31 October 2012

International Valuation Standards Council
41 Moorgate,
LONDON EC2R 6PP,
United Kingdom

By e-mail to: CommentLetters@ivsc.org

Subject: Discussion Paper on Valuation in the Extractive Industries

Sir,

Please, accept this input from the AIMA, albeit delayed. The American Institute of Minerals Appraisers (AIMA) is a professional organization of qualified Members who specialize in the appraisal of properties containing minerals.

The purposes of AIMA include:
1. to advance the profession of appraisal of minerals;
2. to establish qualifications for minerals appraisers;
3. to certify the qualifications of individual Member appraisers to the public; and
4. to promote high standards of ethical conduct among its Members, and within the profession of appraisal of minerals.

AIMA has established standards of education, experience, and professional conduct to protect the public from unprofessional practices.

Our 2012-13 Executive Committee of five Certified Minerals Appraisers (the Committee) has approved the following discussion comments (substantially identical to those earlier forwarded by our Past President, Mr. John B. Gustavson).

Question 1.1:
Should IVSC produce combined standards and guidance for Extractive Industries or produce separate pronouncements for mining and for oil and gas? If you believe the latter please indicate the reasons why you consider separate guidance is appropriate.

1.1 The IVSC should produce combined standards and guidance for mining and for oil & gas, because the market place, the financing pattern and the application of various technologies are comparable for all extracted commodities. There is no “dividing line” between the two. Uranium, evaporites and copper are mined by both shovel and by in-situ recovery, the latter’s involving fluid dynamics dependent on the nature of the minerals and the location in the ground.
Oil sands are an example of oil being mined by shovel. The large front-end investments facing offshore natural gas extraction with its need for liquefaction is of similar financial risk level to what hard-rock mining companies must endure during development. Geothermal energy production is also an extractive industry, and again the technology of hot water or steam production is similar to that developed with fluids like natural gas.

Finally, from a legal/fiscal regime perspective there is no difference in following a Canadian 43-101 from following a 51-101. The valuation approaches are comparable, if not identical, once we pull ourselves up to the levels of sales comparison, discounted cash flow and cost methods. Therefore, any IVSC standard must be common and broad for the valuation of minerals, independent of the commodity, while technical information in other documents may be more specific to various commodity types.

Question 1.2:
a) Should the project focus just on the valuation of reserves and resources or should it extend to other assets employed in the industry and to entire businesses in the sector? Please provide reasons for your answer.

1.2a. The project focus should be valuation of ALL the mineral assets employed in the industry, but NOT of the entire business. The latter (namely also covering the entire business) would create substantial overlap with other Guidance Notes (such as the original GN 6, Business Valuation). “ALL the mineral assets” include tangible and intangible mineral properties. The tangible mineral properties include the reserves and the resources in the ground (known as real property), the stockpiles and tanks of extracted minerals (known as personal property), the equipment and workings necessary for the extraction, and the plants necessary to bring the mineral to a form as a marketable commodity.

A good example of this involves the valuation of oil properties. It is conventional to value the mineral asset of a producing field by including all extraction equipment (up to and including the oil storage tanks) with the oil reserve. The wells would not have any value, were it not for the oil, and the oil would not be extractable without the wells.

A similar lesson has been learned by the industry and the courts from natural gas valuation: the underlying gas reserve and equipment property is one indivisible mineral property until it has reached a marketable point at the stage of pipeline quality. When carried over to hard rock mining, the mineral reserve plus the mine (extraction workings and equipment) are one asset for valuation up to the point of first sale to the market. That can be a concentrate to be sold after the mill to a smelter, or it can be ore prior to toll milling in a mining camp.

b) How often do you assess or use (if it is readily ascertainable) the value of an extractive business as a starting point for the valuation of reserves and resources?

1.2b. The value of an extractive businesses should not be used as a starting point. However, later in a valuation components (such as beta) from the market evaluation of extractive businesses can be used for the build-up of discount rates in a DCF valuation. Also, stock market data (market cap) for single-deposit companies is used as part of the search for comparable sales of undeveloped reserves and resources.
Question 1.3:
Do you agree with the Board’s preliminary view as to the type of pronouncements that IVSC should be making in relation to valuations in the Extractive Industries? If not please explain what alternative or additional material you believe would be useful.

1.3 The Committee agrees with the Board’s preliminary view under the assumption that the Board would promulgate General Standards, which would cover any and every type of mineral in the General Standards. In addition, the Board would develop Asset Standards, which could be specific to a particular class of assets.

Particular classes of assets would need to be defined by any number of common characteristics such as type of deposit, method of extraction, concentration, beneficiation/refining, transportation to market and/or other. Classification by commodity should be avoided.

