



Global Industry Standard
on Tailings Management
(GISTM)

Public Disclosure

Annual Report 2024

Introduction

Scope of this document

This document serves as public disclosure in compliance with Requirement 15.1 of the Global Industry Standard on Tailings Management (GISTM), covering all of Hydro's tailings facilities within the scope of the GISTM.

Additional information on Hydro's approach to tailings management and the implementation of the GISTM, beyond the requirements of 15.1, is available on our website ([Tailings management | Hydro](#)) and in the 'Legacy Impact' chapter of Hydro's Annual Report.

What is the GISTM?

The GISTM strives to achieve zero harm to people and the environment. Underpinned by an integrated approach to tailings management, GISTM aims to prevent catastrophic failure and improve the safety of tailings facilities across the world. It represents a step change in transparency, accountability and safeguarding the rights of project affected people.

The Standard is organized over six Topic areas, 15 Principles and 77 auditable requirements. The topic Area I focuses on project affected people. The Topic Area II requires Operators to develop knowledge about the social, environmental and local economic context of a proposed or existing tailings facility. Topic Area III raises standards for designing, constructing, operating, maintaining, monitoring and closing tailings facilities. Topic Area IV focuses on the ongoing management and governance of a tailings facility. Topic Area V covers emergency preparedness and response in the event of failure. Topic Area VI requires public disclosure of information about tailings facilities to support public accountability.

Principle 15 of the GISTM

Principle 15 of GISTM sets requirements on public disclosure and access to information about tailings facilities to support public accountability.

Requirement 15.1 asks Operators to publish and regularly update information on their commitment to safe tailings facility management, implementation of its tailings governance framework, its organization wide policies, standards or approaches to the design, construction, monitoring and closure of tailings facilities. A list of information to be published and updated annually is defined under the GISTM Requirement 15.1 B (B1- B10).

GISTM in Hydro

Hydro is committed to implement the GISTM, which requires that tailings facilities operated by Hydro with Extreme or Very high potential consequences conform to the standard by August 5, 2023, while other tailings facilities operated by Hydro not in a state of safe closure, will conform to the standard by August 5, 2025.

Hydro's definition of tailings facility is an asset that is designed and managed to contain the tailings produced by the mining process or the bauxite residue produced by the alumina refining process. Tailings facilities refer to facilities that contain tailings or bauxite residue on the surface. Tailings facilities are higher than 2.5 meters measured from the elevation of the crest to the elevation of the toe of the structure or have a combined water and solids volume more than 30,000 m³.

Hydro operates four tailings facilities at Mineração Paragominas and at the Alunorte alumina refinery in Brazil, designed to contain the tailings from bauxite mining and residue from the alumina refining process. In addition, Hydro manages three legacy tailings facilities that fall under the scope of the GISTM, in Schwandorf, Germany. Hydro also has three legacy tailings facilities that are expected to reach safe closure status according to GISTM prior to August 2025 in Stulln, Germany. The facilities in Stulln are therefore not included in this report.

At Mineração Paragominas, the tailings from the beneficiation process are stored in two tailings facilities¹ (TFs) – the Valley TF and the Plateau TF (TDA), the latter formerly known as Plateau (RP1). At Alunorte, bauxite residue

¹ Tailings facility is an asset that is designed and managed to contain the tailings produced by the mine process or the bauxite residue produced by the alumina refining process.

generated from the refining process is filtered and disposed of in dry residue stacks known as DRS1 and DRS2².

The tailings facilities in Schwandorf store bauxite residue from historical alumina refining operations and are now in the post-closure phase.

Hydro's objective for tailings management is zero failures that may lead to loss of life or life-changing injuries, material negative socioeconomic impact or material environmental damage throughout the tailings facility lifecycle, from design to post-closure. In alignment with GISTM requirements, Hydro is managing its tailings facilities under the corporate Tailings Management Policy (www.hydro.com/principles).

By August 2023, the conformance of the Alunorte's and Mineração Paragominas' tailings facilities was assessed and confirmed through a self-assessment in line with the ICMM's Conformance Protocol. A third-party validation was undertaken in 2024 and attested the conformance of Valley, TDA, DRS1, and DRS2 to GISTM.

The deadline for achieving conformance with the GISTM at the tailings facilities in Schwandorf is August 2025. The conformance status will be published on Hydro's Tailings Management webpage ahead of this deadline.

² For operational purposes, DRS means dry-filtered residue stack.

Alunorte

DRS1 and DRS2



Description of the tailings facilities: In response to Requirement 15.1 – B1, B2 and B5

This item presents a description of the tailings facilities, their consequence classifications³, and a description of the design for all phases of the tailings facility lifecycle including the current and final height.

DRS1

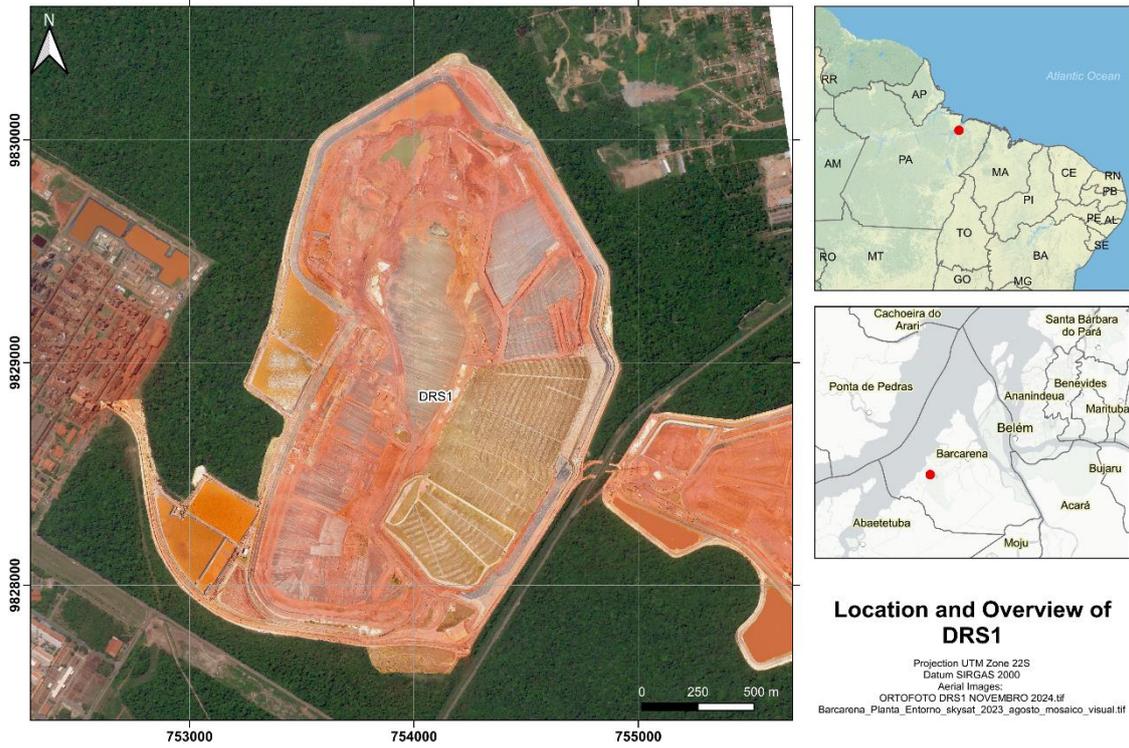
The Alunorte refinery began operations in July 1995 and, since then, has relied on the DRS1 to store the residue generated from bauxite refining process for alumina production.

DRS1 is located to the east of the Alunorte refinery, in Barcarena, in the State of Pará.

The water management system consists of surface drainage facilities and five basins connected to channels, spillways and pumping stations designed to manage the water levels during extreme rainfall events. The rainwater from DRS1 non-rehabilitated areas is also treated in the Industrial Effluent Treatment Plant to guarantee the required environmental conditions are met before discharge. The disposal area, basins and channels are lined with HDPE⁴ geomembrane to avoid migration through foundation seepage.

³ Global Industry Standard on Tailings Management

⁴ High Density Polyethylene



DRS1 Description	
Purpose	Storage of bauxite residue generated in alumina production
Current height	45.60 m
Final height	45.60 m
Volume of residue stored ⁵	63Mm ³
Maximum residue storage capacity ⁶	71 Mm ³
Implementation stages ⁷	The facility was constructed in 1994 and 1995, and underwent 11 expansions (expansions 1, 2, 3, 4, 5, 6, 7, South cell, East cells CL1, CL2, and CL3).
Current status	In operation, with progressive closure and rehabilitation
Consequence classification ⁸	Very high

⁵ Date of reference November, 2024.

⁶ The maximum capacity may vary based on the closure design.

⁷ As Is Design, Pimenta de Ávila, 2024.

⁸ The Classification of consequences was assessed with reference to Table 1 of Annex 2 of the report “Global Industry Standard for Tailings Management”. Note that the consequence classification is used to assess potential downstream impacts if a hypothetical failure scenario were to occur.

DRS1 Description	
Construction type	Compacted earth fill embankment, downstream raised.
Estimated year of closure	2034*

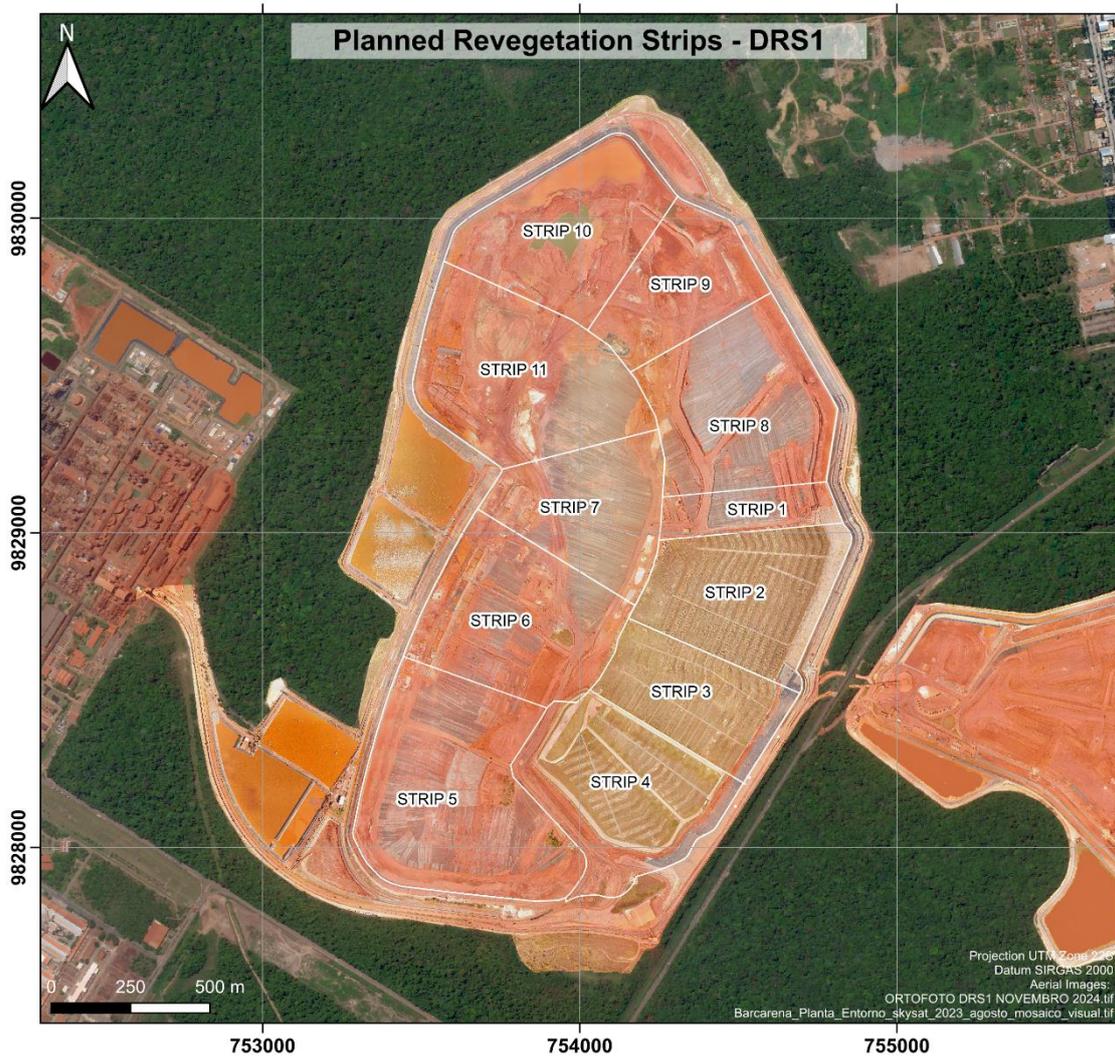
*The year of completion for the structure's closure is subject to change.

