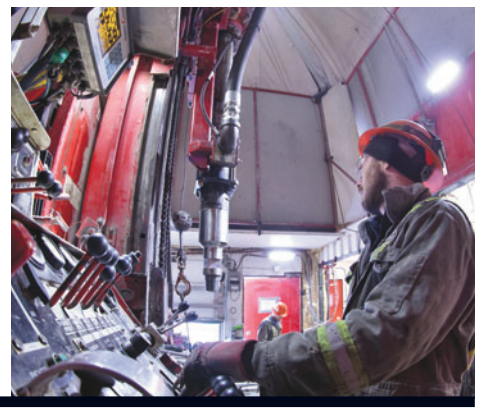
NORTH OF 60 MINING news



page 11 "Exploration Company of the Year" honor goes to Kennady Diamonds

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NEWS NUGGETS

Compiled by Shane Lasley

GRAPHITE ONE RESOURCES INC.

The graphite drilled at the aptly named Graphite Creek project in western Alaska has several distinguishing features that make it particularly suitable for a number of technology applications, including the anode material for lithium-ion batteries.

Graphite Creek milestone nears

Graphite One Resources Inc. Dec. 7 reported that it is nearing the completion of a preliminary economic assessment for its Graphite Creek project near Nome, Alaska. Raising more than C$2.8 million, the company has achieved a number of major milestones in 2016. These milestones were reached during a comprehensive product development program managed by TRU Group Inc., a technology metals consultant with expertise along the entire graphite-graphene supply chain. This program produced purified graphite from Graphite Creek averaging 99.98 percent graphitic carbon. When TRU Group first began examining Graphite Creek material late in 2014, its technicians recognized distinguishing features they described as spheroidal, thin, aggregate and expanded. The graphite specializing consultant postulated that these distinctive characteristics could lend to different specialized applications with minimal processing. These unique and naturally occurring properties have prompted Graphite One to apply for the trademark, STAX, an acronym to describe Graphite Creek graphite. Further testing found that more than 74 percent of the STAX flake graphite could be turned into spherical graphite without milling. This is a monumental achievement considering that only about 40 percent of the best-performing flake graphite found in any other known deposit can be converted to spherical graphite, even using high-end equipment. In later phases of testing completed this year, TRU Group measured the performance of the spheroidized graphite produced from STAX material in coin cells typically used in watches and similar devices. This testing confirmed high performance, repeatability and stability of the spherical graphite produced from the western Alaska deposit – all indicators of high-quality graphite for lithium-ion batteries. Graphite One and Tru Group are working on the production of exploratory grade samples of coated, spherical graphite for testing by potential end-users. "Our program indicated the unique characteristics of our STAX natural flake graphite, which more than met our expectations for performance on the key metrics for spherical graphite," said Graphite One CEO Anthony Huston. "Our goal for Graphite One is to become a reliable producer of high-quality graphite for the rapidly evolving energy and high-tech sectors." Graphite One said a preliminary economic assessment for the Graphite Creek project, a milestone originally slated for the end of 2016, is now targeted for completion by the end of January 2017.

Hecla, MSHA salute our miners

Hecla Mining Company Dec. 6 recognizes its miners,

see **NEWS NUGGETS** *page 11*

MINE SAFETY

Dam lessons learned

After Golder review, ICMM binds members to more stringent TSF management

By SHANE LASLEY
Mining News

Storing the rock leftover after the desired minerals are recovered is one of the most fundamental parts of mining. Typically stored behind massive earthen embankments, these tailings also pose a threat to human life and the environment, if not properly managed. Committed to sustainable mining, the International Council on Mining and Metals has adopted new tailings dam management measures that its 23 member companies must abide by and hopes non-member mining companies adopt similar procedures.

ICMM decided to take action following the high-profile tailings dam failures at Mount Polley, a copper-gold mine in British Columbia operated by Imperial Metals, and Samarco, an iron mine in Brazil operated under a joint venture between BHP Billiton and Vale.

While the downstream effects of the Mount Polley failure in 2014 were limited due to its remote location upstream of a large lake that helped absorb the impact, the Samarco disaster in 2015 was upstream of three towns and killed 19 people, including 14 mine employees.

"ICMM and its members are committed to drive safety and environmental improvements in the industry," said ICMM CEO Tom Butler. "After the tragic failure of the Samarco tailings dam, we had to determine how we could best help to minimize the risk of the recurrence of such a catastrophic event."

Golder report

To find out what can be done to prevent another tragic tailing dam failure, ICMM pulled together a panel of renowned tailings specialists and experts from within it membership to review tailings management practices across the breadth of the council's 23 mining companies.

The review panel hired Golder Associates, a trusted consulting and design company with more than 50 years of experience, to dig further into this problem.

While Golder, as well as other investigations, identified the structural issues that ultimately led to the dam failures at Samarco and Mount Polley, the consulting firm said modern engineering, design and construction practices are adequate to prevent such tailings impoundment failures.

"The shortcoming lies not in the state of knowledge, but rather in the efficacy with which that knowledge is applied," Golder wrote in its report published on Dec. 5. "Therefore, efforts moving forward should focus on improved implementation and verification of controls, rather than restatement of them."

The consulting firm concluded that mining companies and associations need to implement more robust governance and assurances to ensure that best practices are implemented at each and every operation.

"The review did not cover how or why the Samarco tailings dam failed, but takes lessons from the tragic event as well as from other tailing dam failures," explained Dirk van Zyl, a member of the ICMM expert panel. "It finds that a higher level of governance and assurance is key to confirming existing safety standards are implemented consistently."

Golder emphasized that these standards need to be flexible enough to be tailored to the unique circumstances of an individual mine but still be accountable to higher level guidance.

> ***"The shortcoming lies not in the state of knowledge, but rather in the efficacy with which that knowledge is applied."***
> ***–Golder Associates***

Six key elements

In response to the Golder report, the top executives of all 23 ICMM member companies endorsed a position statement "that commits members to minimize the risk of catastrophic failures of tailings dams by adopting six key elements of management and governance."

"I am delighted that as a result of the review, CEOs of the world's 23 leading mining companies committed to a new ICMM framework on how to further enhance the safe management of tailings dams," said van Zyl.

These six key elements of the ICMM position statement are:

•Accountabilities, responsibilities and associated competencies are defined to support appropriate identification and management of tailings storage facility risks.

•The financial and human resources needed to support continued tailings storage facility management and governance are maintained throughout a facility's life cycle.

•Risk management associated with tailings storage facilities includes risk identification, an appropriate control regime and the verification of control performance.

•Risks associated with potential changes are assessed, controlled and communicated to avoid inadvertently compromising tailings storage facility integrity.

•Processes are in place to recognize and respond to impending failure of tailings storage facilities and mitigate the potential impacts arising from a potentially catastrophic failure.

•Internal and external review and assurance processes are in place so that controls for tailings storage facility risks can be comprehensively assessed and continually improved.

Under each of these broad elements are more specific criteria for which the ICMM member companies are bound.

Hope adopted by non-members

ICMM and Golder hope the lessons learned from this review result more stringent tailings management across the wider mining community.

"We were determined to take action at the global level and all of our member companies have adopted this new binding agreement," said ICMM CEO Butler. "We hope that non-member companies will also consider adopting this framework in order to help enhance the whole industry's performance."

Terry Eldridge, senior project reviewer at Golder Associates, added, "I hope that this report will be widely read, not just by ICMM members, but by the mining industry as whole so we can continually improve the safety of the industry." ●