



PJSC ALROSA

**Tailings Dam Management Standard**

**APPROVED**

By order of the PSJC “ALROSA” Chief Executive Officer

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# GENERAL PROVISIONS

## Purpose of this Corporate Standard

This Tailings Dam Management Standard (hereinafter, the Standard) is a fundamental document defining the approach of PJSC ALROSA (hereinafter, the Company) to ensuring tailings dam safety.

The purpose of this Standard is to implement a system of effective tailings dam management and prevention of safety threats to tailings dams at all stages of their life cycle, including design, operation and closure.

## Basis for the Standard

The Standard has been developed in accordance with applicable international and Russian laws, taking into account the global and industry requirements applicable to the Company, obligations voluntarily assumed by it as part of various initiatives, as well as provisions of internal documents of the Company.

The Standard is based on the Global Industry Standard on Tailings Management (version of 5 August 2020) developed by the United Nations (UN) Environment Programme (UNEP), the Principles for Responsible Investment (PRI) initiative and International Council on Mining and Metals (ICMM), as well as the requirements of the Responsible Jewellery Council (RJC) Code of Practices that have been adapted to ALROSA operations with due consideration of applicable Russian legal requirements.

The key documents serving as the basis for the Standard include:

* Federal Law No. 117-FZ “On the Safety of Hydraulic Structures” and the bylaws approved as at 1 April 2022;
* Order of the Ministry of Natural Resources of Russia No. 999 dated 1 December 2020 “On Approving Requirements for Environmental Impact Assessment Materials”;
* [Global Industry Standard on Tailings Management](https://www.icmm.com/en-gb/guidance/environmental-stewardship/global-industry-standard-on-tailings-management);
* [ICMM Mining Principles](https://www.icmm.com/website/publications/pdfs/mining-principles/mining-principles.pdf);
* [Conformance Protocol for the Global Industry Standard on Tailings Management](https://www.icmm.com/en-gb/guidance/environmental-stewardship/tailings-conformance-protocols);
* [ICMM's Tailings Management: Good Practice Guide](https://www.icmm.com/website/publications/pdfs/environmental-stewardship/2021/guidance_tailings-management_ru.pdf);
* [ICMM Tailings Governance Framework: Position Statement;](https://www.icmm.com/website/publications/ru/mining-principles/tailings_ru.pdf)
* [RJC Code of Practices](https://www.responsiblejewellery.com/standards/code-of-practices-2019/).

## Scope of the Standard

The Standard is applicable to employees of all structural, functional and standalone divisions of the Company involved in the management of tailings facilities, as well as employees of the Company's contracting organizations.

The Standard covers tailings dams with hazard class 1 and 2 hydraulic structures (hereinafter, TD with HS) [[1].](#_НОРМАТИВНЫЕ_ССЫЛКИ) Hydrodynamic accidents at such tailings facilities can lead to serious damage to the environment, the economy, and the life and health of people. Failures at TDs with hazard class 3 and 4 HSs may result in only minimal damage because no hazardous substances are stored there. Thus, the Company may decide to apply this Standard on a voluntary basis with respect to these TDs.

To unify the approach and use unified tailings management standards within the ALROSA Group, the Standard is recommended for implementation and compliance by subsidiaries and controlled companies of PJSC ALROSA.

Compliance with the requirements of the Standard is mandatory in respect of hazard class 1 and 2 HSs. Regulatory, organizational, administrative and other internal documents of the Company shall not contradict the Standard.

# STAKEHOLDER IDENTIFICATION AND ENGAGEMENT

## Stakeholder identification

The Company has committed to identifying and engaging with stakeholders at all stages of the life cycle of tailings facilities, from design to mothballing and removal. Engagement is carried out with all stakeholders identified in the prescribed manner as required by the Company's Standard.

As part of managing tailings dams, the Company identifies its stakeholders. The following sources of information are used to do so:

* Results of negotiations with responsible persons related to the subject matter, representatives of local and regional authorities
* Results of negotiations and meetings with thought leaders
* Results of negotiations and meetings with leaders of public movements, nonprofit organizations (NPOs) and initiators of major social events
* Publications and materials in local, regional and federal mass media
* Rating of popular local information (including public) electronic resources and channels, the nature and content of publications there
* Results of the analysis of official pages in social networks, personal information resources of local journalists, bloggers, public figures

The following groups of stakeholders are considered when compiling the list of stakeholders in respect of design, construction, operation, mothballing and removal of tailings dams:

1. Individuals, i.e. the local population in the immediate vicinity of a proposed facility or area regarding which a decision is made
* in particular: indigenous people, including indigenous minorities with special rights in their home area
1. Public organizations and associations, NPOs
2. Public leaders, opinion leaders, civic activists
3. National and international environmental NPOs
4. Adjacent land users
5. Local and regional media
6. Local and regional authorities
7. State regulatory and supervisory bodies responsible for legal compliance by legal entities in the area
8. Third-party entities having their interests in the area of planned operations
9. Potential investors, etc.

The most effective way and format of engagement is chosen for each stakeholder group.

Stakeholder engagement activities are structured in accordance with applicable international standards and internal regulatory documents of the Company, taking into account the following principles:

* Materiality: the Company has identified key stakeholders, as well as the most significant interests of these parties
* Completeness: the Company understands the opinions, views, needs and expectations of key stakeholders with respect to significant issues related to the Company's operations
* Response: the Company undertakes not only to be aware of such interests and expectations, but also to respond to them.

## Stakeholder engagement

### Respect for human rights

The Company strives to ensure the observance of human rights during the planning, operation, mothballing and removal of tailings dams. When managing tailings dams, the Company strictly follows the principles set forth in the Human Rights Policy, with a special focus on the following key obligations:

1. Ensuring a safe and favorable working environment

The Company implements a set of measures to ensure that its tailings management activities comply with all applicable industrial and environmental safety standards and requirements, and do not harm the health of employees, local residents or others.

1. Respect for the culture, customs and traditions of local communities

The Company respects the rights, cultural specifics, traditions and customs of local communities in the regions where it operates, including indigenous minorities. When carrying out tailings management activities, the Company guarantees the conservation of and unhindered access to cultural and natural heritage sites, as well as the necessary natural resources, including drinking water sources.

