

RECLAMATION 'BONDING': BANKER'S DELIGHT

D.M. Galbraith, P.Eng., MPA

1565 Brodick Crescent
Victoria, B.C. V8N 1N3

ABSTRACT

The total cost of completing outstanding mine reclamation in British Columbia exceeds the amount held by government in the form of security deposits by over two hundred million dollars. This is not satisfactory to a policy that requires full coverage of liability, or one that argues for liability to be based on management of risk, not liability. Complicating this issue is the fact that it costs government more to do reclamation work than it does a mining company, which in turn complicates reaching agreement on the amount of the security deposit.

If the responsibility for completing reclamation left in default can be shifted from government to mining companies, two objectives would be accomplished: agreement will be more easily achieved on the required amount for the security deposit ; and roles of both parties can be more effectively carried out.

Two things are necessary to achieve this: companies would have to develop agreements that would assure completion of reclamation programs in the event of default; and government and industry would have to establish an agency to play the role that bonding and insurance companies traditionally do in managing risk.

THE PROBLEM

The total of security deposits held for mine reclamation purposes has increased steadily over the years, from a zero start in 1969 when mine reclamation legislation was first passed. According to the report, *"Mine Reclamation Security Policies"*, by the Reclamation Security Task Force Committee of the B.C. Advisory Council on Mining, liability for outstanding mine reclamation in B.C., in 1996 totaled \$370,000,000, with \$206,000,000 of this being noted as 'unfunded'. This does not satisfy a policy that

requires liability for reclamation to be assumed by mining companies, or the industry view that bonding should be based on risk, not liability.

The relationship between risk and liability may be expressed as:

Risk	=	Probability of default	X	Liability
\$		by mining company on reclamation program		cost of outstanding reclamation

It is emphasized that the cost referred to in this discussion refers only to that which is required to complete the approved reclamation program.

High Cost Government Work

A complicating factor here is that government encounters higher costs in reclaiming a site than does a mining company. So we are talking about two costs, not one. The reason for this is that government is trying to do something for which it is ill prepared: deliver a field project, on an emergency basis, in unique circumstances. For example, equipment rented by government must be in accordance with rates negotiated with the B.C. Construction Association (Blue Book), and these are naturally higher than those experienced by mines, which are in an ownership position. Other aspects of cost in which government holds fewer resources and encounters greater limitations are: people (knowledge of the mine, mining and production reclamation); equipment and servicing; infrastructure; and direct and efficient backup decision making and administrative systems. The cost differential that results bedevils the process of trying to reach agreement on the required size of the reclamation security deposit.

Two suggestions have been made for bringing the sides closer together: the use of 'softer' forms of securities; and acceptance of 'company cost' when dealing with 'multi mine' companies. The former would probably be welcomed by industry, but presumably only up to the limit of their cost, while the latter appears to penalize the good performing but single operations. Neither address the root problem of resources and limitations.

In summary then, the only joy that is generated by the system that has been in place since 1969 appears to fall to the financial institutions that hold the security deposits.

Bonding and Insurance

Is it possible to overcome the two-cost challenge through some form of bonding or insurance - to be arranged by the companies themselves? If so, would this also bring the benefit of having coverage based on risk, not liability?

To a non expert view, bonding would seem to be a reasonable approach. Three-quarters of the cost of mine reclamation may be spent on contouring and site preparation, which is not unlike the earthworks of civil engineering projects. And here contractors are routinely required to furnish performance (surety) bonds. Should default occur, these provide the funds required for completion of works. The bonding agency arranges for this, then sues to recover losses.

Bonding companies seem not to be drawn towards mining. Reasons include: duration of required coverage (a couple of years for civil or structural projects vs. a couple of decades for mining, during which both liability and the mine's financial condition will vary); lack of contractors to carry out unfinished works; and absence of a contingency plan that would describe - at every step of the project - how outstanding work would be reclaimed in event of premature closure.

Then what of insurance? We have all read of the wide range of adventures that have been insured by Lloyds of London, and the longer life expectancy of a mine would seem to provide an unusual opportunity for collection of premiums. Unfortunately, loss must be demonstrated before an insurance policy can be cashed in, and it is hard to imagine how this could be done in the case of mine reclamation.

So British Columbia appears destined to continue to pay the price of full liability coverage on every mine, at government cost, if we are to comply with present policy. The resultant total amount of money thus tied up is enough to bring a major mine on stream, or do a very large amount of reclamation. It is certainly enough to justify trying to create a better system.

REMOVING HIGH COST GOVERNMENT WORK FROM THE EQUATION

Rethinking the 'bonding' challenge might begin by trying to remove high cost government work from the liability equation. To do this would require that a party other than government assume responsibility for completing reclamation left in default. And what entity would have the most appropriate resources for this purpose? Why, another mine, of course.

Should this idea be rejected out of hand because of the competitive nature of the industry? Before doing so, it is worth considering that cooperation does exist between companies and government on many issues. This symposium is one example. Mine safety competitions are another. Federal taxing policy is a third. Not surprisingly the principle that seems to rule is that of common interest. Does this element exist with respect to the problem of reclamation left in default? Certainly it does when the issue is one of public image. But what about the harder issue of cost?

To better appreciate this we could consider a hypothetical situation involving two adjacent mines: an average British Columbia mine (ABC Mine); and the mine nearest to our ABC Mine (MNO Mine).

To maintain simplicity let's assume that neither mine will incur reclamation expenses following closure, and that the cost to government for doing work is twice that of the company's. Table 1 summarizes values involved. Gross liability to government is \$12 million, \$9 million net of the security deposits.

