

# **GISTM Public Disclosure Report**

## **Caserones Mine La Brea Tailings Storage Facility**

October 2024

## **1. Introduction**

Lundin Mining is committed to the implementation of the Global Industry Standard on Tailings Management (GISTM) at its Caserones Mine in Chile, which includes two active tailings facilities known as La Brea and El Tambo. Principle 15 of the GISTM requires public disclosure and access to information about the tailings facility to support public accountability. This disclosure document focuses on the La Brea tailings facility. It has been prepared in accordance with the requirements of Principle 15 of the GISTM and reviewed by Lundin Mining's Accountable Executive.

## **2. Tailings Storage Facility Description**

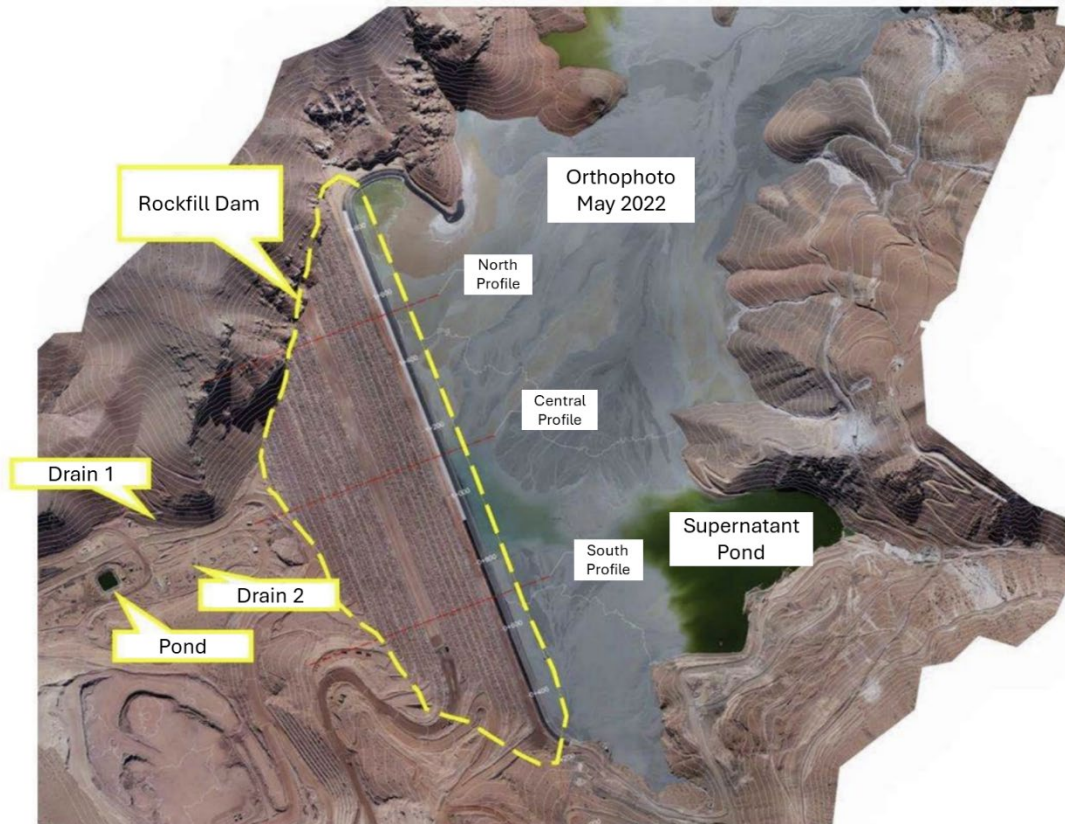
The La Brea Tailings Storage Facility (TSF) is an active facility situated at an altitude of 2,800 m above sea level. It currently receives and retains the fine fraction of tailings after they are processed through a cyclone station located near the processing plant and transported via a 19 km pipeline.

Caserones is located in Chile's Atacama Region approximately 125 km southeast of Copiapó, and approximately 100 km from Lundin Mining's Candelaria Copper Mining Complex in Chile and 20 km from the Company's Josemaria project in Argentina. The mine and mine infrastructure are situated at an elevation ranging between 3,200 m and 5,500 m above sea level.

