The CODE

The Newsletter of
the International Cyanide
Management Institute
www.cyanidecode.org

1st Quarter 2020 Edition

What's Inside

Welcome to the 1st Quarter 2020 edition of *The Code*.

ICMI Provides Guidance for Effects of COVID-19 on Cyanide Code Audit Scheduling

The International Cyanide Management Institute (ICMI) is closely monitoring reports from health authorities and national governments as the Coronavirus (COVID-19) situation unfolds. We understand that mining companies are proactively preparing for potential impacts and disruptions to operations, and that travel restrictions have already been implemented by some companies that are signatories to the International Cyanide Management Code (Cyanide Code).

We anticipate that the current Coronavirus outbreak will have an impact on Cyanide Code audit scheduling. If your operation finds it necessary to postpone or otherwise delay an audit due to the current situation, we ask that you formally request an extension of the audit deadline, noting the particular travel limitations, medical restrictions or concerns preventing the audit team from visiting the facility prior to the audit deadline. Our goal is to provide as much flexibility as possible in these situations. Please direct such requests to info@cyanidecode.org.

Twenty Years After Baia Mare -- A Gold Industry Success Story

On January 30, 2000, at the Aurul gold mine near the city of Baia Mare in Romania, an earthen tailing dam overtopped and burst releasing more than 100,000 cubic meters of cyanide-bearing solution into the Tisza River, part of the Danube river system. Although no human lives were lost, the release resulted in a massive loss of fish, disrupted river traffic in the Danube system, and focused the world's attention on the risks of cyanide use in the gold mining industry. The event followed a series of previous accidents in the 1990s involving cyanide that also made international news, including major releases of cyanide-containing solutions at mines in the United States, Guyana, and Kyrgyzstan. These had already sensitized public opinion about the use of cyanide in the gold mining industry.

Unfortunately, the Baia Mare incident was preventable. In the ensuing public outcry over the following weeks, some called for banning or limiting the gold industry's use of cyanide. It was a tenuous period for the gold mining industry. Such a ban would have had serious implications for the global gold industry as cyanide is the most efficient chemical extractant for recovering the great majority of the world's gold.

GORAN TOMASEVIC/REUTERS/FILE

A worker collects dead fish from the waters of the river Tisza after a tailing dam released cyanide into the Danube river system.

The incident catalyzed a global effort by the gold mining industry and its stakeholders to improve the industry's performance in managing cyanide. With the encouragement and leadership of the United Nations Environment Programme and the former International Council on Metals and the Environment, a multi-stakeholder process was initiated the same year and concluded in early 2002 with development of an international code of best practices for cyanide management: The International Cyanide Management Code. It was envisioned that this Cyanide Code would serve as a framework for assurance for the industry's stakeholders and government regulators that cyanide was being properly managed by the gold mining industry.

Over the next three years, the Cyanide Code program took shape. It was a complex process involving input from governments, environmental NGO's, and the gold mining industry. By 2005 the Cyanide Code and its administrative organization, the International Cyanide Management Institute, became fully operational.

In late 2005, the first companies -- nine mining companies and five cyanide producers -- became signatories to the Cyanide Code, formally committing to implementing the Cyanide Code at their operations and to having them periodically audited by independent, third-party experts. On April 17, 2006, the first mining operation was certified in Australia.

Two decades after the Baia Mare tailings disaster, and thirteen years after the first certification, it is time to reflect on the development of the International Cyanide Management Code and its future. The Cyanide Code is a voluntary industry program focusing on the safe and environmentally-sound production, transport, and use of cyanide by the gold mining industry. Through its nine principles and 31 standards of practice, the Cyanide Code sets out auditable expectations for management of cyanide in relation to worker health and safety, water management, environmental monitoring, documentation, emergency preparedness and response, training, decommissioning, financial assurance and stakeholder engagement. The Cyanide Code is dynamic in nature and has been revised over time as technology has advanced and best practices for cyanide management have evolved.

