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Translation of Brazil National Mining Agency Resolution from Portuguese (Brazil) to English

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Mike Bortscheller
Authorized Representative
Order Date: April 16, 2019

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OFFICIAL GAZETTE OF THE UNION - Section 1

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CEZAR CARAM ISSA

CORRECTION

To ANP Authorization number 95, of February 11th, 2019, published in the Official Gazette of the Union on 02/12/2019, Edition number 30, Section 1, Page 54:

Where it read:

“(…) importation of finished industrial lubricating oil.” It now reads:

“(…) importation of finished industrial and automotive lubricating oil.”

NATIONAL MINING AGENCY

RESOLUTION NUMBER 4, OF FEBRUARY 15TH, 2019

Establish precautionary regulatory measures in order to ensure the stability of dams, notably those built or stacked by the method known as “upstream” or method declared as unknown.

The JOINT BOARD OF THE NATIONAL MINING AGENCY - ANM, in the use of the powers awarded to it under articles 2, 11 and 13 of Law number 13,575, of December 26th, 2017, and articles 2 and 9 of the ANM Regimental Structure, approved by Decree number 9,587, of November 27th, 2018, and by resolution No. 2, of December 12th,
Considering the recent history of breaches of mining dams, notably Dam “B1” of the “Retiro do Sapecado” mine, on September 10th, 2014, located in the municipality of Itabirito, Minas Gerais State; the “Fundão” Dam of the “Germano” mine, on November 5th, 2015, located in the municipality of Mariana, Minas Gerais State; and Dam B1, of the “Córrego do Feijão” mine, on January 25th, 2019, in the municipality of Brumadinho, Minas Gerais State;

Considering that all the recent episodes of breaches involved dams built from mining residues, built and stacked by the “upstream” construction method, whose efficiency and safety are controversial;

Considering that, according to the ANM database, there are currently eighty-four mining dams built or stacked by the “upstream” method or by any declared as unknown in the National Dam Safety Policy - PNSB;

Considering that, according to the ANM database, there are 218 mining dams classified as high potential associated damage, i.e. damage that can occur due to disruption or malfunction of a dam, regardless of the probability of occurrence, with the possibility of loss of human life and serious social, economic and environmental damage;

Considering that the arguments contained in Technical Note number 05/2019 -GSBM/SPM/ANM-ESSP/LPN demonstrate the need for the immediate adoption by ANM of precautionary regulatory measures, that are self-executing, in order to reduce risk of new dam breach incidents and prevent severe damage (principles of precaution and prevention);

Considering that article 45 of Law number 9,784, of January 29th, 1999, established that “in the event of imminent risk, Governments may justifiably adopt cautionary preventive measures, without prior manifestation of the party concerned.”;

Considering that subsection XI of article 2 of Law number 13,575, of 2017, establishes ANM’s authority to “supervise mining activity, and may conduct surveys, notify, prosecute offenders, adopt precautionary measures such as interdiction and stoppage, impose the appropriate sanctions, sign adjustment of conduct terms, establish and collect the credits arising therefrom, as well as communicate to the competent bodies any occurrence of infringement, where appropriate”;

Considering that the challenges connected simultaneously to the protection of natural resources and maintenance of the physical and psychological well-being and quality of life of the populations are associated with implementation of standards to ensure the adoption of a development model of a sustainable basis, resolve to:

Article 1: This resolution establishes precautionary regulatory measures in order to ensure the stability of dams, notably those built or stacked by the method named “upstream” or method declared as unknown.

Article 2: The use of the construction or stacking method known as “upstream” is prohibited throughout the national territory.

Single paragraph: For the purposes of this resolution the following are understood:

I – “upstream” method: the construction method where the containment dike dams rely on their own residues or previously released and deposited sediment;

II – “downstream” method: consists of the raising downstream from the initial dam, where the dikes are
III – “centerline construction” method: variant of the downstream method, in which the successive layers are made in such a way that the axis of the dam remains in its original position, i.e., coincident with the axis of the initial dam;

Article 3: The companies are responsible for mining dams in the PNSB, regardless of the construction method adopted, forbidden to maintain or construct dams within the Safety Zone - ZAS:

I - any installation work or service, whether permanent or temporary, including human presence, such as those intended for the purposes of living, eating, health or recreation; and

II – dam for liquid effluent storage immediately downstream from the mining dam, where it would have the potential to interfere with the security of the dam or could submerge the bottom drains or other overflow or dam safety system for this mining residue dam.