Caserones produces high-quality copper concentrate, copper cathode and molybdenum concentrate. Lundin Mining is the operator, holding a 70% interest in Minera Lumina Copper Chile, with JX Metals Corporation holds the remaining 30% interest. Lundin Mining acquired its ownership from JX Metals Corporation in 2023. Caserones mine is a large open pit copper-molybdenum mine with a low ore to waste strip ratio. Mining is performed using a conventional truck and shovel fleet. The processing facilities have been in commercial operation since 2014. The grinding-flotation plant has a stated design capacity of 4,700 tonnes per hour operated (105,000 tonnes per day based on 93% availability). The SX-EW plant has a nominal capacity of 34,500 tonnes per year.

The La Brea TSF includes a valley-type tailings dam constructed using the downstream construction method. The dam was originally planned to be developed in two phases and 14 stages. The current stage under construction is Stage 10, with the approved final stage being Stage 14 (at an elevation of 2,972 m, projected for completion in 2032) and a total capacity of 466 million tonnes (Mt). According to the 2018/2020 Environmental Impact Assessment (EIA) submitted for approval, the ultimate dam elevation has been planned to increase to 3,005 m, and additional stages, Stages 15 and 16, have been included in the project. The La Brea TSF ultimate configuration (Stage 16) will provide 577 million tonnes (Mt) of tailings storage capacity.

The design envisioned discharging most of the tailings (87%), thickened to about 60% solids by weight (first 5 years of operation, 65% solids after that). The goal of the deposition plan has been to maintain a relatively steep beach (1.3% per design) with the pond against the southern part of the TSF, allowing placement of the reclaim water barges off the natural ground immediately upstream of the left embankment abutment.



**Figure 1: La Brea Tailings Storage Facility Layout**

### **3. Consequence Classification**

The consequence of failure classification for the tailings facility is determined by assessing the downstream conditions and selecting the classification corresponding to the highest Consequence Classification from the following incremental loss categories: potential population at risk, potential loss of life, environment, health, safety, cultural, and infrastructure and economics.

The GISTM Consequence Classification for the La Brea TSF has been determined and documented after conducting a series of hypothetical breach analyses, considering credible failure modes and scenarios including a failure due to an extreme hydrological event. Based on these analyses, the GISTM Consequence Classification is Extreme for the current configuration of the tailings facility. This classification is based on the potential environmental impact according to the system defined within the GISTM.

According to the most recent risk assessment, the catastrophic consequences are associated with two credible failure modes: overtopping and earthquake-induced slope instability. It has been recommended that the existing breach analyses related to these failure modes be updated, which may require a reevaluation of the tailings facility's Consequence Classification.

### **4. Summary of Risk Assessment Findings**

Lundin Mining applies a risk-informed decision-making approach for all TSF lifecycle phases. Risk assessments are used to identify and evaluate risks to prevent catastrophic failures, and to inform decisions to manage risks to as low as reasonably practicable (ALARP). This approach focuses on credible failure modes and to reduce the risks at our facilities by reducing the likelihood of occurrence and/or downstream impacts, regardless of the consequence classification defined using credible or hypothetical failure modes.

The most recent risk assessment for the current configuration (Stage 11) of the La Brea TSF was conducted in September 2024 by an external independent facilitator with participation from a multidisciplinary site team and the Engineer or Record (EOR). The risk assessment included a semi-quantitative Failure Mode and Effects Analysis (FMEA). As part of this assessment, potential failure modes were deemed as credible or non-credible regardless of their likelihood, and then the risk of credible failure modes was evaluated. All failure modes were sorted according to Lundin Mining's risk management framework, with risk mitigation controls identified and tracked.

The current configuration of the La Brea TSF is designed to contain the Probable Maximum Precipitation (PMP) event with adequate freeboard and to withstand Maximum Credible Earthquake (MCE) seismic loading. The risk assessment identified two credible failure modes with catastrophic consequences: a hydrological event exceeding the PMP and an earthquake with a return period greater than the MCE (e.g., 1 in 10,000 years). These risks, along with associated controls and mitigation measures, were reviewed by the Independent Tailings Review Board (ITRB) in 2024.

