

GISTM Public Disclosure Report

Chapada Mine Chapada Tailings Storage Facility

October 2023

1. Introduction

Lundin Mining is committed to the implementation of the Global Industry Standard on Tailings Management (GISTM) at its Chapada Mine in Brazil, which includes one active tailings facility. Principle 15 of the GISTM requires public disclosure and access to information about the tailings facility to support public accountability. This disclosure document 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 Chapada Tailings Storage Facility (TSF) is an active facility that is part of the Chapada Mine operation. The operation is wholly owned and operated by Lundin Mining's Brazilian subsidiary Mineração Maracá Indústria e Comércio S/A (MMIC). The operation has been in continuous production since commissioning in 2007. The current processing plant capacity is approximately 65,000 tonnes per day (24.0 million tonnes per year). Mine production is currently obtained from three open pits. Ore is processed on site using conventional crushing, grinding and flotation. Tailings are deposited in the Chapada TSF located northwest of the processing plant.

Located in northern Goiás State, Chapada is situated approximately 320 km north of the state capital of Goiania and 270 km northwest of the national capital of Brasilia, at low elevation of approximately 340 to 400 m above sea level. The region has a tropical climate characterized by two well defined seasons; the rainy season from November to March and the dry season from April to October, with an annual average rainfall of 1,500 mm. The average annual temperature is approximately 22°C.

The Chapada TSF is designed to store both tailings and industrial water. The Chapada TSF occupies a total area of approximately 1,400 hectares or 14 km². The impoundment, also known as Barragem de Rejeitos do Córrego Baco Pari is comprised of natural topography to the west and three containment structures: the Main Dam , Dike II, and Dike III.

The Main Dam consists of a starter dam constructed from compacted local borrow material (clay to clayey silt soil) and has been subsequently raised by the centerline construction method using cycloned tailings for the downstream portion of the dam. Tailings are pumped to the tailings facility from the processing plant through a HDPE pipeline positioned on the beach area just upstream of the dam crest. At the dam crest, part of the tailings is cycloned to build the downstream embankment using the coarse fraction (cyclone underflow). The remainder of the tailings, the fine fraction (cyclone overflow), is deposited as slurry and impounded within the tailings facility through spigotting, forming the beach to support future raising of the dam.

The tailings beach is currently over 1,000 m wide from the dam crest to the supernatant pond with an average slope of 0.5%. The Main Dam has a current crest elevation of 378 m and an average crest width of 10 m. The internal drainage system of the Main Dam consists of finger drains evenly spaced on 20 m centers on the natural foundation soils connected to a main drainage trench external to the dam.

In order to confine the impoundment on the southern side of the facility, two small saddle dams have been constructed: Dike II and Dike III. Dike II located north of the South pit, is a lined, downstream constructed dam, consisting of compacted residual, clay-like soil. Dike II retains the supernatant pond at the south end of the TSF and does not retain any tailings. The drainage system of Dike II consists of a chimney filter and a blanket drain.

Dike III located northwest of the Central pit, is a centerline constructed dam with compacted cyclone tailings using the coarse tailings fraction (cyclone underflow) for construction. The fine fraction (cyclone overflow) is deposited as slurry and impounded within the TSF.