1. Human rights protection during resettlement

The Company respects the individual and collective rights of local communities, including their rights to land, resources and self-determination. Only in the absence of other options and in strict compliance with the provisions of applicable legislation and internal regulatory documents can local residents be resettled. The Company makes every effort to take into account the interests of those affected by possible involuntary resettlement, providing the stakeholders with access to information and effective interaction channels.

The fundamental document defining PJSC ALROSA's approach to its human rights activities is its Human Rights Policy (hereinafter, the Policy). The document sets forth the Company's obligations to respect human rights (including the rights that may be affected by the Company's tailings dams), including those of indigenous minorities, and also provides for the basic principles and mechanisms for human rights protection at the Company and ensures compliance with these principles. The Policy is developed taking into account the ALROSA Group's Strategy and is aimed at supporting it and contributing to the implementation of the Group's mission – to be a global leader in the diamond mining industry complying with high standards of environmental and industrial safety, social responsibility and corporate governance.

The Strategy and Sustainability Committee of the Company's Supervisory Board coordinates human rights protection activities, including defining the scope and frequency of human rights due diligence. Measures to implement the Policy are integrated into the comprehensive Action Plan to implement the ALROSA Group Sustainability Program for 2021–2025.

### Stakeholder engagement in the design of new tailings dams

At the stage of design of new tailings dams, a project owner shall comply with the procedures for considering stakeholders’ opinions regulated by the Russian legislation:

1. At the local government level (public hearings regarding the planned construction)
2. Public discussions of design documentation subject to state environmental expert review, including EIA materials
3. State Environmental Expert Review (SEER).

The design documentation subject to SEER shall be submitted by the project owner for public discussions with stakeholders. The design materials shall include materials on the impact assessment of planned economic and other activities on the environment (EIA). Public discussions on an SEER project are provided for by the Federal Law “On Environmental Expert Review” [[2].](#_НОРМАТИВНЫЕ_ССЫЛКИ)

The procedure for arranging and holding public discussions of design documentation, including EIA materials, is set forth in Table 1.

1. - Procedure for arranging and holding public discussions

| **Activities and key documents** | **Owner** |
| --- | --- |
| Scheduling of public discussions | Local government |
| Identification of stakeholders and holding of preliminary consultations | Local governmentInitiator of a proposed activitySpecialized Corporate Design Organization |
| Informing stakeholders about the start of the EIA procedure and access to the materials of public discussions:* distribution of information letters
* publications in the mass media and the Internet
 | Initiator of a proposed activitySpecialized Corporate Design Organization |
| Collection of opinions of stakeholders on the draft terms of reference (ToR) and their inclusion in a special report | Local governmentInitiator of a proposed activitySpecialized Corporate Design Organization |
| Updating the final EIA ToR taking into account the comments and suggestions received | Initiator of a proposed activitySpecialized Corporate Design Organization |
| Informing stakeholders through publications in the media and the Internet:* on access to the design documentation, including draft EIA materials
* to the approved EIA ToR
* on the place and date of public hearings
 | Initiator of a proposed activitySpecialized Corporate Design Organization |
| Making the documents public:* design documentation
* approved EIA ToR (during the whole EIA process)
 | Initiator of a proposed activitySpecialized Corporate Design Organization |
| Organization and holding of public hearings.The minutes of the public hearings shall be signed by representatives of the executive authorities and local government, citizens, public organizations (associations) and the project owner. The minutes shall contain all comments and suggestions received from stakeholders. | Local governmentInitiator of a proposed activitySpecialized Corporate Design Organization |
| Taking into account the views of stakeholders after the analysis of comments and suggestions received when finalizing the design documentation and the final version of the EIA materials | Initiator of a proposed activitySpecialized Corporate Design Organization |
| Ensuring access to the minutes of public hearings | Local government |
| Ensuring access of stakeholders to the final version of the EIA materials during the whole period from the approval of the latter and until the decision to implement the proposed activity is made | Initiator of a proposed activitySpecialized Corporate Design Organization |

The scope of services to arrange the public hearings shall be stipulated by a relevant contract (for the project as a whole or EIA only) between the project owner and the design organization.

When designing new tailings facilities, a prerequisite is preliminary assessment, during which information is collected and documented:

1. on the planned (proposed) activity, including its purpose and conditions, possible alternatives, deadlines and anticipated requirements for the location, affected municipalities and community interests, possibility of cross-border impact, compliance with territorial and strategic planning documents;
2. on the state of the environment that may be affected.

Based on the results of the preliminary assessment, draft Terms of Reference for Environmental Impact Assessment are prepared. A notice of public discussion of the draft Terms of Reference with the population living and/or conducting activities in the affected area is prepared and sent to public authorities and/or local government bodies.

Public discussions are held on the draft Terms of Reference, together with analysis and consideration of comments, suggestions and information received from the public.

The public discussions on the draft Terms of Reference result in public hearing materials being prepared, with the comments and suggestions attached. These materials provide evidence of the free, prior and informed opinion (consent) of the population living and/or conducting activities in the affected area.

Public discussions on the draft Terms of Reference for Environmental Impact Assessment ensure that the local communities:

* can decide freely without coercion, intimidation or manipulation;
* are allowed sufficient time to participate in project decisions before key decisions are made;
* are informed about the project and its potential impacts and benefits.

The owner of the methodology for public discussions and materials of public hearings is the Specialized Corporate Design Organization.

The mechanism and sources of funding for compensation to stakeholders if their rights are violated during the construction of a new tailings facility are defined by a decision of the Company's Management Board.

### Stakeholder engagement during the operation of tailings dams

The Company interacts with stakeholders not only at the design stage of new tailings facilities, but also throughout the entire life cycle of tailings facilities, including the operation and removal stages. The deputy chief engineer for hydraulic structures of a structural division organizes engagement with stakeholders regarding the operating TDs and documents such engagement.

The engagement covers various areas:

1. Functioning of environmental management systems (EMS).

An EMS is implemented during the voluntary certification of structural divisions under ISO 14001/GOST R ISO 14001, as well as in the case of the Company's entry into international markets. All of the above documents contain requirements to implement procedures for organizing the engagement with external stakeholders in structural divisions.

