

## **MERCURY WASTE: CURRENT REGULATIONS APPLICABLE TO TAILINGS DEPOSITS AND MINING WASTE IN CHILE**

Comments from [XXXXXX], February 4, 2019.

This Submission is made pursuant to Decision MC-2/2, under which parties and other stakeholders were invited to submit the information relevant for Mercury waste threshold discussions by 15 February 2019, in particular letter b):

- (b) Current practices of managing overburden, waste rock and tailings from mining other than primary mercury mining (e.g., laws, regulations and guidelines) and various approaches to thresholds for special care/handling, if any**

### **CHILE: Laws and Regulations Applicable to Tailings and Mining Waste**

An extensive regulatory framework has been developed to govern current mining operations in Chile and the sound management of waste from extractive industries. The framework for mining operations is primarily based on environmental legal bodies and specific sectorial regulations. Government-approved permits are required for all new and ongoing mining operations to ensure that environmental standards are maintained during the life cycle of a mining project, including closure and post closure measures.

In Chile, tailings –substances that consist largely of powdered rock and water– are recognized as a waste generated from the extraction and processing of mineral resources. As a massive mining waste, tailings must comply with a set of environmental laws, regulations, permits and standards.

In this context, tailing deposits are engineering projects that require permits that require compliance with specific design, safety and environmental control regulatory requirements, with the purpose of isolating the solids (tailings) deposited from the surrounding ecosystem.

#### **1. Environmental Impact Assessment for Mining Projects including mining wastes, Law No. 19.300 (1994): General Environmental Framework Law**

Law No 19.300 establishes the legal framework for environmental matters in Chile; the statute came into force in 1994 and since then, has been subject to several amendments. This regulation contains all the principles that govern environmental regulations in Chile and specifically, establishes key environmental management instruments; among these instruments, is the Environmental Impact Assessment System (SEIA, per its Spanish acronym).

The SEIA is an environmental assessment proceeding conducted by the Chilean Environmental Assessment Service (“SEA”) that, based on a Study or Declaration of Environmental Impact,

determines whether the environmental impact of an activity or project is in compliance with applicable regulation. Among the issues addressed within the SEIA, are applicable environmental measures (mitigation, reparation and compensation measures), Monitoring and Follow-up Plans of relevant environmental components (such as air, water, soil, among others), and closure measures applicable to all existing facilities (under Chilean regulations, a mine closure plan is an environmental sectorial permit ("PAS") that must be included within the environmental impact assessment of a mining project).

The circumstances that require an environmental impact assessment are listed in Article 10 of Law No 19.300, which comprises a catalogue of productive projects deemed to cause environmental effects. All projects listed in Article 10 of Law No. 19.300 and further detailed in Article 3 of Supreme Decree N° 40, 2012 of the Ministry of the Environment ("D.S. 40/2012", Environmental Impact Assessment System Implementing Regulations) must perform an environmental impact assessment proceeding and obtain an environmental license ("RCA").

In this context, it is relevant to note that Article 3 letter i) establishes a mandatory entry into the SEIA of *"Mining development projects, including coal, oil and gas projects, including prospecting, exploitation, processing plants and disposal of waste and sterile rock (...)"*.

Furthermore, as per letter i.3 of said Article 3, mining waste disposal projects, including tailings and waste rock dumps projects are included within the categories that require environmental assessment (*"Projects for disposal of mining wastes and waste rock resulting from mining extraction or beneficiation refers to any project that considers disposal of mining waste such as waste rock, low grade minerals, mineral residues treated by leaching, tailings, slag and other equivalents"*, generated by any mining project with an extraction capacity of more than five thousand tons per month).

Consequently, tailings and tailings-related facilities are required to undertake an environmental impact assessment proceeding.

## **2. End of cycle (closure and post closure), Law No. 20.551 (2011) that regulates the closure of mining sites and facilities**

The main purpose of this Law is to ensure *"(...) the integration and execution of the set of measures an actions aimed at mitigating the effects derived from the development of the extractive mining industry (...) in order to ensure their physical and chemical stability (...). The execution of the measures and actions in the manner indicated above shall grant due protection to the life, health and safety of people as well as the environment, in accordance with the law"*.

Pursuant to this law, all mining companies must submit, for the approval of the National Geological and Mining Service ("Sernageomin"), a Closure Plan for their mining operations ("Mine Closure Plan"), which must be prepared in accordance to the project's environmental license. Any mining company that starts, continues or restarts their mining operations must have an approved Closure Plan. A mining company cannot begin operations without previous approval of its Closure Plan.

In this context, articles 13 and 16 provides all minimum requirements for a Closure Plan, among which are:

*“Description of the mining site, indicating its facilities, its characteristics, processes and products, the enunciation of the areas it comprises and the deposits and supplies it will use. In the same way it should consider the geological and atmospheric aspects of the area in which it is located;”*

*“The **set of measures and activities** proposed by the mining company to obtain the physical and chemical stability of the place where the mining site is located, as well as the protection of life, health, safety of people and the environment, according to the law”*

In addition, as detailed in Article 17 letter e) of Supreme Decree N° 41, 2012, of the Ministry of Mining (“D.S. 41/2012”, Closure of mining sites and facilities Implementing Regulations), the Mine Closure Plan should consider, if applicable, the inclusion of measures related to **tailing deposits**, such as dismantling of facilities; chemical and mineralogical characterization of the material arranged in the deposit; drying of clear water ponds, maintenance of perimeter channels, infiltration monitoring system; rainwater evacuation system, closure of accesses, stabilization of slopes, signs, emergency and/or evaporation ponds, among others.

