SECTION B.18

SOCIALIZATION OF RISK AND THE PERFORMANCE RECORD OF THE MINING INDUSTRY

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Assessment and Management of the Risks Associated with Metal Leaching and Acid Rock Drainage at Minesites

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Socialization of Risk and the Performance Record of the Mining Industry

or,

Why I Don't Like Surprises Anymore

I would like to clarify my place in this conference and what I represent. Like any structure, the public is a diverse and broad spectrum of complicated relationships. In fact many times the public owns mining companies. The public elects government representatives that in turn institute policy. The public remains a continuously evolving construct of expectations and standards.

Decisions by the public as a whole have far-reaching impacts on one another as individuals. We can only continue to work towards balance and rational approaches to our challenges.

I am an environmental activist who deals very nearly every day with mining issues from exploration to post-closure. I also work as a technical reviewer for Environmental Non-Government Organizations and as an environmental advisor to First Nations.

My values and my priorities have always been reflected in my work. I am not your average member of the public because I know too much. But since life is a collection of similarities rather than simple repetitions, I may be an example of the general condition.

With my partner, I have been a landowner in the Buck Creek valley for over twenty-six years. My life, my place in my community, have been changed forever as a result of one mine company's decisions. My vulnerability to any corporate calculations regarding risk is shared with my neighbors. We are members of the public.

This condition jeopardy has not been a benign experience cushioned by any assurance of safety or protection. So, in that sense, I am certainly a member of the public. My place in the world is at risk every day. The words "modes of failure" and "consequences of malfunction" are not philosophy; they reflect real life, my life.

My home is the first downstream(occupied) residence on the Buck Creek watershed below Equity Silver Mine. I hope that you all understand what that means because I do not have time to elaborate. So while we may speak here today of theoretical models or the empirical weight of evidence for identifying risk factors, everyone should realize that there are real consequences, real impacts resulting from the risk-taking habits of industry. More often than not the public are the ones who experience them, either as a society-shared cost of environmental damage and remediation, or as individuals. The industry tendency has been to privatize the profits and socialize the consequences or loss.

I will say that again. Through the optimistic presumption of their own good fortune, the mining industry has taken risks. The natural order has been and in some cases continues to be that they account the profits and benefits to themselves and confer the losses to the rest of us.

I have worked on my Equity Mine problem since November 18, 1981, and I will never be done...Not if I live to be 150 years old. I have considered the mining industry to be a dangerous and reckless neighbor. While I am now willing to work towards solutions to our mutual concerns to try working for prevention of a continued endorsement of the "old" risk-taking model, my experience in my work still indicates that industry views risk differently than I.

Since the last time I spoke in this forum, the Equity Mine site has exceeded the predictive model upon which our post-closure annual budgets are based two years in a row. In fact, the Security Bond triggers were both exceeded, as acidity load and lime consumption, and the Security Agreement was revised. Placer Dome has twice increased the amount of post-closure security, which now stands at $25million(Canadian).

There were no press releases, as there had been in 1996 when the company negotiated a refund on the evidence that the dry-cover on the waste rock dump(s) was so effective. So most of the public has not received any balance of information regarding the Equity situation, and neither have the politicians.

The company has also spent in excess of $400,000.00 upgrading the collection system; I thank them. This money came directly from Placer Dome; another pocket of the Reclamation Bond, but those additional costs are not now accounted for in our Security annual budgets in those amounts. The public has no information regarding these upgrades or why they were needed, except for the information-sharing efforts of the environmental community here in BC.

Now the risk posed by the Equity Silver Mine waste deposition strategy and mine plan sits at the top of the Buck Creek-Bulkley drainage divide. Designing, managing and maintaining collection, treatment, sludge disposal, effluent discharge works does not remove that risk. With this management model, only sulphide depletion reduces risk.

Post-closure contingencies have reduced impacts and adverse effects to the receiving watersheds but all of the risk in the form of 80million tonnes of PAG waste rock and 40 million tonnes of PAG tailings that has been built against our safety remains on site. That risk will be there for a very long time.