According to best practices in engaging with local communities, the EMS should enable to:

* develop internal documents, procedures for organizing engagement and receiving feedback from stakeholders;
* allocate powers in structural divisions, provide resources for the organization of external communications;
* make public information on how the Company interacts with external parties, how stakeholders can provide their comments and suggestions and how their opinions are taken into account;
* make public information on significant environmental impacts of the Company's operations and information on the Company's activities to mitigate these impacts.
1. Implementation of the Company's social programs and sustainable development projects. Engagement programs include, depending on:
* participation format: social-oriented programs implemented by the Company and social partnership programs implemented in cooperation with stakeholders;
* purpose: programs aimed at the protection and support of specially protected areas, social programs, etc.

### Stakeholder engagement in case of an emergency at tailings dams

To provide timely information and organize joint work with public sector institutions and other stakeholders in the event of an emergency, a local warning system is in place in the Company's structural divisions. The system is designed to provide timely notification and information to technical personnel and people about an imminent or existing emergency.

The warning system is a combination of organizational and technical resources, communications and warning means, broadcasting networks, public communications network channels, ensuring the communication of information and warning signals to the management bodies, the Single State Emergency Management System (RSChS) and the public.

The key task of the local warning system is to ensure that information and warning signals are communicated to:

* the management of the Company and a facility-based RSChS unit;
* facility-based emergency response teams, including specialized ones;
* the Company’s staff;
* the heads and dispatch services of organizations located in the area covered by the local warning system;
* local residents in the area covered by the local warning system.

Each year, the chief engineer of a structural division prepares and approves emergency response plans (ERP) for tailings dams. The plans elaborate the mechanisms of interaction in case of an emergency, as well as the warning schemes in case of hydraulic structure failures. During a year, drills are conducted at each tailings facility according to all the scenarios outlined in the emergency response plans.

Interaction with public sector institutions and other stakeholders is carried out through the Emergency Prevention and Response Commission (EPRC). The Commission is responsible for organizing and carrying out work to prevent emergencies, mitigate damage when they occur and eliminate their consequences, as well as coordinating the activities of enterprises, organizations and institutions located in the Company's region of operation on these issues.

Reconstruction, restoration work and recovery activities in the event of TD emergencies are performed by the Company and local authorities. If necessary, the decision to involve the population in this work (on a voluntary basis) is coordinated with the local authorities with due regard for the Social Policy and subject to the observance of the rights of the indigenous minorities of the North.

The Company has a Financial Support and Sponsorship Commission, which, in case of emergency, considers sponsor support or prepares a list of gratuitous transactions for the approval of the Supervisory Board.

### Tailings dam disclosures for stakeholders

The Company timely responds to the requests received from stakeholders regarding disclosure of additional information that is essential for ensuring safety and integrity of TDs.

All information available to stakeholders on the safety of TD HSs is contained in an HS safety declaration.

### Grievance mechanisms for stakeholders

Mechanisms for collecting, processing and handling grievances from stakeholders are defined in a respective corporate standard stipulating the procedure and timeline for out-of-court grievance consideration at the operational level. The Company, in accordance with the said standard, informs the stakeholders about the functionality and availability of the grievance mechanism.

Employees and contractors of the Company can make use of the following feedback mechanisms to ask something quickly and confidentially and to send a request or complaint:

* asking the head of a structural division or Company management;
* anti-corruption mechanism;
* occupational health and safety mechanism;
* ALROSA Shared Services Center;
* Idea Factory;
* ALROSA production transformation;
* Electronic Employee Passport mobile app.

The key principles of the feedback mechanism are set forth in the Company's Human Rights Policy.

The Company shall provide its stakeholders with remedies in accordance with the UN Guiding Principles.

### Organization of involuntary resettlement

During the design and implementation of projects to construct new tailings facilities, the Company strives to avoid any involuntary resettlement. If this cannot be avoided, the following aspects shall be considered as part of the project:

* compliance with laws and international standards;
* identification of all persons affected and eligible for compensation (including according to international standards);
* ensuring sufficient and timely communication and organization of stakeholder engagement;
* compliance with the deadlines for clearing the land plots, resettlement and compensation payment;
* fair determination of the amount of compensation and ensuring transparency of its calculation, etc.

The Company will rely on existing international standards and best practices when organizing involuntary resettlement and developing resettlement programs:

* ISO 26000:2010 Guidance on social responsibility;
* World Bank Operational Directive 4.20 on Indigenous Peoples;
* World Bank Operational Directive 4.30 on Involuntary Resettlement;
* The IFC Handbook for Preparing a Resettlement Action Plan;
* The UN Guiding Principles on Business and Human Rights;
* IFC Performance Standard 5: Land Acquisition and Involuntary Resettlement.

In organizing involuntary resettlement, the Company shall develop a resettlement action plan that includes a set of measures to manage the impacts on project-affected groups when withdrawing/acquiring land for construction and operation of Company facilities, including measures to compensate for any loss of property and land. The compensation mechanism is defined by the Company, taking into account an independent assessment of damage and based on negotiations with stakeholders, including as part of the FPIC mechanism.

The process of compensation and additional assistance in connection with physical and economic displacement involves the following steps:

1. identification of affected persons;
2. establishment of the rights of those affected;
3. development of compensation packages;
4. implementation of the compensation process;
5. monitoring and adjustment of compensation packages;
6. rehabilitation and return of land plots.

In the event of involuntary resettlement, the Company shall ensure compliance with the requirements of the relevant Law of the Russian Federation "On Forced Migrants" [[4]](#_НОРМАТИВНЫЕ_ССЫЛКИ).

# BUILDING AND MAINTAINING AN INTEGRATED KNOWLEDGE BASE

## Development of an interdisciplinary knowledge base

### Building a knowledge base

A structural division shall develop and document a knowledge base necessary to ensure the safe management of TDs throughout their life cycle.

