Preface to the MME Special Issue on Miner Health and Safety Part I

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The great opportunities produced by modernity often contrast with societal reliance on earth resources for supporting ever-expanding populations, technologies, and infrastructures. Success will come to those who effectively balance investments in these “fourth industrial revolutionary” opportunities in the ever-changing landscape of social, civil, and economic realities and perceptions. Today, social license requires respect for, and contributions toward, improving human rights, the environment, and individual health, safety, and protection.

Today, mining operations around the world strive to create safe and healthy environments for their employees. Sites, whether formally or informally, develop risk management strategies to address common mining hazards because doing so not only protects our greatest asset, people, but optimizes operational resiliency and profitability. The mechanics and thresholds of risk management are as diverse as the mining industry is broad. The fourth industrial revolution brings equally diverse tools and opportunities to isolate hazards, monitor exposures and controls, and respond to changing conditions whether directly or through translation and adaptation to fit the unique needs of mining.

What does this look like? What are achievable results for application of technology? Are other hazards introduced by these technologies? What human-behavior elements are necessary for adoption? What privacy considerations are reasonable? The science and research presented in this special issue provides cutting-

edge health, safety, and risk management findings that can be used by government regulators, academics, and industry professionals to answer these questions and ultimately reduce risk and increase protections of miners.

This special issue examines mining health and safety through the lens of the fourth industrial revolution. Companies today are simultaneously experiencing a generational change while adopting new technologies. This combination of factors is quite disruptive. What’s more, expectations around fitness-for-duty are quite different today than during previous generations. The nature of fourth industrial revolution technologies allows for more holistic approaches when implementing mining management systems. This holistic view can be leveraged to improve decision-making and measure investments in health and safety management. Our hope is that the excellent science presented here motivates you to further adapt and implement technologies in mining toward achieving zero harm to miners across the mining sector.

Special-issue guest editors,
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