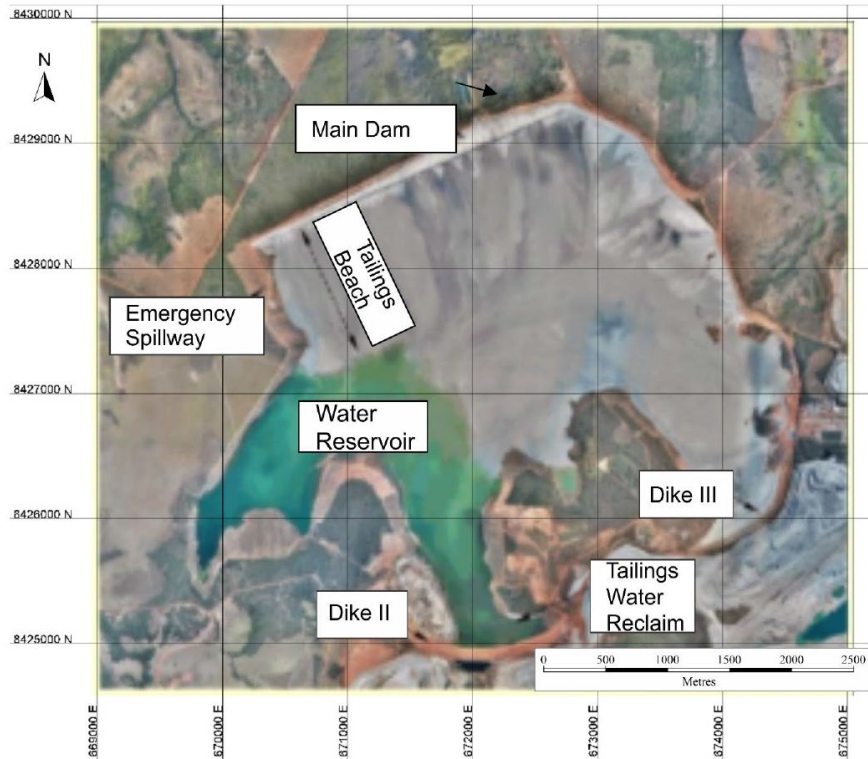


Figure 1: Chapada Tailings Storage Facility Layout

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 Chapada TSF was determined and documented after conducting a series of hypothetical breach analyses considering credible failure modes and scenarios. The Consequence Classification of the Chapada TSF is 'Extreme' according to the system defined within the GISTM.

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.

The most recent risk assessment for the Chapada TSF was conducted in 2022 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 results of the risk assessment indicate the credible failure modes (liquefaction, slope instability, internal erosion) for the current TSF configuration, along with their controls and mitigation measures. The risk assessment methodology and results were reviewed by the Independent Tailings Review Board (ITRB) in 2023.

Following the FMEA risk assessment workshop, additional risk mitigation measures were identified to achieve ALARP through either reducing likelihood or consequences to people and the environment. Four ALARP measures were shortlisted with two of these measures already included in future design configurations. The other two measures will undergo further evaluations in 2024.

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 Chapada 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 Chapada's open pit mining operations. 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 Chapada TSF were defined during the risk assessment.

A comprehensive alert system has been installed and is connected to automatic TSF monitoring instrumentation. Engagements with internal and external potentially affected people were performed through training exercises and evacuation tests, involving first responders and local authorities, to enhance emergency preparedness.

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

The construction of the Main Dam began in 2005 with a 17 m high starter dam (Stage 1 to El. 345 m) constructed of compacted residual, clay-like soil founded on natural ground. In Stage 2, the dam was raised to El. 350 m through the construction of a compacted homogeneous earthfill (residual, clay-like soil) supported on tailings deposited in the impoundment. In subsequent stages, the dam has been raised every four meters using the tailings cyclone underflow. In 2022, the dam crest reached El. 378 m (Stage 9). The next projected raise is to crest El. 382 m, which is currently permitted and under construction. The design of this stage includes the construction of a new saddle dam (Dike I) at the western portion of the impoundment, following the watershed on the left abutment of the Main Dam. As Dike I is raised, it will eventually be considered an extension of the Main Dam. The facility is projected to hold approximately 268 Mm³ of tailings at a dam crest of El. 382 m.

The construction of Dike II to El. 368 m was initiated in 2014. In 2019, at El. 374 m, the maximum height of the dam was approximately 11 m and the crest width was 10 m with a length of approximately 1.5 km. At this stage, the dam also included an approximately 50 m wide downstream toe buttress, about 10 m high to El. 373 m. The downstream slopes of Dike II including the buttressing are approximately 2.4H:1V while the upstream slopes are 2H:1V. The drainage system of Dike II consists of a chimney filter and a blanket drain. Seepage is collected in a seepage pond near the downstream toe area of the dam. Dike II was raised from an elevation of 374 m in 2019 to an elevation of 378 m in 2022.