### Requirements for the content of the knowledge base

The knowledge base necessary to ensure the safe management of TDs consists of the following components:

* **main and general characteristics of an HS, as well as an HS location site**, including: HS purpose, class and type, HS service life, HS composition, type of HS base soils, information on materials and parameters of main HS elements, crest length, width, maximum construction height, type of HS drainage and slopes, maximum HS water carrying capacity, information on the reservoir located in the HS upstream pool: name, purpose, volume, area, length, depth, regulation regime, temperature regime of the reservoir; information about the catchment area of the water body; information about the liquid industrial waste reservoir: type, number of sections, including mothballed ones, total area and area of sections, design volume, actual filling according to the last survey, design storage periods, information about the reconstruction and overhaul of the HS, etc.;
* **general characteristics of the natural conditions of the HS location area**, including: natural-climatic, hydrological, topographic, engineering-geological, geocryological conditions, as well as information on seismic conditions of the HS location area;
* **results of production environmental control** (performed by the Environmental Center), the program of which is developed by the Environmental Center and approved by the chief engineer of PJSC ALROSA. A specialized laboratory is engaged to perform monitoring;
* **report on the results of annual monitoring of waste disposal facilities** (performed by a structural division). A specialized laboratory is engaged to perform monitoring; the program and report are prepared by the Environmental Center;
* **results of annual monitoring of HS safety** (performed by a structural division);
* **report on the results of comprehensive environmental monitoring** (including during a free channel period, monthly monitoring of surface water quality in the area of tailings dam location). A specialized laboratory is engaged to perform monitoring;
* **results of calculation of potential damage** that may be caused to life, health of individuals, property of individuals and legal entities as a result of hydraulic structure failures (which is part of an HS hydraulic structure safety declaration and is prepared by the Specialized Design Organization).

The Environmental Center regularly determines the hazard class of tailings waste during:

* Biotesting of tailings arriving at a tailings facility (performed on a regular basis with the help of an independent accredited laboratory).

A structural division monitors the physical composition of the tailings:

* control of the size range of tailings (processing waste) (with the help of geomechanical control laboratory). The laboratories report to the engineering function of structural divisions;
* quality control of recycled water (by industrial sanitary laboratories accredited by the Federal Accreditation Service). The laboratories report directly to the heads of structural divisions;
* monitoring of the substance composition of natural waters carried out as part of analytical control in the area of impact of tailings dams on the hydrographic network of the location area, according to the observation program agreed with the Lena Basin Water Department of the Federal Agency for Water Resources (performed by industrial sanitary laboratories of structural divisions). The Environmental Center monitors compliance with the sampling schedule.

### Requirements for calculation of potential damage

Environmental and social impact assessment is performed in the form of Calculation of Potential Damage that may be caused to the life, health of individuals and property of individuals and legal entities as a result of HS failures. This calculation is part of an HS safety declaration and is prepared by the Specialized Design Organization (by the deadlines established by the Russian Government Resolution “On the Declaration of Safety of Hydraulic Structures” [[5]).](#_НОРМАТИВНЫЕ_ССЫЛКИ)

The amount of damage is calculated for two scenarios:

* Scenario 1 – most likely failure;
* Scenario 2 – most severe failure.

The main regulatory document defining the procedure for calculating potential damage, as well as indicators characterizing a failure, its consequences and requiring assessment, is Order of the Federal Service for Environmental, Technological and Nuclear Supervision dated 10 December 2020 No. 516 “On Approval of the Methodology for Determining the Amount of Damage that May be Caused to Life, Health of Individuals, Property of Individuals and Legal Entities as a Result of a Hydraulic Structure Failure (Except for Shipping and Port Hydraulic Structures)” [[6]](#_НОРМАТИВНЫЕ_ССЫЛКИ).

The calculation of potential damage that may be caused to the life, health of individuals and property of individuals and legal entities as a result of HS failures contains estimated probabilities of potential scenarios of TD failures and their consequences.

## Use of the interdisciplinary knowledge base

### Knowledge base update

In case of changes in the operating conditions leading to a decrease in the level of safety of a hydraulic structure, detection of damages and failures in a hydraulic structure, deterioration of conditions of containment or elimination of emergency situations and protection of population and territories from them, change of an operating organization of a hydraulic structure, and in case of changes in the requirements, which, if not complied with, would result in a breach of the safety criteria of a hydraulic structure, a structural division shall organize an unscheduled development and submission of a safety declaration of a hydraulic structure to a state supervisory authority (by the deadlines established by the Russian Government Resolution “On the Declaration of Safety of Hydraulic Structures” [[5]](#_НОРМАТИВНЫЕ_ССЫЛКИ)).

Climate change knowledge is assessed, updated and applied through:

* monitoring the depth of freezing (performed by a structural division, with the involvement of an independent laboratory through a contract with the Specialized Corporate Design Organization);
* calculation of GHG emissions of a TD (performed by the Environmental Center on an ongoing basis, with the results included in the Sustainability Report).

### Application of the knowledge base throughout the life cycle of tailings dams

If a significant acute or chronic impact on permafrost rocks is identified as part of HS safety monitoring, an analysis and assessment of the changes is carried out by a specialized organization to link these changes to climate change. The chief engineer of a structural division initiates development of a project for reconstruction of the given tailings facility, which is considered in accordance with the procedure established by the Company.

# DESIGN, CONSTRUCTION, OPERATION AND MONITORING OF TAILINGS DAMS

## Development of tailings dam design plans and criteria

### Consequence classification of tailings dam failures

Calculation of the impact of an HS failure is carried out as part of declaration of HS safety in accordance with the Methodology for Determining the Amount of Damage that May be Caused to Life, Health of Individuals, Property of Individuals and Legal Entities as a Result of a Hydraulic Structure Failure[[6]](#_НОРМАТИВНЫЕ_ССЫЛКИ). Based on the calculation, the classification of consequences of HS failures is defined. The assessment of the consequences of a TD failure is performed by the Company operating the TD or by an external independent organization, in accordance with the ICMM criteria (see Appendix 1), based on the data on:

* the number of people at risk (estimated number of affected persons based on the calculation of potential damage);
* the number of fatalities (estimated number of fatalities based on the calculation of potential damage);
* environmental damage (estimated environmental damage based on the calculation of potential damage);
* damage to health, society and culture (estimated social damage based on the calculation of potential damage);
* damage to infrastructure and the economy (estimation of the main components of property damage based on the calculation of potential damage).