Alunorte is committed to the progressive closure and rehabilitation of the DRS1 as part of the ongoing work to reduce environmental footprint. The progressive closure and rehabilitation processes will further reduce erosion, mitigate visual impact, restore the ecosystem, and strengthen rainwater management.



The closure is divided in 11 strips of rehabilitation. The strips 2, 3 and 4 have been rehabilitated, and represent approximately 60 ha. The design considers cap and store the filtered residue with cover systems consisting of HDPE geomembrane to lining the stored residue, covered by a densified soil, and revegetation of the surface.

The image below shows the configuration of DRS1 with the proposed revegetation strips.



DRS2

The dry-filtered residue stack DRS2 was constructed in 2015. The facility was designed and built as the DRS1 was approaching the end of its lifecycle. The DRS2 is a dry stack designed to store compacted press filter residues generated from the bauxite refining process for alumina production.

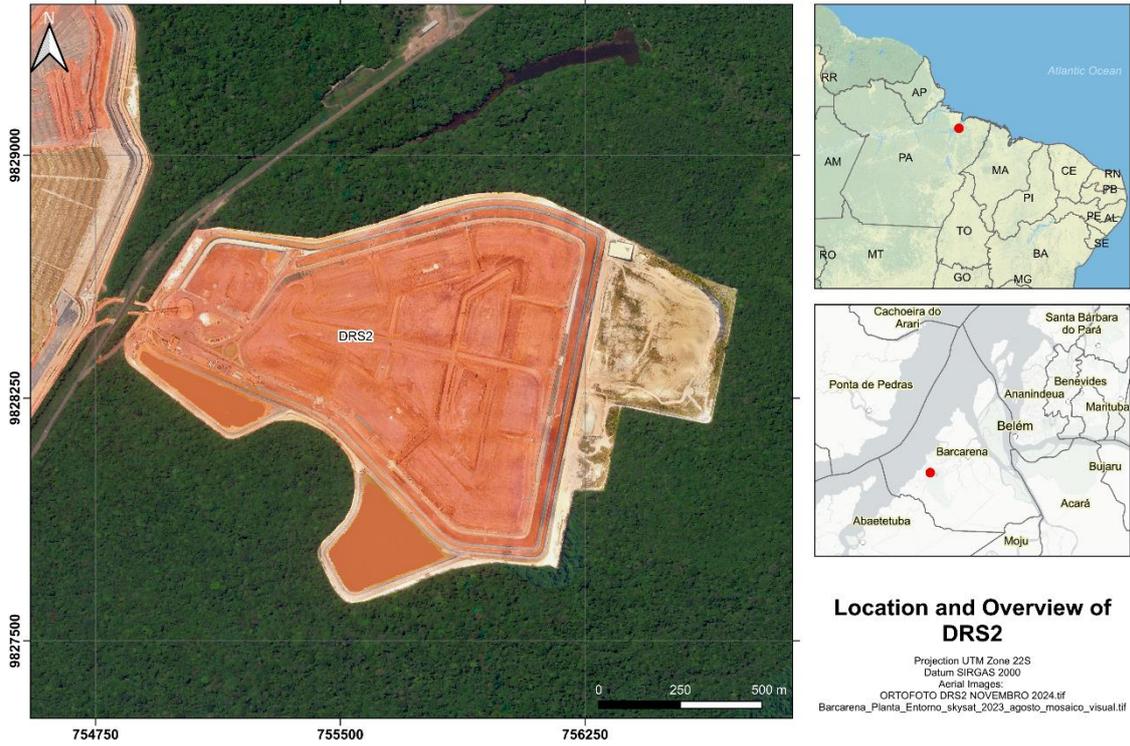


DRS2 is located at the east of the Alunorte refinery, in Barcarena, in the state of Pará, approximately 120 km from Belém.

The water management system consists of surface drainage devices and two basins connected to channels, spillways and pumping stations designed to manage the water levels during extreme rainfall events.

The water is treated in the Industrial Effluent Treatment Plant to ensure compliance with environmental regulations.

The disposal area, basins and channels are lined with HDPE geomembrane to mitigate risk of migration through foundation seepage.



DRS2 Description	
Purpose ⁹	Storage of bauxite residue generated in alumina production
Current height ¹⁰	27.50 m
Final height ¹¹	71.00 m
Volume of residue stored ¹²	9 Mm ³
Maximum residue storage capacity	25 Mm ³
Implementation stages ¹³	Singles stage construction, 2015.
Current status	In operation
Consequence classification ¹	Very high
Construction type	Initial infrastructure in compacted earth fill embankment. Stack in compacted residue.
Construction type	Compacted earth fill embankment, downstream raised.
Estimated year of closure	2031*

9 Operational Manual, 2024.

10 Date of reference November, 2024.

11 Detailed Project Phase 1, 2023.

12 Date of reference November, 2024.

13 As built, 2019.

*The year of completion for the structure's closure is subject to change.

Risk assessment: In response to Requirement 15.1 – B3

This item presents a summary of risk assessment findings relevant to the tailings facilities.

As part of its commitment to the safe operation of the tailings facilities, the Hydro Bauxite & Alumina business area regularly conducts risk assessments for the TFs.

A multidisciplinary team carries out the process, including input from designers, EoR (Engineer of Record), and the ITRC (Independent Tailings Review Committee). This process aims to reduce identified risks to as low as reasonably practicable levels (ALARP).

To achieve this objective, actions are undertaken to improve the reliability of the considered failure modes (reducing uncertainties associated with risk mapping) or enhance controls and monitoring.

The risk assessments concluded that there are no risks associated with Alunorte's TFs classified as unacceptable.

DRS1

The qualitative risk assessment's methodology employed at DRS1 is based on FMEA (Failure Mode and Effect Analysis).

The credible failure modes¹⁴ appointed are: overtopping, internal erosion and instability.

As per risk assessment recommendations, brittle failure and liquefaction studies were updated in 2024. Based on field and laboratory tests performed in the residue, the studies concluded that the stored residues are neither susceptible to liquefaction nor are subject to brittle failure.

¹⁴ Refers to technically feasible failure mechanisms given the materials present in the structure and its foundation, the properties of these materials, the configuration of the structure, drainage conditions and surface water control at the facility, throughout its lifecycle. Credible failure modes can and do typically vary during the lifecycle of the facility as the conditions vary. A facility that is appropriately designed and operated considers all of these credible failure modes and includes sufficient resilience against each. Different failure modes will result in different failure scenarios. Credible catastrophic failure modes do not exist for all tailings facilities. The term 'credible failure mode' is not associated with a probability of this event occurring and having credible failure modes is not a reflection of facility safety (GISTM, 2020).

The deposit foundation constituted by natural soils was also subject of studies. Seven different soils compose the foundation. Field and laboratory tests have been conducted and concluded that they are not susceptible to liquefaction.

The critical controls to prevent and/or mitigate credible failures are: lining system composed of HDPE geomembrane covering the dikes and foundation, existing operational procedures for water level control, pumping systems and their contingences, the Emergency Preparedness Response Plan and the trigger actions response plan (TARPs), periodic maintenance and inspection routines, desilting basins and channels, periodic spillway's maintenance, and quality assurance/quality control (QA/QC).

DRS2

The qualitative risk assessment's methodology employed at DRS2 is based on FMEA (Failure Mode and Effect Analysis).

The credible failure modes appointed are: internal erosion, overtopping, and instability.

Brittle failure and liquefaction were not considered to be credible failure modes. As per risk assessment recommendations, brittle failure and liquefaction were investigated in 2023. Based on field and laboratory tests, the studies concluded that the residues stored in DRS2, are neither susceptible to liquefaction nor are subject to brittle failure. Field and laboratory investigations are being updated for the foundation.

The critical controls to prevent and/or mitigate credible failures are: lining system composed of HDPE geomembrane covering the dikes and foundation, existing operational procedures for water level control, the Emergency Preparedness Response Plan and the trigger actions response plan (TARPs), periodic maintenance and inspection routines, desilting basins and channels, and the periodic updating of the residue disposal plan.

Potential impacts: In response to Requirement 15.1 – B4

This item provides a summary of the impact assessment and of human exposure and vulnerability to tailings facility credible flow failure scenarios.

DRS1 and DRS2

To ensure identification of potentially affected groups, the dam breach studies and the registration of employees and people within the hypothetical inundation area are regularly updated. This is part of the assessment and documentation of the potential human exposure and vulnerability to TF's credible failure scenarios.

The hypothetical inundation area refers to the downstream area that would be affected in the event of a hypothetical credible failure. This hypothetical inundation area is determined from dam breach studies and presents the geographic extent and boundaries of the area that would be potentially inundated by the sudden release of water or residues resulting from the hypothetical credible failure. It is important to note that the term credible failure mode is not associated with the probability of this event occurring and having credible failure modes is not a reflection of the tailings facility's safety.

The dam breach studies developed to Alunorte's tailings facilities adopted a 2-dimensional, non-newtonian fluid modeling, based on rheological, geotechnical, chemical, and mineral characterization of the materials. The studies comply to the applicable legal requirements.

The DRS1 dam breach study has 12 flow failure scenarios, which encompass all the contour of the deposit dyke. The hypothetical inundation area reflected in the DRS1 Emergency Preparedness and Response Plan (EPRP) embraces the merge of the critical failure scenarios, including those resulting from basins rupture.

The hypothetical inundation area considered in the DRS2 EPRP was determined from nine failure scenarios over the deposit contour, including those resulting from basins rupture.

Based on the dam breach studies, the potential impacts resulting from a hypothetical catastrophic failure in the Alunorte TFs have been estimated and are presented below.

