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Safety First - What it means for Tailings Dam Safety

Fundao dam failure, Brazil, November 5, 2015

SAFETY FIRST

Safety First — It sounds like a well worn slogan, but what does it have to do with the environmental impacts of mining? It's a long story, but an important one.

It begins with the failure of three large tailings dam failures – Mount Polley, British Columbia (2014), Fundao, Brazil (2016), and Brumadinho, Brazil (2019). The impacts of these tailings dam failures were hundreds of deaths, and over a billion dollars (yes, billion with a "B") of damages assessed. These accidents, and their repercussions, finally prompted action to reduce tailings dam failures from the United Nations Environmental Programme, the mining industry, and large pension funds who are investing in the mining industry.

In 2019, the United Nations Environmental Programme (UNEP) partnered with the Principles for Responsible Investment (PRI), an investor group, and the International Council on Mining & Metals (ICMM), the international organization representing the largest mining companies in the world, ti convene a seven person independent expert panel to write the Global Industry Standard on Tailings Management.

The first draft was relatively strong. However, when the final Standard was released on August 5, 2020, it was significantly weakened. Two of the seven members of the expert panel, Dr. Andrew Hopkins and Dr. Deanna Kemp, wrote a book (Credibility Crisis – Brumadinho and the Politics of Mining Industry Reform, Wolters Kluwer, 2021) that is highly critical of the Global Tailings Standard that they helped to write, and of the process by which it was developed. Dr. Kemp is a sociologist and Director of the Centre for Social Responsibility in Mining at the University of Queensland. Dr. Hopkins is Emeritus Professor of Sociology at Australian National University, and is a specialist in industrial safety.

NGOs, communities, and labor were not included in the drafting of these recommendations, but did have limited representation on an advisory committee (one advocacy organization, no technical representation). It was through this advisory committee representative that NGOs learned that some important progressive changes in the draft would not be included in the final document. It is believed this was a result of the mining industry, supported by its technical experts, demanding that UNEP and PRI, who did not have technical support, make these changes.

When the NGO-Communities-Labor coalition learned of these significant changes to the draft document, it decided to develop the Safety First document. Safety First: Guidelines for Responsible Mine Tailings Management is a compilation of recommen-

dations on basic approaches to tailings dam safety that these groups believe are necessary to achieve meaningful reform of tailings dam management practices.

The primary issues the NGO-Communities-Labor coalition have with the Global Tailings Standard is that it essentially continues with business-as-usual for the mining industry. Business-as-usual means that safety, while an important consideration in the design, construction, operation, and closure of tailings impoundments, is at best on a co-equal level with other considerations – environmental, social, and most importantly economic. The primary thrust of Safety First is just that. Safety must be made the primary, but not the only, consideration in the design, construction, operation, and closure of tailings impoundments. If safety is placed on equal footing with other considerations, economics will dominate the decision making process. That is business-as-usual.

Another business-as-usual approach that survives in the Global Tailings Standard is the continued emphasis on the use of professional judgement over formal guidelines. The best example is the prohibition on upstream-type dam construction. To put it succinctly, upstream-type dam construction is safe only if everything works as planned. There is very little room for error in the design, construction, operation, and closure of upstream tailings dams, which is why this type of tailings dam fails more often than centerline-type or downstream-type dam construction. Because of the inherent danger associated with upstream-type dams, several countries have banned their use. However, the mining industry wants to continue to use upstream construction because it is cheaper.

With upstream construction we see the conflict between safety and minimizing cost. The desire to save money for investors, and to give industry professionals maximum flexibility in the design of large structures is understandable, but is the risk worth the cost savings? The typical industry answer to this question is that the risk is very small, and that proper monitoring and supervision will prevent catastrophic dam failure. This outlook is still being maintained by the mining industry and its consultants despite the catastrophic dam failures noted above, where monitoring, the use of independent tailings review boards, and professional judgement failed to prevent these failures.

The consistent refrains I have heard from industry professionals over many decades are: (1) tailings dams in jurisdictions with strong regulatory presence, owned by responsible mining companies, and

Aftermath of the Fundao dam failure

supervised by responsible mining professionals, cannot fail; (2) mistakes made in dam failures were made by substandard companies and design professionals, and that these mistakes would not be made by responsible mining companies and consultants; and, (3) mining professionals understand all that is necessary to guarantee that tailings dam will not fail, despite any future natural or man-induced event. These may sound like hubris, but I have heard them all again and again.