### Accounting for the consequence classification at the design stage

When designing a new tailings dam, the chief project engineer shall ensure the development of the full set of design documentation in accordance with the Resolution of the Government of the Russian Federation “On the Composition of Sections of Design Documentation and the Requirements for Their Content” [[7]](#_НОРМАТИВНЫЕ_ССЫЛКИ) and the Urban Planning Code, including:

* volume “HS Safety Declaration” for a TD (includes risk assessment, calculation of potential damage, safety criteria);
* volume “List of Environmental Protection Measures”.

Based on the volume “HS Safety Declaration”, the chief project engineer / chief engineer of a structural division provides the classification of TD failure consequences in accordance with the ICMM criteria (see Appendix 1).

The chief project engineer / chief engineer of a structural division, when selecting an option of TD project implementation, uses the highest possible level of the consequence classification in the calculation of structure stability for the following criteria (see Appendix 2):

* flooding calculation criteria;
* seismic calculation criteria.

By selecting the appropriate consequence classification of TD failures, the chief project engineer determines the probability of a TD failure for a year corresponding to this category. Based on such probability, project solutions are adjusted in order to ensure the necessary stability of an HS.

The stability is calculated for:

* the maximum level of consequences;
* the current level of consequences, with the possibility of bringing it up to the maximum one throughout the life cycle of a TD.

In the case of choosing the implementation option based on the current level of consequences, the deputy chief engineer for HS of a structural division, with the involvement of the Specialized Corporate Design Organization, shall at least once every five years perform a repeat analysis of the consequences according to the TD failure consequence classification.

In case of change of the consequence classification during TD operation, the deputy chief engineer for HS of a structural division shall ensure the compliance with the new classification within three years required to reach the appropriate level.

If the decision is made to remove the TD, the deputy chief engineer for HS of a structural division, with the involvement of the Specialized Corporate Design Organization (general designer), shall carry out a repeat analysis of the consequences according to the TD failure classification before the TD passes to the stage of safe removal.

The TD project is subject to state expert review (including environmental expert review) in the prescribed manner.

### Approval of the consequence classification of tailings dam failures

The failure consequence classification for newly designed HSs is prepared by the chief project engineer in accordance with the design ToR received from the project owner. The classification is documented as an optional appendix to the design documentation, but is not submitted for state expert review.4

The failure consequence classification for existing tailings dams is prepared by the deputy chief engineer for HS of a structural division in the form of a local document, approved by the chief engineer of the division and stored together with the documents related to implementation of the ICMM Global Industry Standard on Tailings Management.

### Tailings dam design criteria

The Company engages the Specialized Corporate Design Organization to design TDs, which, in turn, may engage subcontractors to develop tailings dam designs or individual sections thereof. The Company also conducts scientific research to ensure a robust design. Design of TDs is carried out according to requirements of the legislation of the Russian Federation:

* SP 39.13330.2012 “Set of Rules. Dams Made of Soil Materials”;
* SP 58.13330.2019 “Set of Rules. Hydraulic Structures. Key Provisions”;
* SP 23.13330.2018 “Set of Rules. Foundations of Hydraulic Structures”;
* SP 38.13330.2018 “Set of Rules. Loads and Impacts on Hydraulic Structures”;
* SP 14.13330.2018 “Set of Rules. Construction in Seismic Areas”;

as well as other applicable requirements of national legislation.

When designing dams intended for construction in seismic areas, on collapsing and swelling soils, as well as on sites subject to landslides, mudflows and karst, additional requirements for the construction in these conditions are taken into account.

### Design criteria requirements

The Company takes into account in the design criteria operational properties of materials and expected performance of design elements, as well as quality of the implementation of risk management systems (RMS). Design considers the existing monitoring system and safety criteria; the reliability parameters are determined in accordance with applicable standards and mandatory sets of rules. A tailings dam design is reviewed by a relevant collegial body of the Company and approved given existing risks.

### Possibility of upgrading tailings dams

The Company designs new tailings facilities focusing on a legally required level of safety. It can decide to increase the reliability of an HS. Further reconstruction of a tailings dam takes into account the possibility of increasing the safety level. The Company also has a technical council, which may consider various measures as safety improvement measures.

### Preparation of technical regulations for design

When constructing new tailings dams, the chief engineer of a structural division shall initiate the process of developing technical regulations for design by contacting the Specialized Corporate Design Organization. The technical regulations are equivalent to the Design Basis Report stipulated by Principle 4 of the Global Industry Standard on Tailings Management. When developing the technical regulations for design, the key structural and operational characteristics of a tailings dam are taken into account. The technical regulations are based on the results of engineering surveys and contain technical and economic indicators of designed capital construction projects. They are submitted for consideration to the Company's relevant experts to make a decision on the start of design.

## Development of a robust design of a tailings dam

### Multi-criteria alternatives analysis

The Specialized Corporate Design Organization develops a feasibility study for each tailings facility to be designed, which identifies alternative locations and parameters for the tailings dam. The outcome of the multi-criteria alternatives analysis is presented to a cross-functional group consisting of the Company's dedicated specialists, which assesses the validity of the decisions made, as well as the risks for people and the environment, selects the final design option and sends the results for approval to the Company's management. Subsequently, the decision to start the project is made by a relevant collegial body of the Company.

### Robust design of a tailings dam

The Company develops a robust design for each tailings dam, which is confirmed by the State Expert Appraisal Board’s (Glavgosexpertiza) opinion. In case of changes in external conditions or the business need to adjust the parameters of a tailings facility, a tailings facility reconstruction project is developed, which also undergoes state expert review.

### Development of a water balance model

A water and mass balance model is developed by the Company’s professionals as part of a TD project. The model is annually updated by HS Monitoring Department with due consideration of the production program of a structural division and includes measures to protect against potential unintentional discharges of recycled water into the region’s rivers.

Based on the water and mass balance model, a schedule for filling a TD is prepared and undergoes annual approval by Rostekhnadzor as part of the Mine Development Plan.

### Analysis of risks and failures of tailings dams

As part of the development of the safety declaration, the Company conducts a comprehensive analysis of failures in the design of a TD in order to minimize the risks.