DRS1 – Hypothetical impacts	
Municipality	Barcarena - PA
Human exposure and vulnerability	Human exposure: workers, residents, or floating population within the inundation area (SRZ ¹⁵ or SSZ ¹⁶).
Hypothetical impacts to communities, infrastructure, and environment ¹⁷	<ul style="list-style-type: none"> • Potential loss of life • Electrical supply interruption • Water supply interruption • Blocked internal access and external roads • Impact in water quality • Silting of the surrounding creeks and channels • Impact on local soil, fauna, and flora
DRS2 – Hypothetical impacts	
Municipality	Barcarena - PA
Human exposure and vulnerability	Human exposure: workers, residents or floating population within the inundation area (SRZ or SSZ).
Hypothetical impacts to communities, infrastructure, and environment ¹⁸	<ul style="list-style-type: none"> • Potential loss of life • Electrical supply interruption • Water supply interruption • Blocked internal access and external roads • Impact in water quality • Silting of the surrounding creeks and channels • Impact on local soil, fauna, and flora

The inundation area resulting from a hypothetical failure and the registration of the potentially affected population are inputs for the development of the EPRP. The EPRP supports the identification and classification of emergency situations that may pose a risk to the integrity of the facilities and establishes immediate response actions to be taken in these situations in terms of the evacuation protocol, authorities, and responsible agents to be notified, aiming to prevent and minimize damage and loss of life.

¹⁵ According to Normative Instruction Nr. 12, dated December 27, 2019, the self-recue zone (SRZ) is the downstream area of a valley where it is considered that warning alerts to the population are of responsibility of the entrepreneur, as there is not enough time for intervention and evacuation by the competent authorities in emergency situations.

¹⁶ The secondary safety zone (SSZ), defined by Federal Law Nr. 14066, dated September 30th, 2020, consists of the portion of the flooding area where is not defined as SRZ.

¹⁷ Emergency Preparedness and Response Plan, 2022.

¹⁸ Emergency Preparedness and Response Plan, 2022.

Periodic review and independent review: In response to Requirement 15.1 – B6 and B9

This item presents a summary of material findings of annual performance reviews¹⁹ and the dam safety review²⁰ (DSR), including implementation of mitigation measures to reduce risk to ALARP²¹, and the dates of most recent and next independent reviews.

DRS1

The annual performance review is carried out on a half yearly basis in order to comply with applicable legislation²².

A performance review was carried out in June 2024 and concluded that the safety and stability conditions of the DRS1 are satisfactory.

The monitoring and visual inspections reinforce these statements.

The DSR is a mandatory legal requirement to perform periodic evaluation of the dam structural, hydrologic, and geotechnical safety. The frequency is based on the potential consequences of the associated risks. The DSR is carried out by a third party, and the results are reported to the competent authorities. The DSR was carried out in December 2024 and concluded that DRS1 structural safety, global stability and hydrological safety conditions are satisfactory.

Our commitment to reduce the risks to ALARP highlighted the importance of the following actions: to keep the water storage areas conformed and cleaned, to maintain the basins in accordance with the hydrological premises, to maintain the internal areas of the deposit drained, maintain culverts cleaned, and to adjust the embankment, stack and channels geometries, and control basins volume. The continuous improvements mentioned above are initiatives concluded and maintained by Alunorte to reduce risks to ALARP.

According to the current legal requirements and GISTM, the next DSR for DRS1 will take place in 2029 (5-year frequency).

¹⁹ RISR (the safety inspection audit report) is the equivalent to the GISTM annual performance review

²⁰ RPSB (the periodic dam safety review) is the equivalent to the GISTM dam safety review.

²¹ ALARP: risk level as low as reasonably practicable.

²² Normative Rule No. 02/2018, SEMAS.

DRS2

The Annual Performance Review is performed on an annual basis, as prescribed in the operational license.

The most recent performance review²³ was carried out in June 2024. It concluded that the safety and stability conditions of DRS2 are satisfactory.

The monitoring and visual inspections reinforce these statements.

The DSR for DRS2 followed the same criteria as for DRS1.

The DSR was carried out in June 2022 and the conclusion is that the structural conditions of safety, stability, and hydrological safety of DRS2 are satisfactory.

The performance-based design is adopted to continuously increase the level of confidence, improve design and reduce the project risks to ALARP.

According to the current legal requirements and GISTM, the next DSR for DRS2 will take place in 2027 (5-year frequency).

²³ RISR (the safety inspection audit report) is the equivalent to the GISTM annual performance review.

Monitoring: In response to Requirement 15.1 – B7

This section presents a summary of the environmental and social monitoring program including implementation of mitigation measures. Alunorte monitoring and reporting system to the regulator includes monitoring of water, and air. In 2024, there were no material deviation directly attributable to our operations.

DRS1

Environmental Monitoring (DRS1)

Monitoring of surface water, groundwater, and air quality parameters potentially related to DRS1 operations is part of Alunorte's operational license. The disclosure of this environmental data is carried out through the Annual Environmental Information Report (RIAA). The RIAA is a mandatory reporting requirement to demonstrate compliance with environmental licensing procedures. In addition to the obligation to disclose environmental data, it also requires the development of environmental programs to properly assess and mitigate the potential impacts resulting from the activities carried out. The data is disclosed annually and verified by a third party under management system audits. There were no material findings or events during 2024.

Surface water quality (DRS1)

The surface water parameters potentially related to DRS1 activities are monitored. The monitoring is performed by third parties and the results are reported to the regulator through the annual RIAA, in compliance with the operational license. There were no material findings or events during 2024.

Groundwater quality (DRS1)

The groundwater parameters potentially related to DRS1 activities are monitored. The monitoring is performed by third parties and the results are reported to the regulator through the annual RIAA, in compliance with the operational license. There were no material findings or events during 2024.

Air quality (DRS1)

The air quality monitoring stations to assess air quality parameters potentially related to Alunorte' operations are monitored. The monitoring is performed by third parties and the results are reported to the regulator through the annual

RIAA, in compliance with the operational license. There were no material findings or events during 2024.

For further information on environmental monitoring, see Hydro's [Annual Report for 2024](#).

Social Monitoring (DRS1)

Hydro provides a grievance mechanism named *Canal Direto* to monitor and facilitate the effective communication with local communities.

Canal Direto is a channel for complaints, suggestions, or clarifications regarding Hydro's operations. The channel is operated by an independent supplier following United Nations Guiding Principles on Business and Human Rights.

Canal Direto is available 24 hours a day and can be accessed by a toll-free local phone number 0800 721 0794, by the e-mail canaldireto@hydro.com or on [Hydro's website](#). The channel complies with LGPD (Brazilian General Data Protection Law), protecting anonymity, and providing accessibility to people with visual or hearing disabilities.

For further information on social monitoring, see [Hydro's Annual Report for 2024](#).

DRS2

Environmental Monitoring (DRS2)

Monitoring of surface water, groundwater and air quality parameters potentially related to DRS2 operations are part of Alunorte's operational license. The disclosure of this environmental data is carried out through the Annual Environmental Information Report (RIAA). The RIAA is a mandatory reporting requirement to demonstrate compliance with environmental licensing procedures. In addition to the obligation to disclose environmental data, it also requires the development of environmental programs to properly assess and mitigate the potential impacts resulting from the activities carried out. The data is disclosed annually and verified by a third party. There were no material findings or events during 2024.

Surface water quality (DRS2)

The surface water parameters potentially related to DRS2 activities are monitored. The monitoring is performed by third parties and the results are

reported to the regulator through the annual RIAA, in compliance with the operational license. There were no material findings or events during 2024.

Groundwater quality (DRS2)

The groundwater parameters potentially related to DRS2 activities are monitored. The monitoring is performed by third parties and the results are reported to the regulator through the annual RIAA, in compliance with the operational license. There were no material findings or events during 2024.

Air quality (DRS2)

The air quality parameters potentially related to Alunorte' operations are monitored. The monitoring is performed by third parties and the results are reported to the regulator through the annual RIAA, in compliance with the operational license. There were no material findings or events during 2024.

For further information on environmental monitoring, see [Hydro's Annual Report for 2024](#).

Social Monitoring (DRS2)

Information on social monitoring related to DRS2 operations can be found on the previous section on the DRS1.

Emergency plan and information for external agencies: In response to Requirement 15.1 – B8 and C

This section presents a summary version of the tailings facilities emergency preparedness and response plan (EPRP) for facilities that have a credible failure mode(s) that could lead to a flow failure event that:

- (i) is informed by credible flow failure scenarios from the tailings facility breach analysis;
- (ii) includes emergency response measures that apply to project affected people as identified through the tailings facility breach analysis and involve cooperation with public sector agencies.

This section also provides local authorities and emergency services with information derived from the breach analysis to enable effective disaster management planning.

The EPRP aims to identify and classify emergency situations that may pose a risk to the integrity of the structures, as well as establish immediate actions to be taken in such emergency situations, including engagement with authorities. The EPRP is subject to periodic updates, and Alunorte emergency response teams are maintained, trained and in readiness state.

The plans developed to DRS1 and DRS2 present the corrective and mitigating measures, and the available resources related to each potential failure mode according to the emergency response level. The EPRP presents the defined emergency notification flows between the company and authorities, represented by external agents. These agents include municipal, state, and national civil defense, the Coordination of the National Center for Risk and Disaster Management (CENAD), environmental agencies, agencies with responsibilities for emergency response, municipalities potentially affected, regulatory bodies, and other competent public authorities.

In compliance to the applicable legislation, the Fire Department, Police officers, Municipal, State and Federal Civil Protection and Defense, Environmental and Economic Development Municipal Secretary (SEMADE), Environmental and Sustainability State Secretary (SEMAS), Transport State Secretary (SETRAN), Brazilian Institute of Environment and Renewable Natural Resources (IBAMA), the Municipality of Barcarena have received the EPRP of DRS1 and DRS2. To mitigate or prevent consequences of a hypothetical failure, Alunorte has implemented a communication plan to engage internal and external agents with emergency responsibilities to attend the following emergency response measures: a mass communication system through radios and cell phones, establishing a "Community Environmental Brigade," which consists of a specialized team to support the communities with vehicles with alert systems for evacuation in case of emergencies.

A three-phase evacuation procedure has been established. In the First stage, communication, the alert systems are activated for the individuals to proceed with the preventive evacuation with the assistance of a specialized team provided by Hydro, and the event is informed internally and externally following the communication plan. The Second stage is the crowding out, whereas the evacuation is conducted through pre-defined and fast routes. Alunorte has implemented signs identifying the exit routes within the affected communities towards the meeting points foreseen in the EPRP. The Third stage is finishing the procedure, which establishes that after reaching safe and pre-defined meeting points individuals shall wait for an emergency rescue team for following care.

Aiming to mitigate potential impacts due to a failure, in case of emergency, Alunorte is committed to adopt the following actions listed in the EPRP: to establish a crisis headquarter, to settle partnerships on emergency response, control or limit local accesses, provide aid and assistance to individuals and animals, provide human-resources and logistics, reestablish essential services and provide actions for mitigation of environmental and social impacts.

DRS1

The EPRP presents three hypothetical failure modes that could potentially lead to a breach: overtopping, internal erosion within the embankment or foundation, and slope instability. The plan considered the hypothetical credible failure events that would potentially lead to higher impacts in the downstream area, as indicated by the dam breach study.

The public authorities and the community are engaged through seminars, workshops, tabletops, and internal and external emergency drills. The processes are audited by third-party specialists aiming to assess the effectiveness of the response measures and compliance with applicable legislation.

The 2023/2024 audit attested compliance and the effectiveness of the DRS1's EPRP.

The 2024/2025 cycle has commenced, and the internal workshop, notification flow assessment, tabletop, and the internal practical drill were audited in October 2024.