There are clear indicators that the Cyanide Code is having an impact on safe management of cyanide by the industry. No major environmental incidents involving cyanide have occurred since the program was developed. This can largely be attributed to the enhanced diligence and care taken by the mining industry, whether through becoming signatories and having operations certified under the Cyanide Code or by operating to the rigorous practices expected by the program.

Despite the absence of major incidents, sensitivity to cyanide's use remains; governments and communities can be apprehensive, and cyanide is still newsworthy. Sadly, human fatalities and environmental incidents have occurred in the years since Baia Mare, although infrequently and at operations not aligned with the Cyanide Code.

Today, 48 gold mining companies have signed on and committed to implement the Cyanide Code's provisions at their 134 operations around the world. In 2017, the program was opened to the silver industry. An important feature of the Cyanide Code is the requirement for not only mining companies to become signatories but also the producers and transporters of cyanide, thereby securing the entire supply chain. Twenty-five cyanide producers and 122 cyanide transporters are Cyanide Code signatories. There are signatory mining companies with operations in 33 countries; better than half of the world's gold production by cyanidation at industrial mines is taking place under conditions laid down by the Cyanide Code.

The Cyanide Code continues to gain support, with new signatories and certified operations being regularly announced. While most of the major international gold mining companies are signatories, the majority of mining signatories are mid-tier and smaller producers, including companies with a single gold mine producing as little as 50,000 ounces of gold per year.

A key to the program's success has been its rigor. The Cyanide Code requires certification of participating operations through triennial audits by independent third-party auditors, and transparency, by requiring public posting of audit reports and the credentials of the associated auditors on the internet.

These characteristics have also contributed to the recognition that the Cyanide Code has received, its use by governments, non-governmental organizations, and financial institutions, and its incorporation into other initiatives for protection of health and the environment. The Cyanide Code is now widely described in literature produced not only by academics but by the general and industry media, governments and non-governmental organizations.

The Cyanide Code is now one of the most established and mature certification programs in the minerals sector. Although challenges remain, such as ensuring that the Cyanide Code's expectations continue to reflect changes in the industry, the program's growth and recognition by the industry and external stakeholders throughout the past decade is an indication of its continued value to the industry in protecting workers, communities, and the environment.

A detailed list of the operations covered by signatory companies' applications, along with the full text of the Cyanide Code and its implementing and administrative documents, are available at www.cyanidecode.org.

Update on Cyanide Antidote Research

In June 2019, ICMI reported on research development of more effective cyanide antidotes.

ICMI continues to be in contact with Gerry Boss, M.D., a medical researcher at the University of California, San Diego, in the United States, who has been leading a program for development of new cyanide antidotes. Dr. Boss' research identified an antidote, cobinamide, which testing has shown to be 5 to 8 times more effective than currently-used antidotes. Cobinamide has undergone efficacy studies using animal models and has shown minimal toxicity at ten times the effective dose, making it potentially suitable for administration in cases where cyanide exposure is suspected but not certain. Related research has included development of self-administered injection systems, which inject antidote directly into muscle tissue. This would likely require minimal training for use, making the antidote and delivery system more practical for mines in remote areas and during transport operations.

A Pre-Investigational New Drug Application (Pre-IND) is being prepared for possible May or June submission to the US Food and Drug Administration's Pre-IND Consultation Program. This is the next major step in acquiring the regulatory approvals necessary for commercialization. A process is also underway to license cobinamide to a private company for commercializing the antidote and an associated delivery system.

ICMI has scheduled an April conference call with Dr. Boss and the company licensing the antidote to provide further details to Cyanide Code signatories about the antidote. If you are interested in participating in the conference call or in learning more about this research, please contact Eric Schwamberger (eschwamberger@cyanidecode.org).