### Development of a TD design

The Specialized Corporate Design Organization ensures design development for each stage of TD construction, including start-up, partial raises and interim configurations, final raise and all closure stages, in accordance with a project owner’s ToR.

### Designing the removal, mothballing and reclamation phases

The removal, mothballing and reclamation phases shall be designed in accordance with the terms of reference received from the project owner, with the designs sent pursuant to the established procedure for expert reviews stipulated by the Russian legislation.

### Confirmation of safe operation of tailings dams

The Company regularly confirms sufficiency of the adopted design solutions ensuring safe operation of TDs in accordance with the legislative requirements by undergoing federal state supervision with the Federal Service for Environmental, Technological and Nuclear Supervision and its territorial bodies. For hazardous production facilities of hazard class 1 (in accordance with the legislation of the Russian Federation), to which most TD HSs of the Company belong, such supervision is carried out on a continuous basis throughout the whole life cycle of the facility.

## Planning, construction, operation and removal of tailings dams

### Safe operation of tailings dams

Ensuring safe operation of a TD is achieved through continuous monitoring of compliance with design solutions and safety requirements, as well as through maintaining the qualifications of personnel.

All hydraulic structures of the Company are subject to scheduled monitoring and control for compliance with operating safety standards. For more information on monitoring the state of TDs, see [clause 4.4](#_Система_мониторинга_хвостохранилищ) of this Standard. The Company also has three-level control over occupational health and safety involving heads of departments of structural divisions, shops of structural divisions and heads of direct operations.

In order to confirm the knowledge of the mandatory requirements for ensuring the safety of hydraulic structures, the employees carrying out professional activities related to the design, construction, overhaul, operation, reconstruction, mothballing and removal, as well as maintenance, operational control and current repair of hydraulic structures, shall be certified in the field of industrial safety and specifically the safety of hydraulic structures. Certification is performed by a regional body of Rostekhnadzor using the Unified Testing Portal. The chief engineer of a structural division is responsible for organizing and controlling the timely certification of personnel.

### Quality control of the tailings facility construction process

Quality control of the construction process and compliance with the objectives/design solutions is carried out as part of design supervision. Design supervision is performed by the Specialized Design Organization.

The scope of such supervision includes:

* compliance with construction technology (compliance of technologies and methods of work with design documentation);
* achievement of design values;
* reliability of documentation (ensuring completeness and correctness of presentation of implemented design solutions in as-built documentation);
* use of permitted materials and equipment (compliance of materials and equipment with the design requirements);
* quality of supplies (compliance of the quality level of materials and equipment with the designers' intentions, including availability of quality and safety certificates).

The chief project engineer is responsible for organizing the design supervision.

### Development of a report on construction of or changes to tailings facilities

The results of design supervision are recorded in the design supervision log. Upon completion of the TD construction/reconstruction phase, the project owner, the contractor and the designer execute a certificate of compliance of the work performed with the design documentation.

The results of the design supervision are a prerequisite for obtaining a construction permit.

### Operations, Maintenance and Surveillance Manual

The main rules aimed at ensuring the safe operation of TD HSs are contained in the Rules for Operation of HS of TDs, which are in substance equivalent to the Operations, Maintenance and Surveillance (OMS) Manual stipulated by Principle 6 of the ICMM Global Industry Standard on Tailings Management.

According to the Requirements for the Content of Rules for the Operation of Hydraulic Structures, the Rules for HS Operation shall have the following structure:

1. general provisions;
2. information on the operator;
3. documentation required for normal operation of an HS;
4. procedure for the organization of HS repairs and maintenance;
5. key rules for HS operation;
6. ensuring HS safety.

The Rules for HS Operation are developed by the deputy chief engineer for HS of a structural division, approved by a regional Rostekhnadzor department and by the head of a structural division in accordance with the Requirements for the Content of Rules for the Operation of Hydraulic Structures [[8]](#_НОРМАТИВНЫЕ_ССЫЛКИ).

When developing the Rules, the chief engineer shall analyze best global practices in ensuring HS safety.

The chief engineer of a structural division provides training of TD personnel on the Rules for HS Operation.

Each TD HS is subject to annual HS Safety Monitoring (see more detail on the monitoring requirements in [clause 4.4](#_Toc98866303) hereof), which determines, *inter alia*, the effectiveness of management of HS safety.

### Preparation of a Deviance Accountability Report

Based on results of the tailings dam construction the general contractor for construction prepares as-built construction documentation on the design structures commissioned in which the actual parameters of constructed TDs are stipulated, including:

* As-built survey of a tailings dam;
* As-built crossbars on the cross-sections of the control and measuring equipment, with the design and actual position of the depression curve;
* The longitudinal profile along the axis of the dam, with an indication of the design and actual crest levels, etc.

In case of a deviation in parameters of the constructed TDs from the design documentation additional expert review and actions for ensuring safe operation of TDs may be required.

### Application of best practices

In order to ensure the application of best available practices and technologies used in the design, construction, operation, reconstruction, mothballing and removal of tailings dams, the Company regularly analyzes the best global recommendations, as well as operation of tailings dams at other companies. In addition, the Company constantly interacts with various international associations and initiatives.

## Tailings dam monitoring system

### Monitoring of the tailings dams condition

Monitoring Departments (Services) function in structural divisions of PJSC ALROSA for the purpose of organizing the monitoring of the tailings dams condition.

HS safety is monitored for the following purposes:

* Ensuring constant control over the safety of hydraulic structures and their environmental footprint;
* Prevention of emergency situations and creation of conditions for safe operation and construction of HS;
* Analysis and assessment of the projected development of the situation with the safety of the structures and preparation of recommendations on overcoming negative trends and eliminating identified shortcomings.

The main objective of safety monitoring is to ensure management in the area of rational and safe operation of hydraulic structures. The goals and objectives of safety monitoring are achieved through the organization of a system of permanent (continuous) visual and instrumental observations, ensuring the receipt of high-quality reliable information in the necessary volumes and constant analysis, assessment and forecast of the safe condition of hydraulic structures taking into account all safety factors.