Question 2:
a) Are you familiar with the former GN14?

2.a Yes.

b) Is GN 14 used in the valuations that you provide or receive?

2.b Yes.

c) What elements of GN 14 do you find useful in either reporting or interpreting valuations?

2.c The Guidance Note is useful, and as any guidance document GN 14 needs periodic improvement and updating.

Question 3:
a) Which classification code or codes are most commonly used in your industry / sector?

3.a The CIM Definition Standards and the PRMS Code for oil and gas reserve estimates are the most common reserve/resource classification codes that I see.

b) Which code do you normally use or rely on?

3.b The codes accepted by the stock exchanges and regulatory agencies of the country in which the asset is located are used by some members of the Committee. In the absence thereof the country of the client may be considered for the valuation and the client’s listing requirements, if any. Ultimately, one may default and choose to rely on what appears most appropriate to me among the CIM Definition Standards (2005), the SME Guide for Reporting Exploration Results, Mineral Resources, and Mineral Reserves (2007), and the JORC Code for hard-rock deposits. Some Committee members always rely on the PRMS Code for oil and gas reserve estimates.

c) Are you aware of differences across your / industry sector on the classification codes used? If so please indicate whether these differences cause problems in undertaking or understanding valuations.

3.c Yes, I am aware of the differences. No, these differences usually do not create valuation problems, except when a resource class may be disallowed in valuation by a local authority (example: excluding an inferred resource in a DCF approach).
Still, by careful work it is usually feasible to build a bridge between classification codes. And when not, I use my best judgment and also include a paragraph comparable to the Jurisdictional Exception Rule of the Uniform Standards of Professional Appraisal Practice.

**Question 4:**

a) Please identify the valuation methods that you most commonly use or encounter for valuing:
   - Producing reserves
   - Reserves undergoing development
   - Reserves or resources subject to exploration

If you are a valuation provider, please indicate why you prefer these methods.

4.a **Producing reserves.** Preference 1: DCF approach, 2: Sales Comparison. The DCF approach is by far the most accurate estimate of value, because the major risks of drilling for oil or minerals and the construction of extraction/concentration facilities are all behind. A cash flow has been established and the three most important components (market price of the commodity, rate of output of reserve and costs (of operation and amortization of development capital) are well known or predictable.

Sales comparison is important as a reality check and obvious candidates must be reviewed and reconciled with the results from the DCF approach.

**Reserves undergoing development.** Preference 1: Risked DCF approach, 2: Sales Comparison.

A risked DCF approach can still yield a reasonably accurate estimate of value, but the risks of the construction of extraction/concentration facilities are facing the project. A mine or field development plan and a financing schedule are available at this stage. But a risk factor (namely the probability of reaching the producing stage) must be applied. The DCF result must still be factored for the lingering mechanical construction, financing and timing risks.

**Reserves or resources subject to exploration.** Preference 1: Sales Comparison, 2: Options and Farm-out, 3: Cost approach

At the exploration stage the DCF approach is too speculative and should only be used for project comparison among various exploration candidates. Valuation is by far best by sales comparison. This may be supported by the implied value, which an exploration target might receive when independent companies take or earn fractional positions in return for additional exploration. Finally, prudently expended exploration costs may yield a measure of value at very early stages of exploration, as long as no major positive or negative results have been experienced.

**Question 5:**

a) If you have experience in using the market approach to value assets, please indicate the sectors and asset types where this is used.

5.a **Oil & gas sector**
   
   All other minerals
   
   Geothermal energy sector

b) Please identify the three most important factors for which you frequently need to adjust price data when applying this approach.

5.b

1. Price of commodity from date of comparable sale transaction to price at Effective Date of valuation.
2. Price of commodity quoted in one (local) currency to another currency at a commodities exchange.
3. Adjustment of transaction price when infrastructure development commitments form part of transaction.

Question 6.1:
a) Production forecast – do you use internal production forecasts developed by the entity’s own geological and engineering specialists, external forecasts, or a combination of both?

6.1.a The former, namely internal production forecasts (with the valuing engineer/geologist’s editing, if any) clearly spelling out this reliance as an Extraordinary Assumption under USPAP.

b) Do you adjust the production forecasts for risk by reserve category?

6.1.b Generally No. However, Proven Reserves are produced before Probable Reserves are allowed in the forecast. That is a type of adjustment.

c) Do you make an explicit cash flow forecast through the term of expected production, even though it might be a very long period of time, or do you use a “remainder period” for long lived reserves? If you use a remainder period, what period is your explicit forecast?

