A complex transition: meeting today's mining risk management challenges

WTW Mining Risk Review

May 2023

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Style

Our Review uses a mixture of American and English spelling, depending on the nationality of the author concerned. We have used capital letters to describe various classes of insurance products and markets, but otherwise we have used lower case to describe various parts of the energy industry itself.

Abbreviations

The following abbreviations are used in this Review:

BEV	Battery Electric Vehicle
BI	Business Interruption
COSO	Committee of Sponsoring Organizations
EY	Ernst & Young
ESG	Environmental Social Governance
EV	Electric Vehicle
GISTM	Global Industry Standards on Tailings Management
ICMM	International Council on Mining and Metals
ICOLD	International Commission on Large Dams
S&P	Standard & Poor's
IFRS	International Financial Reporting Standards
LHD	Load-Haul-Dump
Nat Cat	Natural Catastrophe
NGO	Non-Governmental Organisation
PHEV	Plug-in Hybrid Electric Vehicle
PD	Physical Damage
PFAS	Polyfluoroalkyl Substances
SASB	Sustainability Accounting Standards Board
TCFD	Taskforce on Climate-Related Financial Disclosures
TNFD	Taskforce on Nature-Related Financial Disclosures
TSF	Tailings Storage Facility
WEF	World Economic Forum

Berkshire Hathaway's Matthew Gooda: An exciting but challenging time for the mining industry*

Matthew Gooda (MG) is Senior Underwriter at Berkshire Hathaway Specialty Insurance (BHSI) in London and a mining industry specialist. WTW's Andrew Wheeler (AW) and Michael Buckle (MB) met him recently to discuss developments in the global mining insurance market.

AW: Matthew, may we ask you first about BHSI and your involvement in the Mining PD/BI operational space. How are you set up regionally? Where does your remit as a London underwriter begin and end

MG: BHSI started life as a North American organisation, so the team was first established in the US and subsequently Canada, Australia and the Asia Pacific region before we started writing mining risks in London. Our core mining hubs are Houston for the US, Toronto for Canada, Sydney and Perth for Australia, Singapore for the Asia region and London as the latest hub, but a rapidly growing one. We are a relatively small global team, writing mining risks within our Energy business unit, but we are a highly collaborative one. We share a lot of information, we talk about the issues that we see in both the mining and insurance industries, and we share risk engineering resources, as well as collaborating in that regard. Although we operate from hubs and have the philosophy that the local hub is typically best placed to underwrite a risk in a particular region, we want to ensure a consistent BHSI experience across those regional hubs, and most importantly, we are of course working within the same BHSI cultural backdrop. This culture is one of BHSI's defining characteristics and will strongly colour how we serve our customers and broker partners in every region.

AW: Are there any geographical no-go areas, any territories that you won't consider?

MG: We try to have an open mind about all territories, but there are some jurisdictions which can present particular challenges. Some have a legal framework which can mean that outcomes under our product in that jurisdiction can be a little less predictable, which means that neither we nor our customers can be as confident in the application of the product we are selling. When we consider territory, those jurisdictional issues are perhaps more important than any considerations around the regional mining industry itself. In general, mining is a highly professional global industry and so we try to have an open mind about any particular geography. But we need to be confident that the product will work — after all, claims are our product, and we need to be confident that it will deliver as expected in any given jurisdiction.

AW: How do you see the mining industry develop and evolve from here? Given some of the challenges that it faces, from all sorts of points of view, what's your view on the future of rare earth minerals such as lithium and cobalt, and the battery demand for them? What about the less obvious direction of travel for the industry, such as the scarcity of nickel and copper?

MG: It's an incredibly exciting time for the mining industry and everyone associated with it. First, there is the fundamental point that every value chain is dependent on the mining industry — apart from

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subsistence agriculture, there is no industry that does not depend on it or use its output in some form or other. Then the transformation of our energy structure and the transition to electrified transport are resulting in a significant degree of innovation, which in turn is resulting in a substantial increase in demand for certain minerals — the mining industry is responding to that, and as insurers for that industry we have to respond as well. However, to try to foresee where those changes will go is very difficult, and the relative success of differing technologies will have profound implications for mineral demand. To take battery metals for example: an NCA battery may be 84% nickel and 12% cobalt, whereas an NCM battery may use less than half as much nickel, but nearly three times as much cobalt. If we think about platinum group metals, the demand drives for this mineral will not only depend on the extent of any dilution in demand for auto-catalysts, but also on the extent to which green hydrogen is taken up as a technology as part of this transformation of our societies.