In order to perform monitoring at the structural divisions of PJSC ALROSA, monitoring projects are developed to ensure effective ongoing control over HS safety and regulate the procedure for safety monitoring in detail. The main decisions in the monitoring project were taken based on the actual condition of the tailings dam structure and the negative processes identified. The monitoring project optimizes the scope and composition of field studies of the indicators of the HS condition, and establishes the composition of the monitoring service.

The monitoring project is developed by an independent expert center as part of the design documentation and, if necessary, agreed upon by Rostekhnadzor. Pursuant to the requirements of Russian laws, specifically RD 03-417-01 [[9]](#_НОРМАТИВНЫЕ_ССЫЛКИ), the HS safety monitoring project includes the following sections:

1. Introduction;
2. General description of hydraulic structures;
3. Composition, scope and functions of the HS safety monitoring system;
4. Cost estimate documentation;
5. Appendices (drawings) and other sections, the composition of which is determined by each structural division.

Safety monitoring is performed for the following facilities:

* Structures and systems;
* Technological processes;
* Environment;
* Natural and climatic processes;
* HS documentation;
* State and preparedness of the operations and monitoring services.

If any deviations or inconsistencies are identified as a result of the monitoring, they must be recorded and promptly addressed in accordance with the current procedure.

### Requirements for the content of tailings dam monitoring

The HS safety monitoring project and the instructions on the monitoring procedure include controlled quantitative and qualitative indicators for all monitoring sites. The list of indicators is determined on the basis of effective regulatory documents, a draft of field studies, recommendations based on expert review of the state of the structure’s safety (an expert center accredited by Rostekhnadzor in the area of expert review of the HS safety declaration), and recommendations and proposals of the monitoring services of structural divisions.

Based on the effective safety declaration, the monitoring project also describes the HS safety criteria that represent the limits for the quantitative and qualitative indicators of the HS state and its operating conditions that correspond to the acceptable level of risk. Safety criteria take into account the HS state and its operating conditions.

### Documentation and disclosure of monitoring results

Based on the monitoring results, an annual report on the results of the HS safety monitoring (annual report on the HS state) is prepared. The Monitoring Department coordinates and controls monitoring activities, summarizes monitoring results and submits them to the analytical center of Rostekhnadzor.

# GOVERNANCE AND MANAGEMENT OF TAILINGS DAMS

## Organization of the Tailings Management System

### Obligations in the area of tailings dam operation

One of the company’s key environmental commitments is to ensure a rational approach to water consumption and wastewater disposal, efficient use of resources, responsible waste management and safe management of hydraulic structures. This commitment is documented in the Sustainability Policy approved by decision of the Supervisory Board.

Obligations in the area of HS operation and management are set out in the Rules for Operation of HS of TDs.

The Rules for Operation of HS of TDs contain the main requirements aimed at ensuring safe operation of HS of TDs, the documentation necessary for normal operation of HS of TDs, the procedure for organizing HS repair and maintenance, and the main Rules for Operation of HS.

### Development of the Tailings Management System

Within the Tailings Management System, a structural division organizes functioning of services responsible for the operation and monitoring of the HS.

TD operation is the area of responsibility of the tailings dam sectionof the processing division and processing plants, including:

* Storage of tailings in a sedimentation pond;
* Uninterrupted support of the technological processes of recycled water supply, hydro-transport and deposition of tailings;
* Safe operation of facilities and structures included in the HS of the processing plant.

The regulations on the processing division and the processing plant approved by the head of the structural division, contain a description of the organizational structure (including the tailings dam section).

Monitoring of HS safety is the responsibility of the HS Monitoring Department (Service) of structural divisions.

### Persons responsible for the implementation of the Global Industry Standard on Tailings Management

The Company has created a working group at the level of the Management Office of PJSC ALROSA (Mirny) responsible for the implementation of the Global Industry Standard on Tailings Management.

The deputy chief engineer for hydraulic structures of the company is responsible for the implementation of the Global Industry Standard on Tailings Management. Chief Engineers of structural divisions are responsible at the level of individual structural divisions operating the HS.

### Duties and authorities of individuals involved in the operation of tailings dams

The structural division appoints a person responsible for safe operation of the HS from among technical managers. The duties of this person, as well as the procedure for interacting with other structural divisions, are specified in the job description.

Requirements on the qualifications of employees (including management of the organization) performing professional activity related to the design, construction, overhaul, operation, reconstruction, mothballing and removal, as well as maintenance, operational control and current repair of hydraulic structures are stipulated in the Federal Law “On the Safety of Hydraulic Structures” [[10].](#_НОРМАТИВНЫЕ_ССЫЛКИ)

In order to confirm their knowledge of the mandatory requirements on ensuring the HS safety, this category of employees is obliged to undergo appraisal on HS safety issues at least once every five years.

Employees who failed to undergo appraisal on hydraulic structures safety are not permitted to work at hydraulic structures.

The Chief Engineer of a structural division ensures training of TD personnel on the Rules for Operation of HS.

### Interaction of persons involved in ensuring the safety of tailings dams

The head of a structural division drafts Regulations on the structural division, which determine:

* The structure and functions of the structural division, including the services responsible for ensuring the safe operation of the TD;
* The procedure for interaction of the structural division services, including in the area of TD safety.

Job descriptions of responsible persons are developed on the basis of these Regulations.

### Development of key performance indicators

The Company management develops and approves the Regulation on remuneration of employees (including employees responsible for the TD operation), chief engineers of structural divisions develop a list of production performance targets on an annual basis, including performance indicators of the HS operation, such as:

* No downtime at the processing division due to reasons related to the tailings dam section;
* No comments on the work performed during the reporting month;
* No violations of health and safety requirements in the reporting month.

## Organization and performance of internal and external reviews of tailings dams

### Tailings dams risk assessment

As part of the HS safety declaration (before receiving a permit to operate the HS of TDs), TDs risk assessment is performed at least once every 5 years (subject to the effective term of the HS safety declaration).

Risk assessment is reviewed annually in the following cases:

* Identification of material deviations from the established safety criteria;
* According to Instructions of Rostekhnadzor employees.

Risk assessment is performed by the Specialized Design Organization and submitted for approval to the Ministry of Environment, Natural Resources and Forestry of the Republic of Sakha (Yakutia), and then, under the HS safety declaration, it is subject to expert analysis at an independent expert center accredited by Rostekhnadzor.

