously point out that what works for real estate does not necessarily work for mineral properties. Formal recognition of appropriate appraisal methodologies requires effort by both individuals and professional organizations. Even where the importance of mineral property appraisal is recognized, as in Australia and Canada, standards are evolving. Calls for adoption of Competent or Qualified Person standards can be expected to continue and evolve.

The outlook is not all negative. Reporting of reliable exploration information and resource estimates by companies would be of importance to mineral appraisers. The JORC and VALMIN Codes offer a high standard for US appraisers. Some of the recommendations of the TSE/OSC Mining Standards Task Force specifically commend the JORC and VALMIN Codes. The SME Resources and Reserves Committee is working on a revision of SME's 1991 Guideline which intentionally will be very similar to the JORC Code. There is real hope that an internationally recognized set of definitions for reserves and resources will be adopted by the CMMI within the next year. International acceptance of the definitions is the first and major step in developing internationally accepted reserve and resource reporting guidelines.

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