So the demand drives for different minerals have become very complex, but at a deep level there remains a fundamental need for the mining industry to contribute to social development, the raising of standards of living around the world and the transformation of how we live — mined products play a key role in all these areas. Certainly the innovation and the adoption of certain technologies, along with other global economic and political events, means that the industry is seeing some volatility around the pricing of different commodities, which is one of the perennial challenges not only for the mining sector but also for underwriting the sector. If we consider the energy transformation, we have certainly seen pricing volatility for some of those minerals for which supply is less established and demand is changing rapidly, so if we think about lithium and cobalt and so on, where we have these radical changes in supply/demand balance, compared to an established regular supply of, say, iron ore to the steel industry, we have a different volatility profile.

One thing I think it is safe to say is that I do think we are likely to see a continuation of the relatively high levels of volatility for metals as industries and economies wrestle with some substantial changes, which poses some real challenges for the industry and its underwriters.

MB: Did BHSI see much impact from the onset of the Russia-Ukraine conflict on mineral price volatility?

MG: In addition to the widely reported impacts on energy commodities and markets, the nickel price was very volatile given the fact that so much nickel is produced in Russia, peaking above US$100,000 per tonne — but we've also had 13 months now where the average monthly price was in excess of US$20,000 per tonne, and in some cases even US$30,000 per ton, which is very high compared to previous market experience — in fact, it's unprecedented in the last decade. This sustained elevated price is of course more likely to be relevant to potential BI loss development than a short-term spike. Prices also materially increased for fertilisers. In day-to-day underwriting, we now see a widening range of BI estimates, as miners try to grapple with a reasonable forward-looking estimate of the price they will realise for their commodity, and what type of deduction to make for costs, with diesel and energy costs in particular having risen materially. We've compiled historic data of more than US$7 billion of losses now (not counting some larger Nat Cat events), as well as exposure data, and in that dataset BI accounts for a minority of insured values but approximately 70% of losses, so outcomes for underwriters will be leveraged by BI changes. Across our portfolio, in recent years BI sums insured have also drifted up from a little less than 20% of PD/BI total sums insured to 35% of PD/BI sums insured, so we are certainly paying close attention to the make-up of BI declarations.

AW: Some of the other challenges include the demands and strains on capital, and also the ESG-related influences on the mining industry. There are going to be some new technologies in the processing of these minerals, which might be prototypical at this stage — do you think they pose interesting questions and responses from both the advisory and underwriting communities?

MG: As well as the prototypical technologies, there are also things that we know and understand that are now happening on a much larger scale. Tailings dams are now amongst the largest dams in the world — and becoming ever larger — meaning that their engineering is having to address unprecedented stresses. Our goal is to try and understand what's currently changing as best we can. With regard to capital, one of the trends that has been playing out for some time is the need for higher volume operations to maintain viability in the face of declining grades — many mines are becoming larger and larger, which is driving a change in the exposure profile of the industry. Our goal is to serve all of the industry, from the largest multi-billion developments to the other end of the spectrum.

Ultimately, if we are absorbing the risks associated with these industry changes, we need to ensure that we understand them as much as possible so we can be a stable partner through the changes that unfold in the industry.

> **There remains a fundamental need for the mining industry to contribute to social development, the raising of standards of living around the world and the transformation of how we live.**

MB: On the issue of tailings dam coverage, how do you think the market reacting to this issue — will it pivot away from providing cover or is it seeking to provide new solutions?

MG: As I see it, the changes in response to the Latin American incidents have already taken place. The main change has been the level of information that the industry now expects to receive so it can underwrite the exposure and so it can differentiate hazard between operations.

MB: It's just that the capacity offered by the market required by our customers is nowhere near what our customers require from a Liability perspective.

MG: That's a good point. For us, the extent to which we deploy our capacity is directly driven by the extent of our confidence that we understand the risk. Where we have high quality information, that allows us to be confident that we understand the hazard — the good and the bad. It's not that we are only interested in underwriting the lowest possible hazard per se — but our level of confidence that we understand the exposure will be one of the drivers for our deployment of capital, and that goes for tailings dams as much for as any other exposure. Of course, I'm approaching this from the perspective of a Property underwriter — the extent of the potential exposure from a Liability perspective is in some ways much greater.

AW: Let's turn to BHSI's aspiration for your mining portfolio positioning — are you looking to lead most of the business that you write, and are you looking to offer a fronting global proposition in addition to your leadership capabilities?

MG: The starting point is that BHSI is only nine years old, so although Berkshire Hathaway Inc. itself is very well established, our company is a relatively young one, and indeed the establishment of the mining team in London is even younger. I joined in February 2020 — the fact that we are now underwriting mining from London as well as the other hubs is part of the growth of the BHSI business. The organisation has set itself a very lofty goal, to try to be the finest Property & Casualty insurer in the world. That is quite an aspiration, and immediately raises the question of: the finest for whom?

Our intention is to be viewed that way by our customer base, as well as meeting the challenges of being a long term, successful, profitable participant in an incredibly difficult industry. The goal for us as a mining team is to try to be the finest mining team — as assessed by our customers, as we build up relationships across the years that may include the settlement of large losses, but also by our ability to survive in the long term, in an underwriting sector that will inevitably present us with some volatility.