While we have begun to see some degree of regularity and pattern, the site continues to exhibit discontinuities, possibly because we have not yet reached final hydrologic balance. Climate influences are also irregular, not showing an absence of return pattern,but a continuing variation that no predictive model can approach. After eighteen years of operation and decommissioning there continues to be a range of uncertain quantification, affects assessment and cost.

Risk assessment and risk-taking should be a choice, an active decision that has measured and weighted the balance of consequences and outcomes. Until just a few years ago, the public continued to be a passive and uninformed silent partner within all major risk calculations. Times have changed. The environmental community has played a very large role in bringing these issues to the front of public dialogue but we still have a long way to go.

There is a presumption that no one, no company, takes a risk in the expectation that it (and they) will fail. However, if the consequences of failure are not paid by the risk-taker, but by the surrounding watershed or the surrounding society, the reckless act could continue to be the preferred option. This is especially true if long term planning and management strategies cost money and short term cost-cutting that increases risk that will be accounted to "other" budgets.

Risk assessment and the demands of risk management revolve around the potential of future outcomes. That notion defines a circle of values, each an expression of the preferences of the risk-taker. So while predictive methods may seem to be merely mathematical or empirically based on known relationships and probable future trends, the process has always been founded upon the values, preferences and vision of the practitioners. As I have said to you before, the inquiry is framed and driven by the inquirers.

Here in British Columbia, over the last decade in particular, we have all been involved in several layers of risk assessment and risk management strategies designed to direct resource development activities towards a more rational approach to risk.

The primary strategic tool has been land use planning, the Land and Resource Management Planning program that legally declares Protected Areas where no mineral exploration or mine development is allowed. The premise and rationale for Protected Areas remains the knowledge and value system that endorses pristine natural landscapes over any risks associated with development, timber or mining, including roads.

There are also various categories of landbase designation that guide activities to avoid or to minimize adverse impacts. This is risk assessment in the broadest of context. In spite of the fact that the mineral industry retains rights of access to all of the landbase outside of Protected Areas, mining industry spokespersons have been publicly attacking the LRMP's as a "waste of time" and are currently demanding a moratorium.

The 1998 BC Mineral Exploration Code, the MX Code, is another strategic tool that has been intended to enable mineral exploration certainty and access while at the same time managing risk of impacts to a wide variety of alternate resource values and attributes.

The MX Code recognizes the need for risk management, including seasonal restriction options, but also implies that all risks can be controlled...That perceived impacts, page 45, are the only consequences of exploration. At this time the majority of the BC mining industry endorses the MX Code.

The BC ARD/ML Guidelines are another very specific tool designed to assist companies, their consultant corps and reviewers of mine development proposals.

While allowing for innovation, the BC ARD Guidelines as a requirement, is given substance and validation through the legislation, management principles and delivery of the BC Environmental Assessment Act. Through this process, the EAO, Environmental Assessment Office, the Ministries of Mines and of Environment, Federal reviewers, First Nations and other public stakeholders including local governments and ENGO's regularly endorse the details and principles and methods recommended in the BC ARD document. This is a regular routine and this framework has helped us focus on key issues and primary lines of inquiry.

The BC EAA has provided an increased level of risk assessment and opportunities for multi-stakeholder/inter-agency participation and consultation that has not been available in past processes.

I have personally participated in eight BC EAA processes since 1995. There have been continuous improvements and refinements to the technical work of the participants and for the delivery of the intent of the Act, except where political interference has ruled.

Unfortunately, it has sometimes become a very long journey from the assessment and approval of a conceptual mine plan to the practical application of mine development recommendations ending in the as-built reality of mine site components. Many principles and ideas have become lost along the way. There are no provisions in the current work plan of the EAO for post-Certificate compliance; these issues devolve into the compartmentalization of the permitting agencies.

The last category of risk assessment tools I want to bring to your attention are the BC Ministry of Energy Mines' Reclamation and Security provisions within the Mines Act and the policies which support them. These financial considerations have become the fulcrum which balances, to some extent, our need for recognition of environmental values with industry's need for a minimal expense when guaranteeing liability. Money has been the measure and the catalyst of risk assessment through the security policies and practices of the Reclamation Branch. When reduction of liability means increased environmental protection, we can at last share common goals. This is no small accomplishment.