6.1.c Yes, some Committee members use cash flow forecast through the term of expected production, but only up to 40 years at which point all cash flow streams are cut off but consideration to the cost of future reinstatement, reclamation or environmental protection obligations is added.

d) Do you use an internal management estimate for future pricing, eg the NYMEX, investment bank analysts’ estimates, industry sources, or a combination thereof to estimate future prices? If using the NYMEX strip pricing, what are the typical assumptions you make for prices beyond the NYMEX strip (e.g., flat, inflationary growth, etc.) Do you consider the impact of any hedging of future prices that might be in place in estimating the future revenue stream?

6.1.d Yes, some Committee members use NYMEX for the short term, and 2% inflationary growth thereafter. Oil and steel price forecasts can be used to derive near-term development capital and operating cost adjustments and 2% inflationary growth thereafter.

e) Do you apply differentials to the future price estimates? If so, what is your source for estimated differentials?

6.1.e No.

f) Do you reflect currency exchange risks to future income and operating cost projections in the cash flow or in the discount rate?

6.1.f Yes, in the discount rate.

g) Do you include corporate overheads when estimating the value of mining, oil and gas reserves, or just the selling, general and administrative costs associated with operating and producing the reserves?

6.1.g No, just the selling, general and administrative costs associated with operating and producing the reserves to point of first sale.
h) How often do you use the DCF method to value probable or possible reserves?

6.1.h Always as a reality check on Probably Reserves, never on Possible Reserves. The DCF method can be reasonably reliable, if the mineral property has reached the stage of Positive Pre-Feasibility and Preliminary Economic Assessment with an associated Mine Plan or actual production. The DCF approach can then be a reliable approach to estimating Fair Market Value, because relative few elements are speculative. The DCF method may be used when the generation of cash flow from extraction is already occurring or at least planned to take place within a reasonably near date in the future. Prior to this stage the DCF approach is too speculative and should not be used except as a possible reality check on the result(s) from sales comparison approaches.

Question 6.2:

a) What methods do you use or are familiar with for determining the discount rate used for valuations of reserves and resources?

6.2.a The forecast cash flow from producing properties can be solidly founded on past experience with a particular mine or oil field. The discount rate for such fully producing properties is therefore built up from industry data such as:

- Risk free rate for the country,
- Market premium times beta from companies in the extractive sector,
- Size premium (as indicated by Morningstar), and
- Other risk components experienced from extractive industries (usually 2-4%)

Some Committee members typically use a discount rate in the range of from 12 to 20% and use the Net Present Value (operating) as derived from the DCF approach to represent the estimated market value of an already-producing mine or oil field. It is self-evident that if there is already production there would be no necessity for additional risk factoring towards reaching the first day of the producing stage.

If that were not the case (namely production) a risk factor representing the probability of reaching the producing stage must be applied. Thus, the NPV(operating) must be factored for the lingering mechanical construction, financing and timing risk. Some parties use higher discount rates (in the 20’s and even 30’s) to estimate such market values for undeveloped mining and oil properties. However, it is less accurate to estimate and substantiate such higher discount rates than using the factor.

b) Do you separately consider and evaluate market (systemic) risk and asset specific risk?

6.2.b No.

c) Please indicate the factors that you normally consider and reflect in the discount rate and any source you use to determine the appropriate rate adjustment.

6.2.c See answer to 6.2.a

d) Do you use multiple discount rates to reflect the changing risk profile as an extractive process moves through its life cycle?

6.2.d Yes, some Committee members use two different discount rates, one for capital investments (at WACC), and one for the net income stream as discussed under 6.2.a.
Question 7:

a) Please indicate what methods you use or are familiar with that fall under the Cost Approach and that are used in valuing assets in the Extractive Industries.

7.a some Committee Members use prudently expended exploration costs, which may yield a measure of value at very early stages of exploration, as long as no major positive or negative results have been experienced, yet.

b) If you use or are familiar with the Cost Approach, please indicate in your experience how the cost of an equivalent asset is determined.

7.b I am not familiar with this term.

c) If you use or are familiar with the Cost Approach, please indicate the three most common adjustments that are made in your experience to reflect physical, functional or economic obsolescence, and what metrics are used to determine these adjustments.

7.c Some Committee Members have used these adjustment in the valuation of pipelines and compressor stations (after first sale point of the oil or mineral), but not in the valuation of reserves and resources.

Question 8:

a) How should the unit of valuation (unit of account) be determined in the valuation of extractive activities?

b) How is double counting of the contribution of different assets avoided?

c) How should economic obsolescence or impairment, if present, be allocated proportionally to all contributory assets of the mineral asset?

d) What methods do you use or are familiar with to attribute value to specific contributory assets?

e) Are entity specific inputs appropriate when valuing contributory assets in extractive activities? What checks can be made on the reasonableness of entity specific inputs?

f) Should components of goodwill other than value of assembled workforce be recognised?