DRS2

The EPRP presents three hypothetical potential failure modes that could potentially lead to a breach: overtopping, internal erosion within the embankment or foundation, and slope instability. The plan considered the hypothetical credible failure events that would potentially lead to higher impacts in the downstream area, as indicated by the stack and dam breach studies.

The public authorities are engaged through seminars, workshops, tabletops, and internal and external emergency drills. There is no affected community within the self-rescue zone. The processes are audited by third-party specialists aiming to assess the effectiveness of the response measures and compliance with applicable legislation.

The 2023/2024 audit attested compliance and the effectiveness of the DRS2's EPRP.

The 2024/2025 cycle has commenced, and the internal workshop, notification flow assessment, tabletop, and the internal practical drill were audited in October 2024.

Financial capacity: In response to Requirement 15.1 – B10

This item presents the annual confirmation that the Operator has adequate financial capacity to cover estimated costs of planned closure, early closure, reclamation, and post-closure of the tailings facility and its appurtenant structures.

Hydro recognizes, measures, and discloses provisions and contingent liabilities in accordance with the International Finance Reporting Standard (IFRS), IAS 37 Provisions, Contingent Liabilities, and Contingent Assets.

DRS1

As of year-end 2024, the provisions (ARO) for the DRS1 totaled BRL 564 million²⁴. The facility is expected to be closed in 2034.

DRS2

As of year-end 2024, the provisions (ARO) for the DRS2 totaled BRL 197 million²⁵. The facility is expected to be closed in 2034.

²⁴ The estimated closure year and the financial provisions are subject to revision due to local economic variations and the progress of project phases.

²⁵ The estimated closure year and the financial provisions are subject to revision due to local economic variations and the progress of project phases.

Mineração Paragominas

TDA and Valley

Description of the tailings facilities: In response to Requirement 15.1 – B1, B2 and B5

This item presents a description of the tailings facilities, their consequence classifications, and a description of the design for all phases of the tailings facility lifecycle including the current and final height.

TDA (previously named RP1)



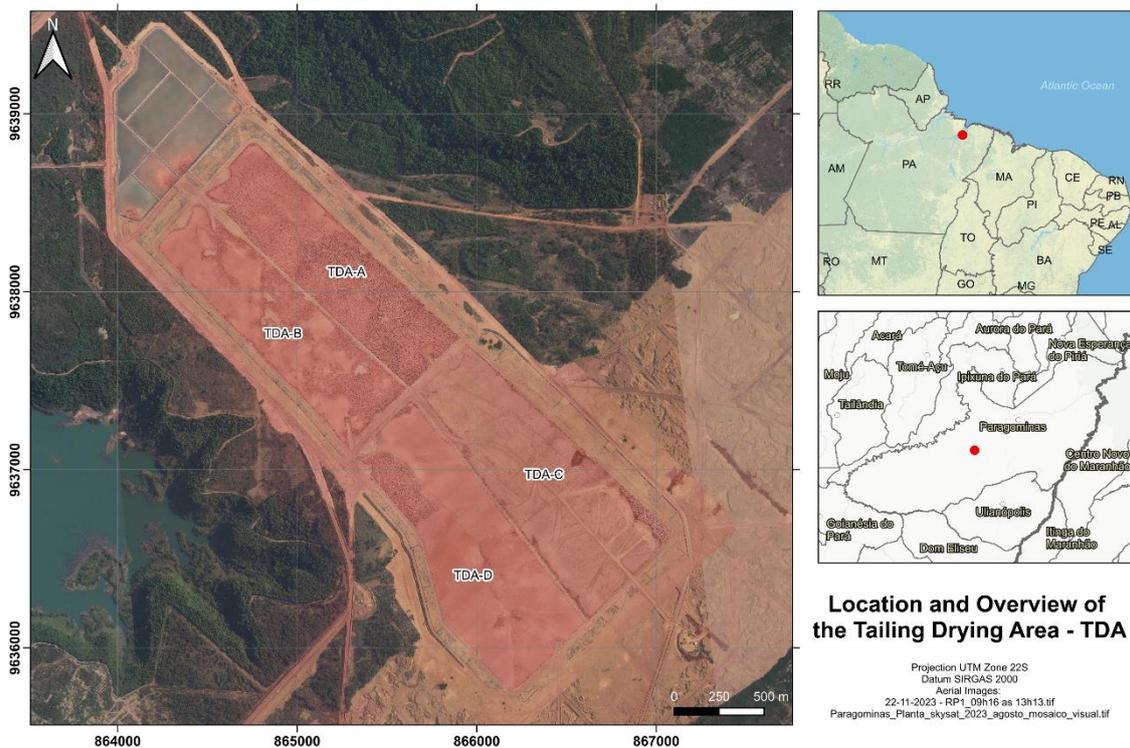
The TDA of Mineração Paragominas S.A. consists of four disposal quadrants (TDA-A, TDA-B, TDA-C, and TDA-D) delimited by internal and peripheral dikes and is responsible for the temporary drying of the tailings generated from the beneficiation of bauxite ore.

From TDA, the dried bauxite tailings are mechanically excavated and transported to the mined-out areas, where the tailings are permanently stored and covered by overburden as part of the land forming and rehabilitation

processes. This novel methodology developed and employed by Hydro is named tailings dry backfill.

The water is managed through a system consisting of surface drainage devices, spillways, channels and basins designed to manage the water levels during extreme rainfall events of probable maximum precipitation.

TDA began operation in 2017. TDA is located approximately 70 km southwest of the municipality of Paragominas, in the northeastern region of the state of Pará.



TDA Information	
Purpose ²⁶	Temporary drying of tailings from bauxite ore beneficiation
Current height	13.50 m
Final height	13.50 m

²⁶ Operations, Maintenance and Surveillance Manual, June 2023.

TDA Information	
Maximum tailings storage ²⁷ capacity	10.55 Mm ³
Implementation stages ²⁸	Single-stage construction, 2017
Current status	In operation
Consequence classification ²⁹	High
Construction type	Compacted earth fill embankment, starter dike
Estimate year of closure*	2050

*The year of completion for the structure's closure is subject to change.

Valley

The Valley tailings facility comprises the B1, B5, and B6 dams, along with an auxiliary dike (B3) and a contour channel, and its purpose is the disposal of tailings from the beneficiation of bauxite ore.

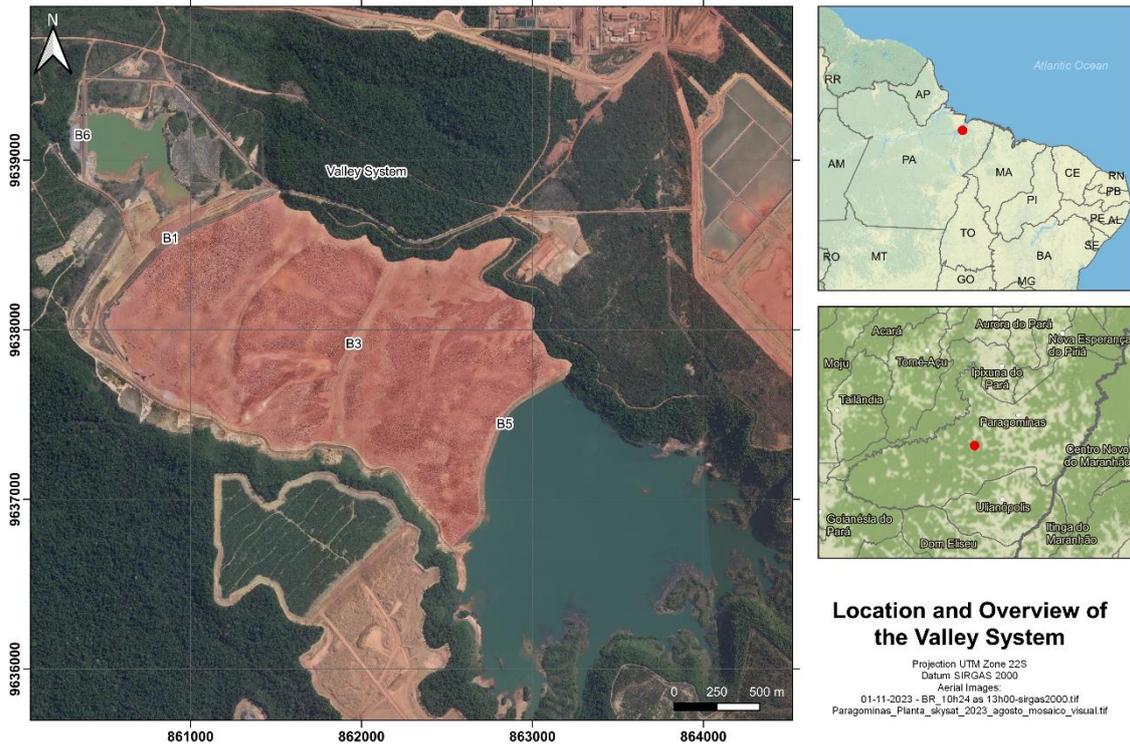
The water is managed through system consisting of surface drainage devices, spillways, and channels designed to manage the water levels during extreme rainfall events of probable maximum precipitation.

The Valley tailings facility at Mineração Paragominas S.A. is located approximately 70 km southwest of the municipality of Paragominas, in the northeastern region of the state of Pará.

²⁷ As part of the Tailings Dry Backfill technology, the tailings are temporarily stored for drying purposes before the permanent disposal at the mined-out areas.

²⁸ As Is Design, 2018.

²⁹ The Classification of consequences was elaborated with reference to Table 1 of Annex 2 of the report "Global Industry Standard for Tailings Management".



Valley Information	
Purpose ³⁰	Storage of the tailings generated from the beneficiation of bauxite ore.
Current height	B1 Dam: 31.80 m B5 Dam: 37.00 m B6 Dam: 13.00 m
Final height	B1 Dam: 31.80 m B5 Dam: 37.00 m B6 Dam: 13.00 m
Volume of tailings stored ³¹	43.50 Mm ³
Maximum tailings storage capacity	51.50 Mm ³
Implementation stages ³²	The B1 dam was constructed in 2005/06 and 5 stages were raised. The starter dike of B6 dam was constructed in 2006 in a single stage construction. The B5 dam was constructed in 2005/06 and were raised on 6 stages.
Current status	In operation
Consequence classification ³³	Very high

30 Operations, Maintenance and Surveillance Manual, 2023.

31 Date of reference November, 2024.

32 As Built 6th Raise Report, 2015/2017.

33 The Classification of consequences was elaborated with reference to Table 1 of Annex 2 of the report “Global Industry Standard for Tailings Management”.

Valley Information	
Construction type	B1 dam: compacted earth fill embankment, 3 downstream raisings and 2 center line raisings B6 dam: heterogeneous section, starter dike in compacted earth fill and buttress in rockfill B5 dam: compacted earth fill, downstream raised
Estimated year of closure ³⁴	2040*

*The year of completion for the structure's closure is subject to change.

Risk assessment: In response to Requirement 15.1 – B3

This item provides a summary of risk assessment findings relevant to the tailings facilities.

As part of its commitment to the safe operation of the tailings facilities, the Hydro Bauxite & Alumina business unit regularly conducts risk assessments for the TFs.

A multidisciplinary team carries out the process, including input from designers, EoR (Engineer of Record), and ITRC (Independent Tailings Review Committee). This process aims to reduce identified risks to as low as reasonably practicable (ALARP).