So the challenge for us is ensuring that we underwrite and set up our business in such a fashion that we provide stability through the challenges that a low frequency/high severity expected loss profile will deliver. Our biggest aspiration is to be a successful partner to our customers and to have them appreciate our support, not only during the good times but also if they are presented with the challenges of a very large loss. We're striving to underwrite our portfolio in a manner that will ensure that we don't find ourselves having to rethink or make fundamental changes because we have had to learn something from an event that we didn't expect to happen. That's what we want to avoid — we see that building a deep understanding of what we are doing as essential to underwriting with stability and predictability, whatever the industry throws at us.

MB: That's important for our customers to know and understand. With reference to the high severity losses, we have had volatility in 2022, including two major losses — has that undermined the portfolio's profitability for 2022?

MG: Recent events have certainly been a reminder of industry loss potential, but from my perspective, I don't believe we really saw anything in 2022 that was outside the normal loss expectancy for this industry — if we consider maximum probable loss exposures or maximum foreseeable loss exposures, the full range of events in 2022 were in each case a pale shadow of the full loss potential. The events we observed in 2022 haven't affected our strategy or our underwriting model, nor has it affected the way in which we deploy our capital. We are always looking to learn and develop a full understanding of the hazards that we are underwriting; the more we do that, the less the danger of becoming a reactive insurer. Instead, our goal is to be a stable and supportive partner.

AW: Some of the natural catastrophes that we have seen in 2022, when taken together with a better understanding of the implications of climate change, may not have directly affected the loss picture for mining operational risks but have affected the general Property and Reinsurance markets. Do you see that overspilling into your sector?

MG: My comments were rather more directed towards the non-catastrophe area of our portfolio. From a Nat Cat perspective, BHSI does not have a diminished appetite for PD/BI business in general as a consequence of recent major Nat Cat losses. These events clearly change the profitability of the insurance and reinsurance market and can drive a pricing reaction. It always surprises me at an industry level how close the industry operates to a 100% Combined Ratio, given that it really needs to be putting money aside for rainy days.

AW: Is this a good differentiator for BHSI in that you are there as a long-term provider of capital, whereas other market players may be a little more opportunistic?

MG: It's an interesting one, because one of the challenges of this industry is ensuring that you don't become a short-term participant because you fundamentally under-price risk — unfortunately, we do find ourselves competing with other insurers who I sometimes think are doing just that. There are plenty of examples of insurers who are competitive in the short term but that have not proved themselves to be stable long-term partners because they have mispriced hazard, and that is a trap we are trying not to fall into.

AW: Turning now to the risk engineering side of the business, do you think that with the aspirations and goals that you have, and the growth that you may or may not achieve, that the risk engineering element of your work can be sustained?

MG: At the moment, in the mining space we are not providing a risk engineering service as a lead insurer — we're not providing an engineering service to customers and for use by the wider insurance market. However, we are an insurer that is using our in-house risk engineering resources to better inform our own decision making and our understanding of the risks that we are writing. Shortly after I joined, we hired a risk control engineer who is focused entirely on the mining sector –we have two mining underwriters and one engineer in London, although globally we have a wider pool of engineers that have a deep experience of this sector, which is very helpful to us from an underwriting perspective. The importance of those resources to us can't be over-stated, as well as the external reports, not only from the likes of WTW but also the likes of Hawcroft, IMIU and GRC — the quality of those risk engineering reports is highly important in terms of the decisions we have to make, the confidence that we feel able to build in understanding the hazard and the writing of the business in a meaningful way.

MB: Do you see any technical advances that are assisting your underwriting process, for example satellite imagery that allows you to see mines from space?

MG: Satellite imagery has now been around for a long time, so the ability to look at a location on Google Earth and track the way it's changed across time is fantastic,

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it's technology that would not have been available to an underwriter 25 years ago. The use of drones to inspect dams and other infrastructure provides us with another great source of imagery; more importantly, it provides the mining industry with ways of monitoring items such as stockpiles, waste rock dumps, tailings dams and so on, so that's changing the industry's ability to understand their exposures. From an insurer perspective, my expectation is that it will be evolution not revolution in terms of using technology for underwriting — there is a very wide spectrum of possible strategies when it comes to underwriting between a superficial review and deploying small lines of capacity to a wide number of risks or conducting a very detailed review and deploying large lines at the other end of the spectrum. We certainly spend a significant amount of time reviewing each risk, so I would like to think we will be helped by technologies as they become available. That can only help our ability to differentiate hazard from a pricing perspective.

AW: Turning now to technology, are you comfortable with the technology deployed in assets such as driverless trucks and remote operator scoops? Does it present any kind of challenge for you, or are you comfortable with the evolution of mining industry techniques?