8. These questions are of an accounting standards nature and should be answered by an accountant. There is clearly a communication gap between the two professions. Hopefully, the current IVSC effort can assist towards closing this gap.

Question 9:

a) How do you estimate the cost of future reinstatement or environmental protection obligations?

9.a Reclamation costs are estimated for the end of the project, and added to operating costs on a cost per unit (barrel or ton) basis. Tax laws may or may not allow these as current deductions. Occasionally, a “war chest” is set up to handle ultimate reclamation costs such as for international offshore operations and equipment. When using the sales comparison method, the environmental and reclamation obligations are adjusted into the unit value.

b) Do you discount the future cost of reinstatement obligations using a risk free rate or another rate? If another rate please identify and provide rationale for this approach.

9.b Yes, the future cost of reinstatement obligations are discounted. Since this is a
mandatory capital outlay, the discount rate is kept the same as the discount rate used for development capital, namely a Weighted Average Cost of Capital.

Question 10:

a) If you provide valuations of mineral assets, what investigations do you undertake to established the reasonableness or otherwise of estimates of the extent of reserves or resources provided by geologists?

10.a A reality check is conducted, since many members are engineers and geologists, and they have prepared reserve forecasts for mining and oil properties over many years.

b) If you provide valuations of mineral assets, are you routinely provided with estimates from engineers of the cost and feasibility of extraction? What enquiries do you make to satisfy yourself as to the reasonableness of these estimates?

10.b Yes. See answer 10.a above.

c) If you are a recipient or other user of valuations of assets in the Extractive Industries, are you satisfied that the valuations properly reflect any uncertainties in the current estimates of either the extent of the reserves or the costs of recovery? What information would you expect to see in a valuation report that would improve your understanding of the sensitivity of the reported value to uncertainties in the identified reserve or the costs of recovery?

10.c Yes. AIMA members frequently serve on the Certification Committee of the American Institute of Minerals Appraisers and therefore review many samples of valuation reports provided by candidates for AIMA Certification. Reviewers review the mandatory Reconciliation section in the presented reports for reality checks and sensitivity analyses. Candidates are remanded to further training with their official Mentor, if the confidence level of the reported value to the reserve, the costs of recovery and/or other sources of uncertainty were not discussed.

Question 11

a) Please identify any intangible assets that are normally separately identified and valued;

i. In transactions between entities in the Extractive Industries

11.a.i From a valuation standpoint it is not feasible to separate intangible from tangible assets. The two are inseparable because of the mandatory determination of Highest & Best Use, which must precede every valuation. The H&BU determination demands a positive answer to BOTH questions, namely “Is the Use physically possible” AND “Is the Use legally permissible”. That H&BU must be the use as of the Effective Date of the valuation. Therefore, the oil or ore in the ground (a real estate tangible asset) cannot be separated from the license to extract it (an intangible asset).

ii. When accounting for the acquisition of a business in the Extractive Industries.

11.a.ii This question should be answered by a professional accountant.

b) In your experience what, if any, value is attributed to components of goodwill, e.g. an assembled skilled workforce, in corporate transactions in the Extractive Industries. Please briefly indicate any valuation techniques used to establish the value of goodwill in such circumstances.

11.b This question is best answered by a professional accountant. “Goodwill” is an accountant term.

c) When considering the valuation of previously uneconomic reserves that can now be recovered using advanced technology, e.g. shale gas, deep water drilling, do you attribute an element of the overall value
to the intellectual property involved? If so please explain briefly the method used to estimate this.

11.c No.

**Question 12**

a) Please provide any examples of which you are aware of significant differences between the value of otherwise similar resources arising solely from different Governmental policies.

12.a One example is the limitation by Canadian authorities of the inclusion of Inferred Resources in the valuation, in spite of the fact that the extractive industries consider that resource category in business dealings.

b) Please indicate how “country risk” factors are reflected in the way in which you price or value extractive assets.

12.b This appears to be repetitive of Sections 5 and 6 above. In Section 5 a prudent appraiser might make an adjustment for Country Risk going from the unit price of Comparable Sale to the Subject Property by multiplying with a factor related to the ratios of The World Bank MIGA’s charges for risk insurance for projects in the respective countries. In Section 6 the discount rate would be adjusted up or down to reflect the country risk, for example by the US Eximbank’s surcharge for guaranteeing export loans. In any case, the appraiser would already have considered Country Risk in those sections.

Regards,

**AMERICAN INSTITUTE OF MINERALS APPRAISERS**

Fredric L. Pirkle, PhD, 2012-13 President
Certified Mineral Appraiser #2004-2