

CRITIQUE OF THREE CASE HISTORIES OF MINERAL VALUATION

Trevor R. Ellis, CPG, CMA.

I want to complement Mr. Gregg for his courage and effort in providing us with the three case histories in the last two Newsletter's to chew on. Hopefully these cases have caused all of our members to think through the details of the methodology with which they would have approached these appraisals. I found them educational and challenging. Maybe some other members will be game enough to submit more case histories for discussion.

In Mr. Gregg's Case History #1, a non-mining firm held mineral rights to "sizable reserves" of an industrial mineral in the middle of a "belt" of mines producing the mineral. The lease to a very experienced mining company had been terminated after extensive drilling. Mr. Gregg indicates that the mineral rights holder could not reasonably mine the minerals itself, nor sell the minerals in the ground for a one-time up front cash payment. The remaining viable alternative was to lease the mineral rights to a mining company for an annual production royalty.

Mr. Gregg's valuation was based on determination of the present value of the resultant, hypothetical, production royalty stream. My impression is that Mr. Gregg's methodology will have substantially overstated the value of the mineral rights.

In valuing undeveloped resources and reserves, all minerals appraisers are skating on thin ice. My opinion is that valuing an operating mine is an easier and safer task, since it generates a proven cash flow stream to discount to a present value. For undeveloped mineral deposits, it is often the case that we should be grateful if we can at best place the value within the correct order of magnitude. The essential problems with using the NPV method for valuing undeveloped mineral deposits not attached to an existing mine, can be stated as:

1. What is the probability that the deposit will ever be mined? -- generally low.
2. If it may be mined, how far in the future is that likely to occur? -- probably at least a decade or two, and maybe much more.
3. What will be the scale of cash flow streams if the deposit is mined?

With these great uncertainties, the vast majority of undeveloped mineral deposits have values an order of magnitude or more lower than the mineral rights holders think they should have. If the property is not already in production, one must first ask why it is not.

Although not precisely stated by Mr. Gregg, my impression from the description of his methodology is that he has assumed that the reserve will be immediately leased to one of the companies mining the mineral in the mineral belt, followed immediately by pre-production permitting and development, with production beginning four years later. For that schedule to happen, there would have to be a severe shortage of production of that mineral commodity, and the mineral deposit would have to be an exceptionally good deposit in both location and geology.

The unusual gold market of the past 15 or 20 years distorted some of our perceptions of reality in this regard for the mining industry.

A very important question is, why was the lease terminated with the "very experienced mining company which drilled several hundred holes?" Did it drop the lease, or did the mineral rights owner force termination? This would immediately throw some light on whether the geology is really so good, and the market for the mineral so good, that a company should immediately begin development of a mine. If the property is highly desirable, why is that mining company not fighting to retain the lease, either by legal means or by cash offers?

I gained the impression that other mining companies aren't beating down the doors to obtain this property. Mr. Gregg says that it would not be possible to receive a one-time up front cash payment for the mineral rights. This suggests that any company leasing the mineral rights would be considering mining the property later rather than sooner. If one of the companies that is already mining on that mineral belt were to lease the deposit, it would likely tack this reserve onto the end of its existing, long range mining plan, unless the deposit is truly exceptional. To get a better feel for when this reserve might be mined, one needs to compare this reserve to competing reserves, with a somewhat skeptical eye.

Therefore, in using the NPV valuation method, I suggest that Mr. Gregg should have considered delaying his cash flow stream until such time that competing reserves of similar or better quality owned or readily accessible to the neighboring mining companies would be nearing depletion. He should then have multiplied the NPV by a fair estimate of the probability that the reserve will ever be mined. This may have resulted in an order of magnitude lower value for the deposit than what he estimated.

It would be desirable to have some even poorly comparable sales of other deposits to use in developing a floor and a cap to the value of this deposit. However, we all know that even poorly comparable sales are scarce, and generally expensive and time-consuming to obtain. In this case, Mr. Gregg has put some effort into obtaining comparables, but without much success. Possibly one of the poorly comparable sales could have formed a basis from which to estimate a cap on the value of this deposit. Some guidelines or "Rules of Thumb" derived from surveying those responsible for reserve acquisition within that minerals industry sector could be used to develop a box around the value. I would like hear how other AIMA members obtain comparables in similar situations, particularly when the research budget available is very modest, as is typical for appraisal of undeveloped deposits.

In Mr. Gregg's Case History #2, an industrial mineral producer's operation was appraised by developing two appraisals. One appraisal was developed for the minerals, and a second for the property, plant and equipment. I contend that a salvage value for the property, plant and equipment, less reclamation cost, would be useful for placing a floor on the value of the operation, but for little else (i.e., for discussion of highest and best use). The value of the operation is almost exclusively derived from what a buyer is willing to pay for the stream of cash

flows generated by the on-going operation. This is the NPV which Mr. Gregg worked on calculating for the Case.

For Case History #3, my concerns are similar to those which I expressed for Case History #1. What is the probability that these "reserves" will ever be developed, and if so, how far from now will it be? I suggest that a survey of competing reserves and resources should have been conducted to see where this property falls in comparison of quality of location and geology. Economics dictates that the best properties will generally be mined first.

Derivation of an appropriate discount rate is a contentious issue, as could be seen from my review article, *Valuation Methodologies for Mines and Mineral Tenements*, in the December 1995 issue of the Newsletter. However, I must disagree with the use of a Weighted Average Cost of Capital (WACC), as used by Mr. Gregg for his discount rate in Cases #1 and #2. The hurdle rate of return required by the minerals industry for investments is primarily determined by the rates of return which could be derived from alternative investment opportunities within that industry. The risk adjusted discount rate used by Mr. Gregg in his Case #3 will be closer to the mark. However, I prefer to obtain my discount rates from the minerals industry literature and from surveying people in planning or investment decision-making positions in the industry. One source I like is the Arizona Department of Revenue's *Appraisal Manual for Centrally Valued Natural Resource Properties*. This manual, published annually, contains exhaustive research of minerals industry discount rates. It can be obtained by phoning (602) 542-3529.

Thanks again to Mr. Gregg for providing us with these case histories for discussion. Maybe we can stimulate a critique of our critiques.