To achieve this objective, actions are undertaken to improve the reliability of the considered failure mode (reducing uncertainties associated with risk mapping) or enhancing controls and monitoring.

The risk assessment concluded that there are no risks in the Mineração Paragominas TFs classified as unacceptable.

TDA

The qualitative risk assessment methodology employed at TDA is based on FMEA (Failure Mode and Effect Analysis).

³⁴ SR1 Tailings Dams Closure Plan, 2019.

The risk assessment program concluded there are no risks classified as unacceptable.

The credible failure modes appointed are: overtopping, internal erosion, and instability.

The brittle failure and liquefaction were not considered as credible failure modes.

The critical controls to prevent and/or mitigate credible failures are: maintenance procedures as per the Operations Manual, routine visual and safety inspections, geotechnical monitoring center, Emergency Preparedness Response Plan and the trigger actions response plan (TARPs), active monitoring of the Self-Rescue Zone (ZAS) and the Secondary Safety Zone (ZSS).

Valley

The qualitative risk assessment's methodology employed at Valley is based on FMEA (Failure Mode and Effect Analysis).

The risk assessment program concluded that there are no risks classified as unacceptable.

The credible failure modes appointed are: internal erosion, overtopping, and instability.

As per risk assessment recommendations, brittle failure and liquefaction assessments were updated in 2023. As a result, the studies concluded that the bauxite tailings are neither susceptible to liquefaction nor are subject to brittle failure.

The dams' foundations constituted by natural soils were also subject to the study. Laboratory tests are being updated on samples from B1 and B6 foundations.

The critical controls to prevent and/or mitigate credible failures are: maintenance procedures as per the Operations, Maintenance and Surveillance Manual, routine visual and safety inspections, geotechnical monitoring center, Emergency Preparedness Response Plan, the trigger actions response plan (TARPs), and the active monitoring of the Self-Rescue Zone (ZAS) and the Secondary Safety Zone (ZSS).

Potential impacts: In response to Requirement 15.1 – B4

This item provides a summary of the impact assessment and of human exposure and vulnerability to tailings facility credible flow failure scenarios.

TDA and Valley

To ensure identification of potentially affected groups, the dam breach studies and the registration of employees and people within the inundation areas are regularly updated. This is part of the assessment and documentation of the potential human exposure and vulnerability to TF's credible failure scenarios.

The hypothetical inundation area refers to the downstream area that would be affected in the event of a hypothetical, credible failure. This hypothetical inundation area is determined from dam breach studies and presents the geographic extent and boundaries of the area that would be inundated by the sudden release of water or tailings resulting from the hypothetical credible failure. It is important to note that the term credible failure mode is not associated with the probability of this event occurring and having credible failure modes is not a reflection of the tailings facility's safety.

The dam breach studies developed to Mineração Paragominas tailings facilities adopted a 2-dimensional, non-newtonian fluid modeling, based on rheological, geotechnical, chemical and mineral characterization of the materials. The studies are in compliance with the applicable legal requirements.

The TDA dam breach study considered six flow failure scenarios, which encompasses all the dyke perimeter. The hypothetical inundation area reflected in the EPRP embraces the merge of the critical failure scenarios, including those resulting from basins rupture.

Additionally, the hypothetical inundation area considered in the Valley EPRP was determined from three flow failure scenarios, which encompasses the rupture of B1 dam associated with B3 auxiliary dyke and the B6 dam in cascade.

Based on the dam breach studies, the potential impacts resulting from a hypothetical catastrophic failure in the TDA and Valley TFs have been estimated and are presented below.

TDA – Hypothetical impacts	
Municipality	Paragominas – PA
Human exposure and vulnerability	Human exposure: workers or floating population within the inundation area (SRZ or SSZ).
Hypothetical impacts to communities, infrastructure and environment	<ul style="list-style-type: none"> • Potential loss of life • Industrial water supply interruption • Blocked internal access • Impact in surface water quality and increasing turbidity • Silting of the surrounding creeks • Inundation of rural areas • Impact on local soil, fauna and flora

Valley –Hypothetical impacts	
Municipality	Paragominas – PA
Human exposure and vulnerability	Human exposure: workers, residents or floating population within the inundation area (SRZ or SSZ).
Hypothetical impacts to communities, infrastructure and environment	<ul style="list-style-type: none"> • Potential loss of life • Electrical supply interruption • Water supply interruption • Blocked internal access and external roads • Impact in water quality and increasing turbidity • Silting of the surrounding rivers • Inundation of rural areas • Impact on local soil, fauna and flora

Periodic review and independent review: In response to Requirement 15.1 –B6 and B9

This item presents a summary of material findings of annual performance reviews³⁵ and dam safety review³⁶ (DSR), including implementation of mitigation measures to reduce risk to ALARP, and the dates of most recent and next independent reviews.

TDA

In order to comply with the National Mining Agency legislation³⁷ the Annual Performance Review³⁸ is carried out on half-yearly basis.

A performance review was carried out in September 2024. It concluded that the stability and hydraulic safety conditions of TDA are satisfactory.

The monitoring results and the routine and safety inspection data reinforce these statements.

The DSR is a mandatory legal requirement to periodically evaluate the structural, hydrological, and geotechnical safety of the tailing facility. The DSR is updated upon a predetermined frequency based on the potential consequences or whenever there is a material change in the facility.

The review is carried out by a third party and the results are reported to the relevant authorities.

The DSR was performed in July 2024 and concluded that TDA structural safety, stability and hydrological safety conditions are satisfactory.

Strengthening our commitment to reducing the risks to ALARP, the following actions were concluded: the evaluation of internal erosion through event fault tree analysis, the implementation of displacements monitoring using InSAR, completion of susceptibility to liquefaction assessment, and the regularization of the clarification basins' crest.

According to current legal requirements, the next DSR for TDA should take place in 2029.

35 RISR (the safety inspection audit report) is the equivalent to the GISTM annual performance review.

36 RPSB (the periodic dam safety review) is the equivalent to the GISMT dam safety review.

37 Resolution n 95, February, 2022, ANM.

38 RISR (the safety inspection audit report) is the equivalent to the GISTM annual performance review.

Valley

To comply with National Mining Agency legislation the Annual Performance Review³⁹ is performed on half-yearly basis.

A performance review was carried out in November 2024. It concluded that the stability and hydraulic safety conditions of Valley system (B1, B5 and B6) are satisfactory.

The monitoring and visual inspections reinforce these statements.

The review is carried out by third party, and the results are reported to the competent authorities.

The DSR for B1, B5, and B6 dams of the Valley system were issued in June 2022, May 2021, and July 2024, respectively, and concluded that the stability and hydrological safety of the structures are satisfactory.

Strengthening our commitment to reducing the risks to ALARP, the following actions were concluded: revisions of water levels, monitoring of structures and internal erosions, studies to evaluate the susceptibility to liquefaction assessment on tailings, reviewing operational water level, monitoring the floodgate operation, evaluating internal erosion through event fault tree analysis, and implementing displacements monitoring using InSAR. According to current legal requirements and GISTM, the next DSR reviews should take place in 2025, 2028, and 2027 for B1, B5, and B6 dams, respectively.

Monitoring: In response to Requirement 15.1 – B7

This section presents a summary of material findings of the environmental and social monitoring program including implementation of mitigation measures.

Mineração Paragominas monitoring and reporting system to the regulator includes monitoring of water, air, soil quality. In 2024, there were no material deviation directly attributable to our operations.

³⁹ RISR is the safety inspection audit report.

TDA

Environmental monitoring (TDA)

Monitoring of surface water, groundwater and air quality parameters potentially related to TDA operations is part of Mineração Paragominas' operational license. The disclosure of this environmental data is carried out through the Annual Environmental Information Report (RIAA). The RIAA is a mandatory reporting requirement to demonstrate compliance with environmental licensing procedures. In addition to the obligation to disclose environmental data, it also requires the development of environmental programs to properly assess and mitigate the potential impacts resulting from the activities carried out. The data is disclosed annually and verified by a third party under management system audits. There were no material findings or events during 2024.

Surface water quality (TDA)

TDA is located on the Miltônia 3 Plateau and is delimited by the Parariquara and Cachoeirinha catchment basins. The monitoring is performed by third parties and the results are reported to the regulator through the annual RIAA in compliance with the operational license. There were no material findings or events during 2024.

Groundwater quality (TDA)

The groundwater quality parameters potentially related to TDA operations are monitored. The monitoring is also performed by third parties and the results are reported to the regulator through the annual RIAA in compliance with the operational license. There were no material findings or events during 2024.

Soil (TDA)

The soil quality parameters potentially related to TDA operations are monitored. The monitoring is carried out by third parties and the results are reported to the regulator through the annual RIAA in accordance with the operating license. There were no environmental impacts on the soil associated with the TDA TF during 2024.

Air quality (TDA)

The air quality parameters potentially related to Mineração Paragominas' operations are monitored. The monitoring is performed by third parties and the results are reported to the regulator through the annual RIAA, in compliance with the operational license. There were no material findings or events during 2024.

For further information on environmental monitoring, see [Hydro's Annual Report for 2024](#).

Social Monitoring (TDA)

Hydro provides a grievance mechanism named *Canal Direto* to monitor and facilitate the effective communication with local communities.

Canal Direto opens a channel for complaints, suggestions, or clarifications regarding Hydro's operations. The channel is operated by an independent supplier following United Nations Guiding Principles on Business and Human Rights.

Canal Direto is available 24 hours a day and can be accessed by a local toll-free phone number 0800 721 0794, by the e-mail canaldireto@hydro.com or on [Hydro's website](#). The channel complies with LGPD (Brazilian General Data Protection Law), protecting anonymity, and providing accessibility to people with visual or hearing disabilities.

For further information on social monitoring, see [Hydro's Annual Report for 2024](#).

Valley

Environmental monitoring (Valley)

Monitoring of groundwater and wastewater quality parameters potentially related to Valley operations are part of Mineração Paragominas' operational license. The disclosure of this environmental data is carried out through the Annual Environmental Information Report (RIAA). The RIAA is a mandatory reporting requirement to demonstrate compliance with environmental licensing procedures. In addition to the obligation to disclose environmental data, it also requires the development of environmental programs to properly assess and mitigate the potential impacts resulting from the activities carried out. The data is disclosed annually and verified by a third party under management system audits. There were no material findings or events during 2024.

In addition, Mineração Paragominas monitors surface water as per its Environmental Control Plan.

Surface water quality (Valley)

The surface water quality parameters potentially related to the Valley's operations are monitored. The monitoring is performed by third parties and the results are reported to the regulator through the mine annual RIAA, written by the same third parties. There were no material findings or events during 2024.

Groundwater quality (Valley)

The groundwater parameters potentially related to the Valley's operations are monitored. Monitoring is carried out by a third-party company and the results are reported to the regulatory body through the annual RIAA in accordance with the operating license. There were no material findings or events during 2024.

Soil (Valley)

The soil quality parameters potentially related to the Valley's operations are monitored. Monitoring is carried out by a third-party company, and the results are reported to the regulator through the annual RIAA in accordance with the operating license. There were no material findings or events during 2024.

Wastewater quality (Valley)

The wastewater parameters related to the Valley's operations are monitored. After the clarification phase, the wastewater is discharged on soil. The wastewater monitoring is carried out by a third-party company, and the results are reported to the regulator through the annual RIAA in accordance with the operating license. There were no material findings or events during 2024.

For further information on environmental monitoring, see [Hydro's Annual Report for 2024](#).