Article 4: The facilities, services, works and dams referred to in article 3 of this resolution must be definitively disabled and decommissioned or de-characterized, as shown in the following schedule:

I - by August 15th, 2019 for facilities, works and services; and

II - by August 15th, 2020 for dams.

Article 5: ANM will consider in their analysis and decisions relating to the construction and expansion of mining dams, such as approval of economic utilization plans and issuing public statements for purposes of expropriation or mining service, alternative locations that reduce or eliminate the risk of disruption and the potential damage associated with the dam.

Single paragraph: ANM requires the companies to use alternate method of tailings disposal, if the construction or enlargement of the dam is inadequate, even after considering the locational alternatives.

Article 6: It is the responsibility of the designer, a professional legally qualified by the CONFEA/CREA system and with proven experience, to establish the minimum safety factors for mining dams in the PNSB, regardless of the construction method adopted, based on ABNT NBR 13,028/2017, in compliance with the international standards and good engineering practices, being prohibited the setting of a value of less than 1.3 for analyses of stability and liquefaction susceptibility studies, considering the un-drained strength parameters.

Article 7: The mining dams inserted in the PNSB must rely on automated systems that activate sirens in the ZAS, in a secure location and equipped with failsafe mode in the event of a breach of the structure.

Single paragraph: The automated systems referred to in the header shall be designed and implemented as defined in DPNM Ordinance No. 70,389, of May 17th, 2017, in line with the characteristics of the dam and the activation criteria linked to deformation and displacements, whose limits are to be defined by the dam’s designer.

Article 8: In order to reduce or eliminate the risk of disruption, especially for liquefaction, the dams built or stacked by the upstream method or method declared as unknown, the companies must, within the time limits established below:

I - by August 15th, 2019 to complete the preparation of the technical project for the decommissioning or de-
characterization of the structure, which shall include as a minimum, the works to reinforce the downstream dam or
the construction of a new containment structure, with the aim to reduce or eliminate the risk of liquefaction and the
potential damage associated with it, obeying all safety criteria;

II - by February 15th, 2020, complete the works to strengthen the downstream dam or the construction of new
containment structure, as is provided for in the technical project; and

III - by August 15th, 2021 complete the decommissioning or de-characterization of the dam.

Sub item 1: The technical project referred to in item I of the header must be prepared by an external and
independent team, legally qualified and with proven experience, as well as audited by another technical team that
meets these same conditions.

Sub item 2: The provisions of this article shall not apply to mining dams built or stacked using the
“downstream”, “single stage” or “centerline construction” methods, and have been heightened by a maximum of 5
(five) meters exclusively in its last stage of elevation.

Sub item 3: It is forbidden to build new levels, except if so required in the technical project referred to in item
I of the header for decommissioning or de-characterization purposes, the use of the upstream method not being
permitted and the work to be performed under the supervision of legally a qualified professional, with proven
experience.

Article 9: The mining dams built or stacked using the upstream method or method declared as unknown, which
are in operation on the date of this resolution coming into effect may remain active until August 15th, 2021, so long as
they observe the following conditions:

I - The technical project referred to in item I of the header of article 7 expressly ensures the safety of operations
and the stability of the structure, including while the works and actions provided for therein are implemented;

II – The measures are completed, within the prescribed period, as described in sections I and II of the header
of article 7;

Sub item I: In the case referred to in the header, the completion of decommissioning or de-characterization of
the dam should occur by August 15th, 2023.

Sub item 2: This article shall not apply to mining dams in an idle operating situation on the date of entry into
force of this resolution, which must be mandatorily decommissioned or de-characterized in accordance with article 7.

Article 10: The companies must submit to ANM, by August 15th, 2019, a new economic return plan for the
project considering the studies and technical projects, as well as the measures referred to in articles 7, 8 and 9.

Article 11: The decommissioning the dam or its adaptation for the “downstream” or “center line” construction
method for raising does not relieve the companies of the obligation to keep the structure in the National Registry of
Mining Dams and in compliance with the legal provisions and applicable regulatory standards, notably the DNPM
Ordinance number 70,389, of May 17th, 2017.