The construction of Dike III began in 2014. The starter dam was constructed of residual, clay-like soil to El. 369 m. In 2019, at El. 376 m, the maximum height of the dam was approximately 12 m and the crest width was 10 m with a length of approximately 1 km. The downstream slope was 3.5H:1V. The drainage system of Dike III is similar to the one for the Main Dam, but instead of finger drains excavated into natural ground, it consists of trapezoidal shaped drains over the terrain spaced 20 m apart. The system also includes a blanket drain. Dike III was raised from an elevation of 376 m in 2019 to an elevation of 378 m in 2022.

The Chapada TSF emergency spillway at Stage 9 (dam crest at El. 378 m) is designed to pass the 1 in 10,000 year, 20-day inflow flood (critical duration) with 1.5 m freeboard. Each stage of the raised dam is accompanied by a new emergency spillway control section, currently at El. 375 m and located at about 300 m southeast of the Main Dam left abutment.

7. Summary of Material¹ Findings of Annual Facility Performance Review and Dam Safety Review (DSR)

The Periodic Dam Safety Review (RPSB in Portuguese) is an equivalent to the DSR in Brazilian legislation (ANM Resolution n° 95/2022) that needs to be completed every 2.5 years for tailings facilities with higher potential impacts. The most recent RPSB for the Chapada TSF was completed in 2023. The RPSB concluded that there were no signs of geotechnical issues with the dams and the stability factor of safety values were higher than minimum requirements recommended by NBR 13.028/2017 and ANM Resolution 953/2022. Various recommendations were made including the installation of automated instruments, geophysical site investigations, and completing the spillway construction. These recommendations have since been addressed by the site team. The next RPSB will be issued by the end of 2025. The last Chapada TSF Performance Review was performed by the EOR in 2023 and presented no material findings.

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 Chapada TSF from the 2022 environmental monitoring program.

Lundin Mining periodically conducts social assessments to map and understand the social structure, issues and vision of the various individuals, groups and organizations in the network that collectively form the community. Socio-economic baseline information was updated in 2022, encompassing all residents within the ZAS.

Lundin Mining has identified their network of stakeholders, in particular those with an interest in the TSF, as well as the individuals, groups, and organizations that could be impacted by the TSF. Lundin Mining understands the existing social capital in the local communities, the ways in which the communities have established their networks and connections, how they usually share information, their cooperation schemes, and groups cohesiveness. Lundin Mining maintains a community engagement plan, as part of the Lundin Mining Social Performance Standard, which incorporates all the aspects of TSF impacts and emergency planning, encompassing project-affected people, residents of the ZAS, and other community stakeholders. The goal is to address concerns, to manage expectations and involve them in the co-development of emergency preparedness measures. Lundin Mining also keeps track of complaints or incidents involving tailings through a community grievance mechanism.

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 at 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

¹ 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.

SLO is not a one-time achievement; it can vary over time and therefore needs to be constantly maintained. Since 2018, the Chapada 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 were no material findings associated with the Chapada TSF from the 2022 social monitoring program.

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

The Chapada TSF “Emergency Action Plan for Mining Dams” (PAEBM in Portuguese) is in place and addresses credible flow failure scenarios and the assessment of potential consequences. The PAEBM presents procedures for the detection, assessment and classification of emergency situations, actions expected for each level of emergency, in addition to a training plan for emergency preparedness. The PAEBM is tested and updated at all phases of the tailings facility lifecycle. It is shared with stakeholders who are involved with emergency response planning. The PAEBM foresees the activation of an alarm system deployed in the ZAS with automated activation. The [Emergency Action Plan](#) was updated in 2022 for the current tailings facility configuration to crest elevation 382 m.

10. Independent Reviews

The last Independent Tailings Review Board (ITRB) site visit was completed in August 2022. Online review meetings with the ITRB have taken place throughout 2023. The next ITRB site visit and review is scheduled for February 2024 while the next independent DSR is planned in 2025.

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 Chapada 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 Chapada TSF to the extent commercially reasonable and available.

12. Management System Reviews and Audits

Chapada 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 2023, Chapada conducted an internal audit on the RMMS requirements, resulting in a 98% alignment.

13. GISTM Conformance

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

For the Chapada TSF, all requirements have been met and verified as fully aligned by our external auditor.