MINE	COST OF WORK DONE BY SELF (A)	SECURITY DEPOSIT (B)	LIABILITY BASED ON CO. COST (C)	COST OF WORK TO GOV'T (D)	LIABILITY TO GOV'T IF DONE BY GOV'T (E)
ABC	2	1	1	4	3
MNO	4	2	2	8	6
Total			3		9

Table 1: Liability resulting from 'two cost' condition

What would happen in this situation if ABC and MNO concluded an agreement to complete each other's reclamation work in the event of default?

Firstly, an increase in cost will occur where one mine has to work on another's property. For illustrative purposes let's assume this to be 40%. The new liability situation becomes as shown in Table 2, with government's liability being decreased from \$9 million to \$0. For the moment, let's ignore the case of both mines going into default at the same time.

MINE	COST OF WORK DONE BY SELF (A)	SEC'TY DEPOSIT (B)	COST OF OTHER DEFAULT (140% of other cost) (C)	OTHER SEC'TY DEPOSIT (D)	TOTAL LI'BILITY ASSUMED (A+C)- (B+D)	GOV'T LI'BILITY
ABC	2	1	5.6	2	4.6	0
MNO	4	2	2.8	1	3.8	0

Table 2: Liability (millions of \$) under default agreement between two companies

Obviously this arrangement markedly increases the mines' liability. In the event of default of ABC, MNO would face a \$1.8 million liability on their behalf, in addition to their own \$2 million, for a total of \$3.8 million. This assumes that government releases the reclamation bond to help finance default work. If the situation were reversed the liability to ABC would be even larger - \$3.6 million, plus their own \$1 million for a total of \$4.6 million. Not a good deal for either mine, especially considering the possibility that government - now released from all obligations - might suddenly become aggressive about declaring a reclamation program to be in default.

On the other hand, by eliminating high cost government work from the equation, a \$2.4 million increase in company liability has resulted in a \$9 million reduction in government liability.

Acknowledging Government Benefit

Would government wish to demonstrate appreciation for this, and also allay company fears of what it might do in its newfound freedom from liability by reassuming some share of liability? To see where this suggestion leads, lets assume this share is 50%. The new situation would be as in Table 3.

MINE	LIABILITY ASSUMED IF PARTNER DEFAULTS	LIABILITY IF GOV'T ASSUMES 50%	GOV'T LIABILITY
ABC	4.6	2.3	2.3
MNO	3.8	1.9	1.9
Total		4.2	4.2

Table 3: Liability (millions of \$) if government assumes 50% of liability

ABC's liability would become one half of \$4.6 million, or \$2.3 million. Although this is more than its original view of its own liability for its own property, it is less than government's view - which it must of course take into consideration. MNO's liability would become \$1.9 million, less than either government's or its own estimated cost.

So the bigger mine is happy, the smaller mine is not, and government is still ahead of where it originally stood, carrying \$4.2 million liability, as opposed to \$9 million. Could a fairer distribution be effected if risk were involved, as opposed to liability?

The Risk Situation

To evaluate risk requires that probability of default be determined. A quick look at the record since reclamation legislation was introduced in 1969 shows that although a couple of scares have occurred, default has not occurred at a major mine. As an aside, possibly it is this record that has pushed the problem of government cost vs. company cost into the background.

Regardless, lets assume that an examination of the factors that determine field and financial performance result in the assigning of a probability of default of 6% to ABC, and 3% to MNO. The risk that each poses to their partner in the agreement is given in Table 4.

MINE	50% OF COST OF COMPLETING PARTNER'S WORK	PROBABILITY OF PARTNER'S DEFAULT	RISK POSED
ABC	2.3	3%	0.069
MNO	1.9	6%	0.114

Table 4: Risks (millions of \$) if government assumes 50% of liability

The companys' positions in risk (Table 4), turn out to be the reverse of what they are in liability (Table 3), with ABC being in the better position. And an added opportunity is presented for reaching agreement.

With respect to government, the worst possible situation would occur if both mines went into default at the same time, and government was required to complete all outstanding reclamation. In this case although the liability to government would return to the original \$9 million, the probability that joint default would occur would be much smaller, say 6% of 3%. Risk would therefore be $0.0018 \times \$9$ million, or \$0.016 million - still less than either of the company's.

A ROLE FOR A NEW AGENCY?

A further question is worth considering: if neither bonding nor insurance agencies are prepared to deal with mine reclamation, could one be formed by industry and government for this purpose?

The new agency would have to assume some of the functions of both insurer and bonder in determining such things as probability of default, liability, risk and premium. Its role would of necessity be specialized within these areas.

This would allow the role of others within the total system to also become more specialized and efficient. Company staff would estimate costs, perform reclamation work, and make the deals necessary to reach agreement. Government staff would review, inspect and approve. In short, available resources would be mobilized and applied most effectively.

With respect to startup cost, this would seem to be affordable for a liability system that presently has more than \$200 million directed into security deposits - even if many tens of millions of dollars must be held in contingency to provide coverage for default.

The new agency would no doubt, pioneer new and better methods to determine, track and predict cost, probability of default, risk and premium. It would also, no doubt, find ways to transfer this technology to the rest of the system.

It sounds complex, and it is. However the present simple system is a very costly one to all who must work with it. Its disadvantages might be better appreciated if we think of the same rules being applied to other areas of our lives. For example, few could afford to maintain the full liability that would be required to drive on a public highway. And if we were to be charged with an offence, fewer still could afford the bail that would spring us from jail while we awaited trial. A good deal of life as we know it would grind to a halt.

Lack of precedence should not hold us back from attempting something that would benefit both government and industry. This should be especially true in this province, the one that has solved so many of the other problems that affect mine reclamation.