Article 12: The companies with mining dams for tailings disposal in operation, regardless of construction
method used, must, by August 15th, 2019 complete studies aimed at identifying and implementing solutions aimed at
reducing the quantity of water in the dams.

Single paragraph: The solutions identified by the companies must be performed immediately after August 15th, 2019.

Article 13: The mining dams built or stacked by upstream method, whether in operation or inactive, must be, by August 15th, 2019, adjusted to prevent the intake of water from the supply basin, as such installing side channels or other adequate technical solution to minimize the discharge of water from another source in the tailings basin.

Article 14: The company responsible for the mining dam entered in the PNSB with potential associated damage (DPA), but not covered in sub item 2 of article 7 of DNPM Ordinance number 70,389 of May 17th, 2017, must implement, by February 15th, 2020, a monitoring system with full-time supervision.

Single paragraph: It is the responsibility of the company to define the technology, tools and processes aimed at monitoring the interconnection with the Mining Dams Integrated Security Management System -SIGBM from ANM.

Article 15: In the event of non-compliance, within the time limit set, of the determinations set out in this resolution, the ANM can adopt other precautionary measures, such as immediate interdiction of part or the entirety of the operations, without prejudice to the imposition of appropriate administrative sanctions.

Article 16: Article 2 of DNPM Ordinance number 70,389 of May 17th, 2017, comes into effect as follows:

“Article 2: .......................................................
.......................................................
VII – mining dam in process of closing or decommissioning: structure created with the purpose of containment of sediment or tailings, which no longer receives, but still retains the features of a mining dam, considering the cessation of operational activities of the dam which enters into definitive closure process, without the emission of effluents to the dam and the deposited material remaining in the reservoir;

VIII – de-characterized mining dam: one that does not operate as a containment structure of sediments or tailings, no longer possessing the characteristics of a mining dam, being intended for another purpose, considering the removal of all material deposited in the dam, including dikes and soft areas, where the dam ceased to exist at the end of the process;

...........................................................

Article 17: The Joint Board of ANM, on May 1st, 2019, will reassess the precautionary regulatory measures of this Resolution and, if applicable, will make the appropriate adjustments considering, among other information and data, contributions and suggestions presented during the public consultation, as stated in the Annex.

Article 18: This Resolution will enter into force on its publication date.

VICTOR HUGO FRONER BICCA

Document digitally signed in accordance with Ministerial Decree number 2,200-2 of 08/24/2001, which instituted the Brazilian Public Key Infrastructure – ICP-Brazil
Estabelecer medidas regulatórias cautelares, além da implementação de sistemas automatizados de acionamento de sirenes na ZAS, em local seguro e dotado de interligação com outras unidades de proteção, assegurando, assim, a sensibilização da população em caso de emergência.

Considerando o histórico recente de rompimentos de barragens de mineração, todas as ações e providências que venham a ser tomadas, devem ser projetadas e implementadas conforme definido na Portaria DNPM n.º 70.389, de 17 de março de 2019, em consonância com os paradigmas da segurança e dos critérios de segurança aplicáveis. Todas as medidas, independentemente do momento de sua implementação, devem ser cumpridas em termos de segurança e projeto adequado, garantindo a proteção da população e do ambiente.

Art. 11. O empreendedor responsável por barreiras de mineração inscritas no PNB com Curto Prazo Associado (CPA) atuante, mas não enquadrada no § 2º do art. 79 da Portaria DNPM n.º 70.389, de 17 de março de 2017, deverá implementar, até 15 de fevereiro de 2020, sistemas de monitoramento com acompanhamento em tempo integral.

Parágrafo único. É de responsabilidade do empreendedor a definição da tecnologia, dos instrumentos e dos processos de monitoramento visando sua interoperabilidade e a sistemática capaz de garantir a segurança de barragens de mineração.

Art. 12. O empreendedor deve, em anonimato, entregar ao Ministério Público, órgão competente, a cópia autenticada do projeto de execução do sistema de monitoramento.

Parágrafo único. As informações do sistema de monitoramento deverão ser apresentadas ao público em tempo integral.