Social Monitoring (Valley)

Information on social monitoring related to Valley operations can be found on the previous section on the TDA.

Emergency plan and information for external agencies: In response to Requirement 15.1 – B8 and C

This section presents a summary version of the tailings facilities emergency preparedness and response plan (EPRP) for facilities that have a credible failure mode(s) that could lead to a flow failure event that:

- (i) is informed by credible flow failure scenarios from the tailings facility breach analysis;
- (ii) includes emergency response measures that apply to project affected people as identified through the tailings facility breach analysis and involve cooperation with public sector agencies.

This section also provides local authorities and emergency services with information derived from breach analysis to enable effective disaster management planning.

The EPRP aims to identify and classify emergency situations that may pose a risk to the integrity of the structures, as well as establish immediate actions to be taken in such emergency situations, including engagement with authorities. The EPRP is subject to periodic updates, and Mineração Paragominas' emergency response teams are maintained, trained and in readiness state.

The plans developed to TDA and Valley presents the corrective and mitigating measures, and the available resources related to each potential failure mode according to the emergency response level. The EPRP presents the defined emergency notification flows between the company and authorities, represented by external agents. These agents include municipal, state and national civil defense, fire department, the Coordination of the National Center for Risk and Disaster Management (CENAD), environmental agencies, agencies with responsibilities for emergency response, municipalities potentially affected, regulatory bodies, and other competent public authorities.

In compliance to the applicable legislation, the public authorities Municipal City Hall, Municipal Civil Defense (Paragominas), Fire department and State Civil Defense (Pará) have received the EPRP of TDA and Valley. To mitigate or prevent consequences of a hypothetical failure, Mineração Paragominas has implemented a communication plan to engage internal and external agents with emergency responsibilities to attend the following emergency response measures: a mass communication system including sirens and radio communicators.

Mineração Paragominas has established a three-phase evacuation procedure. In the First stage, communication, the alert systems are automatically or manually activated for the individuals to proceed with the evacuation. The second stage is the crowding out, whereas the evacuation is conducted through

clean, pre-defined and fast routes. Mineração Paragominas has implemented signs identifying the exit routes within the inundation area, including the industrial and rural roads, towards the meeting points foreseen in the EPRP. The third stage is finishing the procedure, which establishes that after reaching safe and pre-defined spots individuals shall wait for an emergency rescue team for following care.

Aiming to mitigate potential impacts due to a failure, in case of emergency, Mineração Paragominas is committed to adopt the following actions listed in the EPRP: to establish a crisis headquarter, to settle partnerships on emergency response, control or limit local accesses, provide aid and assistance to individuals and animals, provide human-resources and logistics, reestablish essential services and provide actions for mitigation of environmental and social impacts.

TDA

The EPRP presents three hypothetical failure modes that could potentially lead to a breach: overtopping, internal erosion within the embankment or foundation, and slope instability. The plan considered the hypothetical credible failure events that would potentially lead to higher impacts in the downstream area, as indicated by the dam breach study.

The public authorities are engaged through seminars, workshops, tabletops and internal and external practical emergency exercises. There is no community within the self-rescue zone. The processes are audited by third-party specialists aiming to assess the effectiveness of the response measures and compliance with applicable legislation.

The audit (2023/2024) attested compliance and the effectiveness of the TDA's EPRP.

The 2024/2025 cycle has commenced, and the internal workshops, seminars with external agents, and internal and external emergency drills were audited in November 2024.

Valley

The EPRP presents three hypothetical failure modes that could potentially lead to a breach: overtopping, internal erosion within the embankment or foundation, and slope instability. The plan considered the hypothetical credible failure events that would potentially lead to higher impacts in the downstream area, as indicated by the dam breach study.

The public authorities are engaged through seminars, workshops, tabletops and internal and external practical emergency drills. There is no community within the self-rescue zone. The processes are audited by third party specialists aiming to assess the effectiveness of the response measures and compliance with applicable legislation.

The audit (2023/2024) attested compliance and the effectiveness of the Valley's EPRP.

The 2024/2025 cycle has commenced, and the internal workshops, seminars with external agents, and internal and external emergency drills were audited in November 2024.

Financial capacity: In response to Requirement 15.1 – B10

This item presents the annual confirmation that the Operator has adequate financial capacity to cover estimated costs of planned closure, early closure, reclamation, and post-closure of the tailings facility and its appurtenant structures.

Hydro prepares and revises the cost estimate following the ARO (Asset Retirement Obligation) methodology⁴⁰, with public disclosure in financial reports.

TDA

As of year-end 2024, the provisions (ARO) for the TDA tailings facility totaled BRL 20 million⁴¹. The facility is expected to be closed in 2053.

Valley

As of year-end 2024, the provisions (ARO) for the Valley tailings facility totaled BRL 7 million⁴². The facility is expected to be closed in 2046.

40 Prepared in accordance with International Financial Reporting Standards (IFRS).

41 The estimated closure year and the financial provisions are subject to revision due to local economic variations and the progress of project phases.

42 The estimated closure year and the financial provisions are subject to revision due to local economic variations and the progress of project phases.



Hydro Aluminium Deutschland GmbH

Schwandorf I, II & III



Description of the tailings facilities: In response to Requirement 15.1 – B1, B2 and B5

This chapter presents a description of the tailings facilities (TFs), their consequence classification, and a description of their design.

Schwandorf I, II & III

The three Schwandorf TFs, named Schwandorf I, Schwandorf II, and Schwandorf III, are located within an industrial park south of the city of Schwandorf, Bavaria, Germany.

The TFs are legacy assets from VAWs alumina refinery Nabwerk in Schwandorf which ceased operations in 1993. Today the legal owner of the TFs is Hydro Aluminium Deutschland GmbH (“HAD”), a fully owned subsidiary of Norsk Hydro ASA. HAD’s predecessor VAW aluminium AG was acquired by Norsk Hydro ASA from E.ON AG in 2002 as part of a larger acquisition.

The design and construction of these TFs started in the late 1930s and was carried out in adherence to the standards of the day. The TFs were constructed within shallow open pits, within the seasonal natural water table, and without a basal liner system. As a result of historical contact between the tailings material and the water table, groundwater quality was impacted, leading to elevated pH levels and the presence of certain elements.

Between 1989 and 2009, significant upgrades and closure measures were implemented to all three tailings facilities to significantly limit further impacts to groundwater and environmental receptors. The upgrades consisted of capping of the tailings facilities, construction of encapsulating slurry walls surrounding the tailings facilities (anchored in the underlying impermeable tertiary clay layer), a comprehensive drainage and water collection system (above and underground), and a water treatment plant. Following the implementation of these measures, the authorities issued a closure notice for all three TFs in 2009, officially designating them as closed and in the aftercare phase.

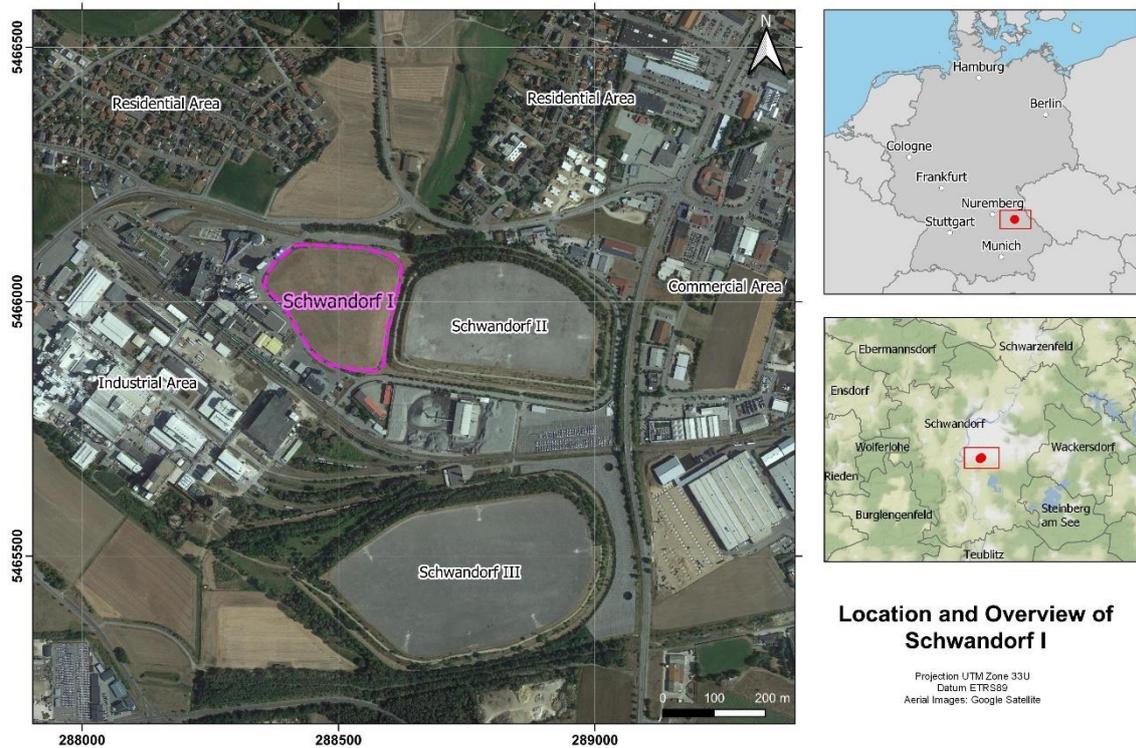
Regular monitoring is conducted and reported to the authorities annually, or more frequently as required, in compliance with applicable regulatory permit conditions.

In line with Hydro’s commitment to best practice tailings management and continuous improvement efforts, a new water treatment plant is currently under construction. This is designed to address future needs, including climate adaptation and resilience to extreme weather events.

Schwandorf I

The Schwandorf I tailings facility was constructed and operated between 1936 and 1957, with comprehensive upgrades and closure measures completed in 1991.

The final dome-shaped design, constructed without dams, consists of mechanically reconstructed, stacked material with slope angles of approximately 20 degrees. It includes an engineered capping system with a mineral liner designed to manage water runoff, along with a collection system. The facility is encapsulated within the same slurry wall and pumping system as used for Schwandorf II.



Description of Schwandorf I	
Purpose	Storage of bauxite residue generated from historic alumina production
Current and final height	Approximately 18 m
Volume of residue stored	600,000 m ³
Implementation stages	Constructed and operated between 1936 and 1957.
	Comprehensive closure measures completed in 1991.
	In 2009, the authorities issued a closure notice for the TF, formally designating it as closed and in the aftercare phase.

	Regular monitoring is conducted and reported to the authorities annually, or more frequently as required, in compliance with applicable regulatory permit conditions.
Current status	Post-closure / Aftercare since 2009
Consequence classification ⁴³	High
Construction type	Dome-shaped landform from reconstructed, stacked tailings material

Schwandorf II

The Schwandorf II tailings facility was constructed and operated between 1952 and 1994, with comprehensive closure measures completed in 2009.

Starting in 1952, the facility was constructed within a shallow (<3 meter deep) open pit. A 5-meter-high sand and gravel dam was constructed around the perimeter. In the 1970s, a second, upstream raised, dam (approximately 8 meters high) was constructed from dried and compacted bauxite residue.