All of these made-in-BC approaches to risk identification, assessment and management have been a response to our shared interests in reducing adverse impacts as a result of industrial activities. They are also living documents, for the most part, to be amended and refined over time and experience.

While I am interested in known rather than unknown , measureable rather than theorized conditions and inventories, I am also aware that historic and current achievements in mathematics may not represent how natural systems work. While effects continue to be proportional to causes and moderate influences within systems occur more often than extreme events, in ARD prediction it is the extremes that can carry waste deposition structures into active acid generation. Even at low percentages of the normal distribution, ARD risk requires conservative management techniques.

Further, predictive modeling as a study of probability is an essential tool for forecasting outcomes but models must never be relied upon in the absence of a full range of assessment procedures and common sense. We cannot continue to look at problems in pieces rather than in the aggregate.

The whole continues to be a product of interaction, of covariances, within and between its parts. The discipline of ARD assessment includes overlaps of climate, geotechnical security, geochemical inventory, waste management strategies and mine plan schedule. As we frame lines of inquiry for each site specific proposal, mine plan amendment or mine closure scenario we must remain aware of the continuous function of interrelatedness; this principle must not be overlooked or compartmentalized into a meaningless series of answers that have no substance.

The risks to which we are asked to respond are more complex, not because the world has grown more subtle but because we can now account for more of the details. We need to understand risk according to our values, to measure it where possible, to weigh its consequences and to recognize that complexity will create the need to also manage the unknown aspects, the uncertainties.

I like planning. Living in the north of BC, being in the bush, I live my life as a series of risk assessments. In fact, we all do. How cold is it? Heavy coat and snow boots? Did I plug in the block-heater? Did we cut enough wood for the winter?

While I would not want inflexible plans to override the acquisition of new, more detailed or verifiable information, I see no point in assessing a mine plan that will never be implemented.

I also have a problem with many current mine operations that are beginning to look like extended field trials, amendment after amendment, many revisions driven not by more refined information but by cost or cost-saving.

Plans are articulated because we need to evaluate them and to consider the best options that will minimize the risks that they pose, both to the proponent and to the public. When any level of uncertainty has arisen in the recent past, instead of requiring more detailed or broader comprehensive data and baseline inventory work, some reviewers have simply opted for relying upon contingency planning. There has been far too much focus and trust placed on the building of contingencies into mine plans...And far too little energy or expense expended within the process of designing functional, long term strategies.

Adaptive management principles should remain subordinate to detailed planning or we have all missed the point of assessment. At a mine site which contains the potential for metals' leaching or Acid Rock Drainage, the initial stages of mine planning, waste handling and production schedule are critical. If opportunities are missed (or discounted because of cost) at these primary design stages, the layout of the mine and the sequence of waste deposition cannot be retrieved.

There is no redemption, no escape route, from the errors of omission or design failures when ARD waste, surface exposure or construction components create long term hazard and actively metals contaminant loadings to systems. There is only Collect and Treat, forever.

Reality-based mine plans and strategies must become a shared goal of each level of evaluation, assessment and approval. What good is accomplished by reviewing a mine development proposal that is substantially revised one day, or one year, after BC EAA Certification?

What good is accomplished by drafting a Sediment Control Plan six months after mine construction has begun?

What good is accomplished by describing construction criteria for impoundment tills, planning a dam design and then not following the plan or meeting the criterion required for the construction?

How is risk reduced when a company, after accepting an ARD-PAG construction criteria during both the BC EAA and the BC agency permitting process, then proceeds to construct roads, plant yard fills and dams using Potentially Acid Generating waste rock?

The tension between short term financial considerations and long term planning will only be resolved through government intervention that

reflects public values. That intervention and regulatory structure must be informed by the diligent imposition of technical, science-based information sharing. Somewhere between economic feasibility and environmental protection lies the continued well-being of the province of British Columbia and its people. As long as risk is shared by all of us, we have a responsibility to participate in all assessments of hazard and require accountability from the mining industry. My feeling is that we are just beginning that work.

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