MG: The challenge is that in an ideal underwriting environment you have high levels of data and information on failure rates, both in terms of frequency and impact. As new technologies are rolled out, we as insurers don't have access to that information, and we also have the nagging suspicion that prototypic technologies may be subject to higher failure rates in the early years of their adoption. The mining industry increasingly sets itself a very high bar in terms of safety performance, the availability of plant and equipment and the delivery of consistent production. Whatever the consequences of deploying new technology may be to us as insurers, they are far greater for our customers, where they have a significant impact on their safety and production performance. We are always mindful that our customers will typically have been through a very rigorous process before deploying new technology. As we as insurers accumulate more information about the successful use of new technology, then our comfort level can only increase.

MB: I imagine you are protected to a certain extent by the regulatory bodies in the territories where your mining customers exist as to these safeguards — the exercising of the mining regulations in certain countries that we know well can be very severe and the subsequent closure of facilities can be brutal.

MG: Yes, periods of mandatory mine closure in some regions can be a significant part of the potential BI exposure. One of the challenges that concern us the most is in respect of the aggregation of exposure, and whether we have regional or systemic exposures which can generate an accumulation of loss potential. If we go back to the technology point and think about the insurance industry approach to cyber events, for example, it would be very difficult to try to assess the potential for aggregation of exposure across our mining client base due to a particularly toxic piece of malware. The insurance industry response has generally been to limit the coverage provided, on the basis that it legitimately finds it difficult to understand the exposure. If we think about autonomous technologies, it's far easier for an individual company to achieve a high degree of confidence around its controls pertaining to a particular project than for an insurance underwriter to understand their accumulation of exposure across an industry as a whole. That drives a mismatch in perspective between an individual company keen to embrace new technology compared to an insurer, where the risk/reward balance is almost completely different. This particularly applies to cyber risk.

AW: What do you now consider to be the most significant risks in your sector?

MG: There is no single comprehensive answer to that question. When we see hazard spill over into very large losses, it's typically associated with a failure of controls, whether it's a failure to implement a control or a failure of the control to be effective. Alternatively it's because a particular hazard wasn't fully appreciated — maybe it's a "horizon" risk that is manifesting for the first time. The biggest concern is always that there will be a lack of appreciation of the severity of a particular hazard — it might be one which is well understood in 90% of the world, but in a particular location where the team has not had the benefit of a particular experience or insight, this control may be lacking. One of the luxuries of our job is that we get to learn from a global industry — we get to see best practice as well as the consequence of failures from all around the world, and that's a significant luxury. And one of the great things about the risk engineering function within the insurance industry is that it can pool expertise from a global customer base and share it.

In summary, the failure to appreciate the extent of the hazard is the thing that will always result in a loss for our customers. If pushed to give an example of a specific hazard that is currently a worry, I think bushfire is an exposure that is very difficult to underwrite, given the level of information available to us — historically it's not been a peril that has resulted in large losses for the mining sector, but it's one where there is a reasonably long list of near misses, so that is an area where it is very easy to see that a large loss may occur. Such a loss may catalyse an industry response to funding for that peril.

AW: It's interesting that bushfire losses relate somewhat to climate change and the energy transition. Do you think that your customers in general terms have truly understood and quantified their climate risk?

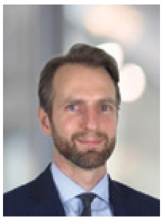
MG: That's a huge question — the commodity market risk and commodity market opportunity alone for the mining industry from climate change and the energy transition is enormous — and consequently it's a topic that is getting a significant amount of attention within the mining industry.

AW: In conclusion Matthew, I think we would agree that the mining industry is heading into a difficult business environment. How do insurers, brokers and buyers work to together and communicate more effectively to face the challenges ahead? Do you think the tri-partite relationship has intensified in recent years?

MG: Speaking as a former broker, I do think it is very easy for underwriters to underestimate the work that brokers perform and the value of that work. The reality is that as underwriters we sit at desks in underwriting hubs, and it is the broking teams that provide the distribution channel for the business that we are able to underwrite. I'm always hugely appreciative that the market has this large distribution chain that actually does a lot of the work, in terms of the preparation of contracts and premium processing and so on. We may make some final wording amendments and price hazard, but to make the whole process work and to provide effective products for each customer, brokers add significant value. In terms of the challenges that will be thrown at us as change unfolds, nobody likes to be surprised, so the need for frequent and early communication is only going to increase. We want to continue to be a valued partner, and that means we can't be delivering surprises to people. That in turn means that communication will have to be front and centre of everything we do.

AW: Matthew, thanks for your time.

MG: Thank you!



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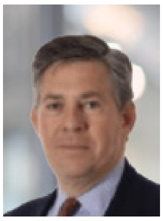

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