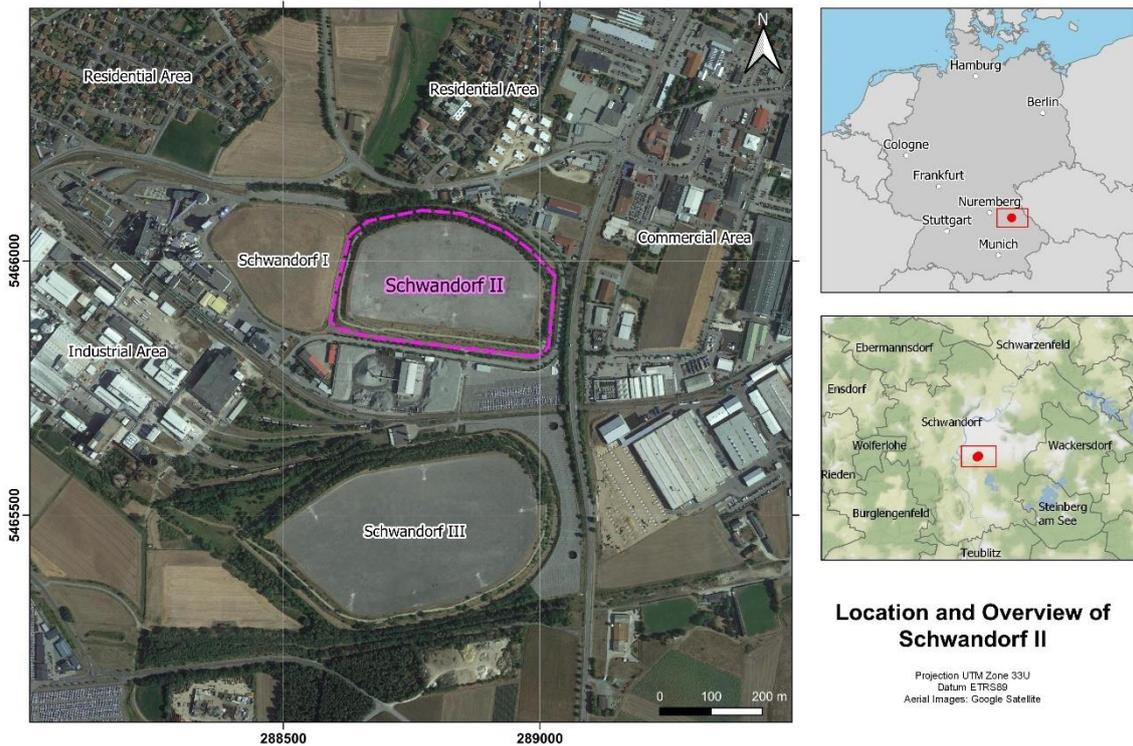
During the first years of operation, the deposition method was mechanically stacking. Later, hydraulic slurry deposition was applied.

Comprehensive closure measures were completed in 2009. The final design consists of a cap on the plateau and on the crest consisting of a HDPE liner, a geotextile, and gravel. Precipitation is collected through a decant system that is located towards the central south of the facility. The outflow is restricted to current permit conditions, which results in temporary ponding during and after periods of significant rainfall. The water collected from the plateau and crest is monitored and discharged off site in in compliance with applicable regulatory permit conditions.

The slopes on the western and southern flanks are partially covered with bentonite enriched gravel, while the slopes on the northern and eastern sides are partially covered with topsoil and natural vegetation. The runoff water from the covered slopes is collected through a ditch system, combined with the plateau water and diverted to the river. Water collected from the other slopes is being collected within the slurry wall, diverted and treated at the water treatment plant.

The facility is encapsulated within the same slurry wall and pumping system as used for Schwandorf I.

⁴³ The Classification of consequences was assessed with reference to Table 1 of Annex 2 of the report “Global Industry Standard for Tailings Management”.



Description of Schwandorf II	
Purpose	Storage of bauxite residue generated from historic alumina production
Current and final height	Approximately 12 m
Volume of residue stored	1, 520,000 m ³
Implementation stages	<p>Constructed and operated between 1952 and 1994.</p> <p>Comprehensive closure measures completed in 2009.</p> <p>In 2009, the authorities issued a closure notice for the TF, formally designating it as closed and in the aftercare phase.</p> <p>Regular monitoring is conducted and reported to the authorities annually, or more frequently as required, in compliance with applicable regulatory permit conditions.</p>
Current status	Post-closure / Aftercare since 2009
Consequence classification ⁴⁴	High
Construction type	Hybrid of mechanical and slurry deposition. Upstream raised dams.

Schwandorf III

⁴⁴ The Classification of consequences was assessed with reference to Table 1 of Annex 2 of the report “Global Industry Standard for Tailings Management”.

The Schwandorf III tailings facility was constructed and operated between 1956 and 1994, with comprehensive closure measures completed in 2009.

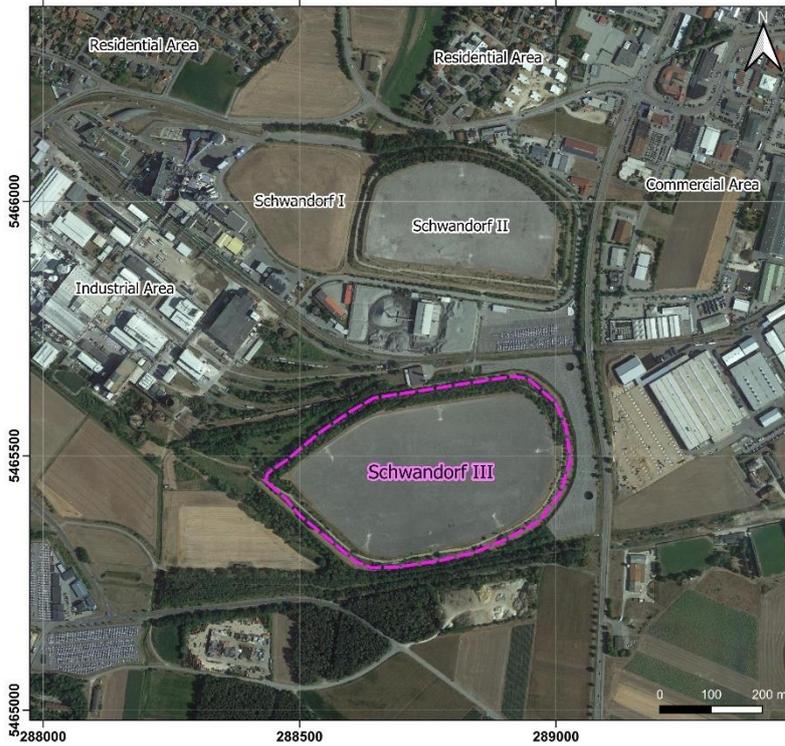
Starting in 1956, the facility was constructed within a shallow (<3 meter deep) open pit. A starter dam consisting of sand, gravel and compacted bauxite residue was raised around the perimeter. In the 1970s - 1980s, a second, upstream raised, dam (approximately 8 meters high) was constructed from dried and compacted bauxite residue.

During the first years of operation, the deposition method was mechanically stacking. Later, hydraulic slurry deposition was applied. Prior to closure, other types of waste, such as construction waste, was deposited to fill the tailings facility. The dam crest was lowered by approximately 1-2 meters to enable a robust capping solution on the plateau and the crest.

Comprehensive closure measures were completed in 2009. The final design consists of a cap on the plateau and on the crest consisting of an HDPE liner, a geotextile, and gravel. Precipitation is collected through a decant system that is located towards the central south of the facility. The outflow is restricted to current permit conditions, which results in temporary ponding during and after periods of significant rainfall. The water collected from the plateau and crest is monitored and discharged off site in compliance with applicable regulatory permit conditions.

The slopes are partially covered with topsoil and natural vegetation. The runoff water from the slopes is being collected within the slurry wall, diverted and treated at the water treatment plant.

The facility is encapsulated with slurry walls. The water collection and treatment system is common to Schwandorf I and II.



Location and Overview of Schwandorf III

Projection UTM Zone 33U
Datum ETRF89
Aerial Images: Google Satellite

Description of Schwandorf III

Purpose	Storage of bauxite residue generated from historic alumina production
Current and final height	Approximately 12 m
Volume of residue stored	1,510,000 m ³
Implementation stages	<p>Constructed and operated between 1952 and 1994.</p> <p>Comprehensive closure measures completed in 2009.</p> <p>In 2009, the authorities issued a closure notice for the TF, formally designating it as closed and in the aftercare phase.</p> <p>Regular monitoring is conducted and reported to the authorities annually, or more frequently as required, in compliance with applicable regulatory permit conditions.</p>
Current status	Post-closure / Aftercare since 2009
Consequence classification ⁴⁵	High
Construction type	Hybrid of mechanical and slurry deposition. Upstream raised dams.

⁴⁵ The Classification of consequences was assessed with reference to Table 1 of Annex 2 of the report “Global Industry Standard for Tailings Management”.

Risk assessment: In response to Requirement 15.1 – B3

This item presents a summary of risk assessment findings relevant to the tailings facilities.

As part of its commitment to the safe management of the tailings facilities, the relevant unit in Hydro conducts risk assessments for its TFs.

A multidisciplinary team, consisting of internal and external experts, carries out the risk assessment process, which includes inputs from the EoR (Engineer of Record) and the ITRB (Independent Technical Review Board). This process aims to identify all relevant risks and to reduce the risk level to as low as reasonably practicable levels (ALARP).

The most recent risk assessment (June 2024) carried out for the Schwandorf TFs, concluded that there are no risks that are classified as unacceptable.

To achieve the ALARP objective, actions are taken to further improve the knowledge base through additional studies and analyses as well as further strengthening the monitoring systems through additional risk-targeted data collection such as time-series topographic surveys monitoring potential geometric TF changes and sending weather alerts to responsible staff.

The qualitative risk assessment conducted for the TFs is based on Risk Analysis⁴⁶ and Potential Failure Mode Analysis (PFMA)⁴⁷.

The identified credible failure modes are⁴⁸: i) Changes in groundwater quality due to seepage from the TFs; ii) Slope or embankment failure at TF I, II, and III, with a potential runout of up to approximately 10 meters; and iii) Embankment failure combined with overtopping of pond water for TF II and III⁴⁹ following heavy rainfall events.

The critical controls in place to prevent and/or mitigate these failure modes include: i) Existing operational procedures for water level management; ii) The Emergency Preparedness Response Plan (EPRP); iii) The Trigger Actions Response Plan (TARP); iv) Periodic maintenance and inspection routines, including slurry walls, capping and drainage structures, pumping systems, water treatment plant.

46 Schwandorf Risk analysis Report (SRK, 2024)

47 Schwandorf TSFs Potential Failure Mode Analysis, Schwandorf, Germany (SRK, 2024)

48 Refers to technically feasible failure mechanisms given the materials present in the structure and its foundation, the properties of these materials, the configuration of the structure, drainage conditions and surface water control at the facility, throughout its lifecycle. Credible failure modes can and do typically vary during the lifecycle of the facility as the conditions vary. A facility that is appropriately designed and operated considers all of these credible failure modes and includes sufficient resilience against each. Different failure modes will result in different failure scenarios. Credible catastrophic failure modes do not exist for all tailings facilities. The term 'credible failure mode' is not associated with a probability of this event occurring and having credible failure modes is not a reflection of facility safety (GISTM, 2020).

49 Schwandorf Consequence Classification Report - Revision 2 (SRK, 2024)

Potential impacts: In response to Requirement 15.1 – B4

This item provides a summary of the impact assessment and of human exposure and vulnerability to the Schwandorf TF's credible flow failure scenarios.