Peter Cooper Elected IAG Chair, Helisangela Mendonca is Vice Chair

AGR

Peter Cooper

Peter Cooper, Export Manager for Australian Gold Reagents Pty Ltd (AGR), has been elected Chair of ICMI's Industry Advisory Group (IAG). The IAG is a forum to advance the education, communication, and discussion about the implementation of the International Cyanide Management Code amongst the program's participating signatory companies.

Also, Helisangela Mendonca, Senior Manager, Safety & Sustainability Audit for Kinross Gold Corporation, was elected Vice Chair.

Mr. Cooper, who is based in Perth, Australia, has been involved with the IAG as AGR's representative since that company became one of the founding signatories to the Cyanide Code in 2005. He brings a wealth of knowledge, experience and expertise, both domestically in Australia and internationally, and has been an active advocate of Cyanide Code certification and safe-management practices for sodium cyanide amongst their customers.

Ms. Mendonca, a native of Brazil, has been with Kinross since 2009, and during her time with the company she has worked in Brazil, Russia, and Canada in the areas of continuous improvement and risk management. In her current role, she is based in Toronto and is responsible for the execution of Kinross' global safety and sustainability risk management strategies.

Both will serve two-year terms.

Critical Controls Working Group

In late 2018, the Industry Advisory Group (IAG) of the International Cyanide Management Institute (ICMI) formed the Cyanide Critical Controls Working Group (CCWG) to explore how critical controls management might be applied at mining operations to prevent worker fatalities in operational areas where cyanide is present.

Following a round of organizational teleconferences, the CCWG members participated in a workshop on June 26 – 27, 2018 in Denver, Colorado, with the objectives of understanding current best practices around cyanide controls and lessons learned from past cyanide release incidents. One goal was to identify controls through a bowtie process as described in the International Council on Mining and Metals Critical Control Management Implementation Guide, and develop performance criteria and a verification process for controls.

To assess applicability, the identified controls were mapped to the relevant provisions of the Cyanide Code. The results of the mapping exercise showed that the identified controls during this process were already described and imbedded throughout the Cyanide Code. However, this process also identified controls that currently are not specific expectations of the Cyanide Code, such as interlock systems.

Following the workshop, several mining operations piloted the tools developed to identify and assess effectiveness of controls at those operations, and tracked modifications made to the tools to improve their content and implementation. At the end of 2019, the draft outcomes of the workshop and pilot programs were presented to the IAG.

Based on the outcomes from the workshop and the piloting of the developed controls at mining operations, the CCWG has concluded that there would be a benefit if the learned lessons were developed into a "Reagent Grade Cyanide Controls" discussion and guidance that can be integrated into ICMI's Implementation Guidance on the ICMI website (https://www.cyanidecode.org/become-signatory/implementation-guidance). This offers the opportunity for the industry to benefit from the CCWG's work product, while allowing signatory companies to selectively adopt controls that they deem appropriate for their respective operations.

ICMI's Board will be briefed on this continuing work and the recommendations of the CCWG at its next meeting.

Sustained Commitment to the Cyanide Code

An indication of success of programs like the Cyanide Code is the long-term commitment of its participants. Commitment to the program has been a hallmark of signatory companies and their operations since the program's establishment.

This commitment is reflected in that 42 of the first 50 operations certified under the Cyanide Code in 2006 and 2007 remain in the program, including 21 of the first 25 mines to be certified, and all of the first 10 production facilities certified. Of the four mining operations no longer in the program, two have ceased operation and two were sold to non-signatory owners.

Of the 143 mining operations that have undergone initial audits and been certified to the Cyanide Code since 2006, 105 (73%) remain in the program. The thirty-eight that have left the program have done so for reasons including mine closure, divestment to non-signatory mining companies, and consolidation with other operations.

Another indication of the commitment to the program is that the average certified mine in the program has been certified for 8 years and has undergone three certification audits.

ICMI believes that this long-term commitment results from the benefits and value that certification delivers to both the certified operations and to their parent companies with respect to worker safety, environmental protection, and social license to operate.