In summary, all mining companies must obtain a sectorial permit from the Sernageomin, consisting of the Closure Plan approval. Said Plan must contain the description of all tailing-related existing facilities and the proposed measures aimed at the physical and chemical stability of thereof.

### **3. Permit for Tailings Deposits, Supreme Decree No. 248 (2007) that regulates the approval of projects of design, construction, operation and closure of tailing deposits**

Supreme Decree No. 248, 2007, of the Ministry of Mining (“D.S. 248/2007”) establishes the conditions required to design, construct, operate and close mine tailing deposits, with the purpose of achieving a range of technical conditions, ensuring the structural stability of the deposit and minimizing the impact to the surrounding area.

Compliance with all these requirements is necessary to obtain the sectorial permit issued by Sernageomin for all tailing deposit projects. No tailings deposit may be constructed nor operated without a prior permit issued by Sernageomin.

### **4. Permit for Tailings Reservoirs, Supreme Decree No. 50 (2015) that establishes the technical conditions that shall be fulfilled in the project, construction, and operation of the hydraulic works identified in Article 294 of the Chilean Water Code**

The Chilean Water Code establishes the need to obtain a sectorial permit from the General Water Bureau (“DGA”) for the construction and operation of major hydraulic works set forth in Article 294.

In this context, Supreme Decree No. 50, 2015, of the DGA (“D.S. 50/2015”) sets forth the technical conditions required to ensure hydraulic stability of the work and that must be fulfilled in the construction and operation of the hydraulic works established by Article 294. As per Article 2 and 3 of D.S. 50/2015, within these major hydraulic works are included tailings reservoirs or dams, industrial dams, tailing pipes, mining pipes and, in general, any work with capacity to store or to conduct water or elements

transported by it, which, as a hydraulic work, presents any of the characteristics indicated in Article 294 of the Water Code. It is important to note that to require this additional permit a tailings dam must contain, at the time of deposit, a 65% or less concentration in weight of solids. If the tailings deposit contains more than 65% concentration in weight of solids then only the mining tailings permit will be required.

#### **5. Mine Safety Requirements, Supreme Decree No. 132 (2002) that contains Mining Safety Implementing Regulations**

Supreme Decree No. 132, 2002, of the Ministry of Mining (“D.S. 132/2002”), is the main regulatory body on mining safety issues with regard to the mining industry in Chile. It requires mining companies to comply with technical safety standards in order to operate or close any mine site or facility, including mining waste facilities. In addition, it establishes a permit for any project of waste rock disposal and specific technical requirements for the closure of tailing dams. This regulation expressly prohibits the disposal of any waste other than waste rock in the dumps.

#### **6. Mining Waste not Hazardous Waste, Supreme Decree No. 148 (2003) that contains Sanitary Implementing Regulations on hazardous waste management**

It is relevant to highlight that under Chilean regulations, mining wastes are not considered hazardous wastes. In this context, Article 23 of Supreme Decree No. 148, 2003 of the Health Ministry (“D.S. 148/2003”) expressly states the following:

*“For purposes of the application of these regulations and provided that the final disposal is not made in conjunction with domestic solid waste or other similar, the following large streams of mining waste that comes from the operations of extraction, beneficiation or processing of minerals will **not** be considered hazardous:*

- a) waste rock dumps;*
- b) low grade minerals;*
- c) mineral waste treated by leaching;*
- d) tailings; and*
- e) mining slags.*

*However, the Health Authority may, in qualified cases, require a generator to characterize its mining waste. The Health Authority may in any case sample, analyze and characterize the hazardousness of such waste whenever it deems appropriate.*

*For the characterization of the extrinsic toxicity of mining waste, the "Leaching Toxicity Test" referred to in article 14 will be replaced by the "Synthetic Precipitation Leaching" method according to the concentrations contemplated in said standard.”*

This Decree explicitly excludes several large stream mining wastes (among them tailings) from its scope but subject to a condition: the authority is entitled to request the generator of such wastes to characterize them and prove that they are not hazardous.

This exemption was based on evidence, a study of the elemental content of several active tailings and the leaching behavior of each of the regulated elements. Precisely, this regulation establishes the Maximal Acceptable Levels (MAL) for a number of elements that may be found in the leaching of the waste. For mercury, the MAL is 0.2 mg/L in an assay with a Solid/Liquid ratio of 20 (TCLP or SPLP). None of these elements leached to levels above their respective MAL.

## 7. Other environmental regulations

As well as other industrial activities, mining waste disposal is required to comply with different environmental standards applicable to releases to water bodies (or aquifers) and atmospheric air emissions.

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