Following the FMEA risk assessment workshop, additional risk mitigation measures were proposed to achieve ALARP by either reducing the likelihood of failure or minimizing consequences to people and the environment. These ALARP measures will undergo further evaluation in 2025.

## **5. Summary of Impact Assessments and of Human Exposure and Vulnerability to Tailings Facility Credible Flow Failure Scenarios**

Hypothetical dam breach analyses and inundation studies have been conducted for the La Brea TSF to identify potentially impacted areas and waterbodies in the extremely unlikely event of a tailings breach. Potentially affected areas primarily include agricultural properties, local roads, and Caserones' offices and mining camp. No urban areas, rural villages, or indigenous territories will be directly impacted by a potential dam failure. The controls and mitigations that have been implemented to reduce the likelihood and consequences of credible tailings facility failure scenarios for the La Brea TSF were defined during the risk assessment.

## **6. Description of the Design for all Phases of the Tailings Facility Lifecycle**

The La Brea TSF is a valley-type tailings dam with an embankment constructed using the downstream construction method. A Starter Dam was built using alluvial materials excavated from the impoundment area. Subsequent lifts have been constructed using materials from a quarry located immediately southwest of the TSF embankment, as well as two other quarries upstream of the embankment. The embankment consists of two phases:

Phase 1 (Stages 1 to 6) to elevation 2,875 m (current elevation). The upstream and downstream slopes of this phase are 1.8H:1V (horizontal: vertical). The bulk of the embankment consists of rockfill/earthfill (Zone 1), and there is a five meter (horizontal) wide transition zone (Zone 2) on the upstream slope, which serves as a bedding for the geotextile and the smooth 60 mil (1.5 mm) LLDPE liner. The crest width of the Phase 1 embankment is 50 m.

Phase 2 (Stages 7 to 14) to elevation 2972 m. As per the 2020 EIA, the ultimate embankment elevation was increased to 3,005 m and Stages 15 and 16 were added. Stages 7 to 16 represent 13 m raises. It is envisioned to increase the crest width of Stage 15 to about 74 m to allow constructing Stage 16 on top of it and having an ultimate crest width of 30 m. The downstream embankment slope is 1.9H:1V. The upstream embankment slope is 1.5H:1V.

A drainage system has been installed in the main valley and side drainages within the embankment footprint which captures and directs seepage water below the dam. This water is conveyed to a pumping sump, from where it is recirculated to the processing plant. A seepage recovery system has also been designed downstream of the La Brea TSF, incorporating a interceptor trench located above the pre-mining groundwater table, along with remediation wells screened in the overburden immediately downgradient of the trench. The seepage recovery system includes a flow gauge chamber and piping that direct the collected water to a sump for recirculation to the plant. To further enhance the seepage recovery capacity, an additional series of 14 extraction wells were subsequently installed. A seepage collection

pond is positioned near the pumping sump. If the sump overflows, excess water flows into the pool and can later be pumped back for recirculation.

The most recent closure plan approved by Chilean regulators in 2024 includes the implementation of a cover over the tailings surface, the construction of internal runoff channels across the tailings surface, the construction of berms at the access points of the TSF, the construction of an emergency spillway, and a slope stability verification study.

## **7. Summary of Material<sup>1</sup> Findings of Annual Facility Performance Review and Dam Safety Review (DSR)**

The most recent independent DSR for the La Brea TSF was completed in January 2024. The DSR concluded that there were no immediate dam safety concerns for the La Brea TSF, except for the lack of freeboard for Stage 9, which was subsequently addressed by Caserones. Various recommendations were made, including improvements to the tailings management system, updating the dam breach analysis and seismic hazard assessment, enhancing the water management plan, and improving the instrumentation monitoring system and measurements. The next DSR will be completed in 2029.

The first La Brea TSF Performance Review report will be issued by the EOR in November 2024. No significant risks were identified based on the site visit inspections and reviews. The main EOR recommendations include adjusting the type of construction material for the dam to meet technical specifications and avoiding contact between the pond and the dam. These recommendations are being addressed by the site team. There were no major variations in the instrumentation monitoring data or activation of Trigger Action Response Plans (TARPs) in 2024.