Safety First was developed so that NGOs-Communities-Labor would be on the record with UNEP, PRI, and ICMM, the entities developing the Global Tailings Initiative, on what we thought would be important to include in the Global Tailings Initiative. Most importantly, that the Global Tailings Initiative should explicitly say that safety is the primary consideration.

A subsequent development to the Global Tailings Initiative was the organization of an international body to implement the Initiative. There is no enforcement authority for the Global Tailings Initiative, since there is no international body with the authority to require compliance. This international body formed to implement the Initiative, called the Global Tailings Management Institute (GTMI), is being organized by UNEP and PRI. ICMM decided not to be a partner in the organization of the GTMI, possibly because there will be significant and ongoing financial support needed for the GTMI.

The Global Tailings Management Institute would best serve tailings management safety if it had a strong board populated by those most impacted by tailings dam accidents – local communities and mine labor. Parties impacted by the financial effects of

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tailings dam accidents – mining companies, investors, insurers, and NGOs – might logically be included, but the risk assumed by these entities is monetary, while the communities and mine labor have the lives of their constituents at risk, in addition to their livelihoods. This significant difference in risk should be acknowledged in organizing the governance of the GTMI, but that may not happen. The initial governance proposal for the GTMI is corporate-oriented. That is, the board proposal included seats for academics, engineering consultancies, and bankers. These should be advisors to the governing board, not voting members of the board. A corporate board is inward looking, with the aim of protecting the organization. The GTMI governing board needs to outward looking, attempting to protect everyone potentially impacted by a tailings dam failure. In addition, following corporate policy, the board would be self-selecting. At a minimum, each board "sector" should be able to select its own board representative. A self-selecting board guarantees the board will operate in the best interest of the board, not necessarily in the best interest of tailings dam safety.

Another important aspect of Safety First to recognize is that it is a set of guiding principles, not a management template. The developers of Safety First recognize they are not equipped to fully develop tailings management guidelines, but they are capable of identifying significant flaws in the existing tailings management structure, and of making recommendations that reflect the need to protect those who must work and live with the threats of tailings dam failures. Safety First puts the interests of saving lives and livelihoods over economic interests. Economic considerations are important, but they drive the decision making process under business-as-usual circumstances. Under the final version of the Global Tailings Initiative economic interests still dominate the decision making process.

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Changes at CSP2

Dave Chambers is the Executive Director of CSP2

Dr. Kendra Zamzow, a geochemist who has been working at CSP2 for 14 years, left CSP2 to work with Chickaloon Native Village. Kendra lives in Chickaloon, Alaska, and has taken a position that will allow her to do actual fieldwork on water quality, and other issues.

In all of our years at CSP2 working on mining issues, we were able to actually do field work on one project, the Pebble Mine. Carol Ann Woody and Sarah O'Neal were able to conduct salmon surveys on the Pebble minesite, and were able to prove the small streams on the mine were prolific salmon producers. This after the Pebble Partnership claimed there were no fish on the minesite.

Kendra and I were able to sample Pebble drillsites for water quality and sediment, and these samples led to the publication of several reports that document the oxidation of drill cuttings disposed on the surface. This is, to my knowledge, the only example that is documented in the scientific literature. One of the reasons I wanted to do this work was to authenticate an example of the threat this drilling waste poses, after being told for many years by regulators that disposal of sulfide-containing drill cuttings on the surface was not a problem, because no one had documented it. For some reason, and some people, logic only counts if it has been documented.

One of my greatest disappointments in working on mining issues for many years is that we could not have done more fieldwork in documenting impacts, or in detailing the presence of environmental resources that could be impacted. Fieldwork is expensive and time consuming, and in today's world only government agencies, researchers, and companies have the resources to pay for it. Foundations that support environmental work generally avoid funding research projects, because of the cost, and because of the risk of not getting the desired outcome. With science you can only make claims based on what you find.

Kendra provided a scientifically rational analysis of many mining related issues in Alaska and worldwide in her tenure at CSP2. Her contributions were appreciated, and will be missed.

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