To ensure identification of potentially affected groups, the dam breach studies determined the geographical area that would be potentially affected in the event of a credible failure. It is important to note that the term credible failure mode is not associated with the probability of this event occurring and having credible failure modes is not a reflection of the tailings facility's safety.

Of the three tailings facilities, Schwandorf II is considered the most important one in terms of potential runout because it combines the least favourable geometry (height and slope) with hydraulically deposited tailings (which could be loose and/or saturated and hence prone to loss of strength in undrained conditions). A runout assessment was therefore completed for a typical cross section of the Schwandorf II tailings facility.

A slope failure analysis was completed using the Material Point Method (MPM) using software Anura3D. A dam breach assessment was completed using FLO-2D software.

The runout assessment completed for Schwandorf II estimated a potential runout of up to approximately 10 m for the deposited slurry tailings.

The Schwandorf II dam breach study considered seven reach locations and associated flow failure scenarios around the TF to assess a range of hypothetical outcomes in the unlikely event of a combined slope failure and subsequent flood runout. These are presented in the table below.

Since the Schwandorf I tailings were mechanically placed and now fully encapsulated, a potential slope failure would likely result in a shorter runout distance.

Schwandorf III has a deeper basin that promotes surface water to pond toward the southern boundary adjacent to the spillway. The breach location for Schwandorf III has been selected as the spillway location since this is the lowest crest elevation on the southern side of the facility.

Based on the dam breach studies, the potential impacts resulting from a hypothetical failure of the Schwandorf TFs have been estimated and are presented in the table below.

Schwandorf I – Hypothetical impacts	
Municipality	Schwandorf
Human exposure and vulnerability	Human exposure: ZMS and NABALTEC employees and users of public and private roads could be temporarily exposed if within 10m of Schwandorf I at the time of failure. Human vulnerability: Structurally sound buildings, public awareness of risk and high ability for institutional structures to respond means the ‘at risk’ population are low vulnerability
Hypothetical impacts to communities, infrastructure, and environment	<ul style="list-style-type: none"> • Potential loss of life • Blocked access roads • Impact to property (buildings or cars) • Disruption of incinerator services • Impact on local soil
Schwandorf II and III – Hypothetical impacts	
Municipality	Schwandorf
Human exposure and vulnerability	Human exposure: commercial and residential buildings north of Schwandorf II. Users of local public and private roads. Human vulnerability: Structurally sound buildings, public awareness of risk and high ability for institutional structures to respond means the ‘at risk’ population are low vulnerability
Hypothetical impacts to communities, infrastructure, and environment	<ul style="list-style-type: none"> • Potential loss of life • Blocked access roads • Impact to water quality • Damage to property (buildings or cars) • Silting of the surrounding drainage channels • Impact on local soil, fauna, and flora

The hypothetical inundation area resulting from a hypothetical failure and the registration of the potentially affected population are inputs for the development of the EPRP⁵⁰. The EPRP supports the identification and classification of emergency situations that may pose a risk to the integrity of the facilities and establishes immediate response actions to be taken in these situations in terms of the evacuation protocol, authorities, and responsible agents to be notified, aiming to prevent and minimize damage and loss of life. Further information about the EPRP is presented below.

⁵⁰ Emergency Preparedness and Response Plan for Schwandorf TSFs (Hydro, 2024).

Periodic review and independent review: In response to Requirement 15.1 – B6 and B9

This section provides a summary of material findings from the independent reviews, including implementation of mitigation measures to reduce risk to ALARP⁵¹, and the dates of most recent and next independent reviews.

In 2024, several independent reviews and audits were conducted for the Schwandorf tailings facilities to assess conformance with the applicable regulatory permit conditions and with GISTM requirements. The table below gives an overview of the reviews and audits.

Review/audit	Conducted by	Date conducted	Date of next review
Regulatory review/audit against regulatory permit conditions	Authorities	30.04.2024 08.05.2024 18.06.2024 04.07.2024 19.12.2024	In 2025 at the discretion of authorities (minimum annually)
ITRB ⁵² Review, ref. GISTM Requirement 8.7	The ITRB, which comprises of independent, senior experts meeting the ITRB criteria as defined by GISTM.	Oct – Dec 2024	2025 (annual frequency) ⁵³
Annual Performance Review, ref. Table 6 and Requirement 9.1 of GISTM	Engineer of Records (EoR), which comprises of an independent senior expert meeting the EoR criteria as defined by GISTM.	Dec 2024 - Jan 2025	Dec 2025/Jan 2026 (annual frequency)
Dam Safety Review (DSR), ref. GISTM Requirement 10.5	Global, independent consulting firm with expertise in tailings management.	Q4 2024 – Q1 2025 ⁵⁴	To be defined (5–10-year frequency) ⁵⁵

The regulatory reviews and audits confirmed that all three TFs meet regulatory performance targets within applicable regulatory permit conditions. The ITRB Review and the Annual Performance Review confirmed that all three TFs meet tolerable risk levels under GISTM requirements.

⁵¹ ALARP = As low as reasonably practicable

⁵² ITRB = Independent Tailings Review Board

⁵³ ITRB review to be conducted annually during the first three years during/after GISTM implementation (2024 – 2026)

⁵⁴ The DSR review is currently ongoing and had not been finalized as of the date of this report's publication.

⁵⁵ Frequency to be defined by the ITRB

The reviews identified the following main risk reduction ALARP opportunities related to tailings management: i) Further enhancing the knowledge base through additional studies and analyses; and ii) Further strengthening the monitoring systems through additional risk targeted data collection, such as time-series topographic surveys monitoring potential geometric TF changes and sending weather alerts to responsible staff enabling the implementation of pro-active measures. Hydro is actively addressing these recommendations as part of its commitment to continuous improvement and risk reduction to ALARP levels. This process is guided by the integrated Tailings Management System (TMS) and Environmental and Social Management System (ESMS), ensuring a structured and holistic approach to risk mitigation and operational excellence.

Monitoring: In response to Requirement 15.1 – B7

This section presents a summary of material findings of the environmental and social monitoring program including implementation of mitigation measures.

Environmental Monitoring

Environmental monitoring and reporting are undertaken in accordance with the applicable regulatory permit conditions. This includes the ‘Landfill Aftercare Program’ with results being reported annually to the authorities since 2000.

The water and environmental authorities conduct independent water sampling and assessment of the site and surrounding area to ensure the monitoring data provided in the annual reports is consistent and accurate.

Surface water quality

There are 11 surface water monitoring points to assess surface water parameters around the TFs. The monitoring is performed by third parties every six months and the results are reported to the regulator through the annual reporting for the landfill yearbook. The annual report presented consistent water quality levels in the surface water features around the TFs, with recommendations to continue diverting and treating this water in the water treatment plant prior to release. The results indicate there were no material impacts to the environment and other receptors during 2024.

Groundwater levels and quality

There are 36 groundwater monitoring points in place to assess parameters related to the historical and current management of the TFs. Groundwater conditions are generally positively influenced by factors such as slurry wall management, water pumping and treatment, as well as maintenance and remediation activities during the aftercare phase. The groundwater monitoring points are sampled every six months.

In addition, there are 11 sampling locations measuring seepage from the TFs, which are sampled and reported every quarter. Water levels are monitored continuously at 11 locations to ensure groundwater levels are maintained at designed levels inside the slurry wall.

The monitoring is performed by third parties and the results are reported to the regulator through the annual report and landfill yearbook entries.

Monitoring results indicate that the presence of certain elements remain elevated in groundwater, although some concentrations within the plume have decreased as a result of water treatment, slurry walls, and remediation efforts. The results also indicate there were no material impacts to the environment and other receptors during 2024.

Social Monitoring

Hydro has a company-wide grievance mechanism, called AlertLine, which provides stakeholders with an anonymous channel to raise concerns related to potentially illegal, unethical, or undesirable behavior at Hydro's operations, including its legacy sites.

Hydro is currently in the process of establishing a fit for purpose system for logging, assessing and responding to grievances related to the Schwandorf legacy sites in a timely and transparent manner. Although regulatory authorities do not explicitly require a grievance mechanism for legacy sites, it is increasingly recognized as a best practice, particularly under international frameworks such as the GISTM.

At the Schwandorf legacy sites, key stakeholders include industrial neighbors and regulatory authorities, with whom Hydro maintains regular engagement. Additionally, local residents have occasionally inquired about groundwater conditions, highlighting the importance of continued communication and responsiveness.

Emergency plan and information for external agencies: In response to Requirement 15.1 - B8 and C

This section presents a summary version of the tailings facilities emergency preparedness and response plan (EPRP) for facilities that have a credible failure mode(s) that could lead to a flow failure event that:

- (i) is informed by credible flow failure scenarios from the tailings facility breach analysis;
- (ii) includes emergency response measures that apply to project affected people as identified through the tailings facility breach analysis and involve cooperation with public sector agencies.

The EPRP⁵⁶ aims to identify and classify emergency situations that may pose a risk to the integrity of the structures, as well as establish immediate actions to be taken in such emergency situations, including engagement with authorities. The EPRP is subject to periodic updates and HAD and the local disaster management department maintain ongoing communication to ensure a state of readiness.

The failure scenario analyses identified two hypothetical failure modes that could potentially lead to a flow failure event: i) Embankment or slope failure resulting in localized (<10m) slumping of embankment or slope material, and ii) Combined embankment failure with overtopping of ponded water from TF II and III during a significant rainfall event.

Information about these hypothetical failure modes have been shared with the local authorities and emergency services as required by GISTM Requirement 15.1 – C. The site is well situated to receive support from local government services including fire department, ambulance, police and local government disaster response teams. In the event of an emergency, the Responsible Tailings Facility Engineer (RTFE) is responsible for onsite management with escalation up to command centers in Norway as required. The immediate and lifesaving first response in the event of an emergency would consist of the emergency services (led by the fire service but also involving ambulance and police as required). These services will work according to their standard protocols and command and control will be established on site.

In the event of embankment or slope failure resulting in localized slumping of embankment or slope material (ref. flow failure scenario 1), the response team is expected to establish a safety buffer zone around the affected or potentially at-risk area. As the predicted runout is highly localized (within 10 meters), no

⁵⁶ EPRP for Schwandorf Tailings Facilities (2024)

general evacuation zone has been designated. In the event of a combined embankment failure with overtopping of ponded water from TF II and III during a significant rainfall event, it is anticipated that the public sector agencies will evacuate the town of Schwandorf, including the areas around the TFs, as these areas are expected to be flooded under such conditions. This scenario represents a "rising tide scenario" where the risk increases gradually over time, allowing sufficient time for mitigation and/or evacuation measures. Further collaboration with relevant authorities, emergency services and neighbors, as well as an EPRP drill, have been planned for 2025 to ensure a robust state of readiness. In connection with this, the EPRP will be further updated as new information develop.

Financial capacity: In response to Requirement 15.1 – B10

This chapter presents the annual confirmation that the Operator has adequate financial capacity to cover estimated costs of closure and post-closure of the TFs and its appurtenant structures.

Hydro recognizes, measures, and discloses provisions and contingent liabilities in accordance with the International Finance Reporting Standard (IFRS), IAS 37 Provisions, Contingent Liabilities, and Contingent Assets.

As of year-end 2024, the provisions (ARO) for the Schwandorf tailings facilities (Schwandorf I, II and III) totaled EUR 26.6 million.