## **8. Summary of Material Findings of the Environmental and Social Monitoring Program**

Our operations are subject to environmental regulations in the various jurisdictions in which we operate. Permitting, approvals and compliance management are important for the effective regulation of mining-related activities to prevent possible adverse impacts on the natural environment, as well as to protect the interests and rights of local communities. There were no material environmental incidents associated with the La Brea TSF from the 2024 environmental monitoring program to date.

As part of the environmental control measures for the La Brea TSF, infiltration management systems and the online monitoring network are fully operational. In addition, an accredited laboratory, serving as a technical environmental oversight authority, conducts discrete water quality parameter measurements. Results from 2024 to date show that groundwater monitoring points remain close to baseline values, confirming that the TSF has not impacted nearby water bodies.

Lundin Mining's approach to stakeholder engagement is based on clear communication, transparency, and trust. Our goal is to better understand and respond to the interests and concerns of our stakeholders and any emerging issues and risks to our operations. The Responsible Mining Policy (RMP) and Responsible Mining Management System (RMMS) set the framework for a consistent approach to engaging with stakeholders across our organization. We use insights gained from the Social License to Operate (SLO) Index to identify stakeholders and engage on perceived and actual impacts. The SLO is not a one-time achievement; it can vary over time and therefore needs to be constantly maintained. Since 2024,

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<sup>1</sup> Material findings are defined as unacceptable tailings facility risks such as a dam safety issue considered immediately dangerous to life, health or the environment, or a significant risk of regulatory enforcement.

the Caserones operation engaged an independent third-party to measure the SLO Index. To better integrate social performance in the internal decision-making process on TSF operations and emergency planning, a set of questions covering the community perception on the TSF was included in the quarterly perception surveys. There have also been no complaints from stakeholders in this regard and no material findings associated with the La Brea TSF from the already implemented surveys.

## **9. Summary of the Tailings Facility Emergency Preparedness and Response Plan (EPRP)**

Using the results of the Dam Breach Analysis, the Emergency Action Plan document was developed, considering the flow behavior in failure scenarios and measures required to eliminate or mitigate the consequences of these types of events. This document is regularly updated and includes specifications to prepare and manage procedures for the detection, assessment, and classification of emergency situations, as well as actions expected for each level of emergency, in addition to a training plan for emergency preparedness. The Emergency Action Plan is tested and updated at all phases of the tailings facility lifecycle. It is shared with relevant stakeholders involved in emergency response planning.

## **10. Independent Reviews**

The last ITRB site visit was completed in January 2024. The next ITRB site visit and review is scheduled for February 2025 while the next independent DSR is planned in 2029.

## **11. Financial Capacity**

Lundin Mining confirms that it has sufficient financial resources to meet its business requirements for the planned closure, early closure, reclamation, and post-closure of the La Brea TSF and its appurtenant structures. These costs are disclosed annually in aggregate form in our financial statements contained within our [Annual Management's Discussion & Analysis \(MD&A\) Report](#). Further, Lundin Mining maintains insurance for the La Brea TSF to the extent commercially reasonable and available.

## **12. Management System Reviews and Audits**

Caserones is implementing the Lundin Mining RMP through the RMMS, which includes 16 requirements. The RMMS specifies Company-wide requirements for managing health, safety, environmental and community (HSEC) aspects of our business.

In support of GISTM implementation, Lundin Mining has developed a corporate guideline for the development of a site-specific performance-based Tailings Management System (TMS). An initial TMS implementation self-assessment was carried out in July 2024 at Caserones. The self-assessment results indicated that several components of the TMS already exist at the site level. The percentage of alignment to the TMS guideline was 62%. It is anticipated that the site-specific TMS will be completed by Q4 2024. A formal internal review of the defined site-specific TMS document is planned for 2025.

## **13. GISTM Conformance**

Lundin Mining has retained an external auditor to perform conformance assessments on the GISTM for the La Brea TSF. These assessments have been performed in accordance with the ICMM Conformance Protocols issued in May 2021.

For the La Brea TSF, all requirements have been met, or met with a plan in place, and verified by our external auditor.