Safety is constantly monitored in the course of HS operation (see point 4.4). If risks that threaten the safe operation of the TD are identified, technical measures are implemented, control over which is performed as part of Production Control (see point 5.2.3).

### Review of the tailings governance and management system

Reviews of the TMS and components of the ESMS related to TDs are performed according to plans of reviews and control procedures for HS at two levels:

* PJSC ALROSA Management Office level;
* Structural division level.

The Unified Plan of Reviews and Control Procedures at the HS of the structural division is approved by the Chief Engineer of the structural division, and by the Chief Engineer of PJSC ALROSA at the level of the Management Office.

The Plan of Reviews and Control Procedures covers:

* Monitoring sites;
* Monitoring system functions;
* Control content (controlled parameters, types of observations, composition of observations);
* Safety criteria;
* Frequency;
* Observations and actions in case of deviations in parameters.

Documentation for recording observations, as well as persons responsible for the performance and control over the performance of reviews (and having relevant authorities) are also indicated in the Unified Plan of HS reviews and Control Procedures.

### Internal reviews of tailings dams

Internal reviews of processes related to TDs are performed as part of three-stage production control at:

* PJSC ALROSA Management Office level;
* Structural division level.

Production control is performed in accordance with a program developed by the structural division on the basis of the schedule approved by the chief engineer of the structural division and by the Management of the Company on the basis of the schedule approved by the chief engineer of PJSC ALROSA.

The scope of production control includes:

* Compliance with industrial safety requirements when operating the HS;
* Availability of industrial safety certificates;
* Timeliness of expert review of industrial safety of technical equipment;
* Integrity of equipment, buildings and structures.

### Review of the tailings dam design

The TD design and effectiveness are reviewed as part of a technical audit aimed at assessing the HS technical condition and the HS compliance with established safety criteria. Engineering managers and specialists in the functional areas are involved in the audit.

Technical audit is performed at two levels:

* PJSC ALROSA Management Office;
* Structural division.

A technical audit is performed in accordance with approved plans, including audit targets, a register of documents, audited processes, schedules and lists of employees performing audits. The HS technical audit plan for the structural division is approved by the Chief Engineer of the structural division, and by the Chief Engineer of PJSC ALROSA at the level of the Management Office.

### External independent reviews of HS safety

In order to ensure ongoing independent review of planning, siting, design, construction, operation, water and mass balance, maintenance, monitoring, performance and risk management, the structural division ensures the implementation of the following types of control:

* Permanent safety control of the HS of the first hazard class (performed by state reviewers of the Territorial Department of Rostekhnadzor)
* Regular review (performed at least once every 5 years by employees of an independent expert organization duly accredited)

The certificate of regular review of the HS is attached to the declaration of the HS safety and is drafted according to the form approved by order of the Federal Service for Environmental, Technological and Nuclear Supervision [[11].](#_НОРМАТИВНЫЕ_ССЫЛКИ) The commission for regular review includes representatives of the state supervisory body and the Ministry of the Russian Federation for Civil Defense, Emergencies and Elimination of Consequences of Natural Disasters.

An independent organization is selected from the list of organizations accredited by Rostekhnadzor based on the Company's tender procedures.

### Internal independent reviews of tailings dams

Internal independent reviews of TDs are carried out by an independent expert center in the form of review of an annual report prepared by the head of the structural division.

The annual report includes:

* HS monitoring results;
* Information on measures taken to ensure safe operation of the HS.

The independent expert center must be accredited by Rostekhnadzor to perform an expert review of the HS safety declaration.

### Appoint and empower an engineer of record.

In the company, the functions of engineer of record (EOR) are performed by the deputy chief engineer for hydraulic structures of a structural division. The duties of the EOR include, but are not limited to:

* Control over the operation, organization and safe and failure-free operation of the HS
* Review of compliance of the technical condition of structures under control.

The authorities and duties of the deputy chief engineer for hydraulic structures of a structural division are set forth in the relevant job description, OHS instructions and other internal documents of the Company.

In the event of a change in the person performing the EOR functions, information and data are transferred in accordance with the company's internal requirements. The appointed person undergoes respective training and knowledge testing.

### Confirmation of financial capacity

The funds necessary for the removal, mothballing and reclamation of the HS are allocated in accordance with the company's internal procedures. The source of allocation of these funds is determined within the current and investment budgets.

A financial reserve is created on an annual basis to eliminate an emergency situation at the HS. In case of a failure at a TD, the Company's competent persons calculate the costs necessary to contain it. Funds are allocated from the reserve to finance emergency response measures by decision of the relevant collegial body of PJSC ALROSA.

In addition, PJSC ALROSA provides mandatory third-party liability insurance for failures.

## Development of a safety culture

### Personnel training

All training processes of PJSC ALROSA are performed by the structural division Corporate University. The Company organizes all types of mandatory training for its employees in accordance with the laws of the Russian Federation:

* Training (induction, initial, refresher, extraordinary and special);
* Training of employees of working professions in safe methods and techniques of performing work;
* Special OHS training for managers and specialists.

In addition to complying with the rules for organizing mandatory training, the Company also prepares for operation and safe maintenance of hydraulic structures. This training is provided to all employees involved in any stage of the tailings dam life cycle. The training is aimed at improving special professional knowledge and obtaining new competencies in organizing work with hydraulic structures. The training program may contain, but is not limited to, the following issues:

* General requirements for ensuring safety of hydraulic structures;
* Duties of the hydraulic structure owner and operator;
* Safety criteria for hydraulic structures;
* State expert review of the hydraulic structures safety declaration;
* Technical regulation of the hydraulic structures safety;
* Ensuring that the structure is ready for emergency containment and response;
* Main issues of design, construction, operation, repair and mothballing of hydraulic structures, etc.

At the final stage of training, the Corporate University organizes a qualifying examination covering the issues of industrial safety and hydraulic structures safety.

### Ensuring continuity

The Company has a talent pool mechanism in place to retain persons who play a critical role in the safety of tailings dams operation. The talent pool planning is performed as part of the joint work of the personnel recruitment and development department and management of the Company.

The personnel recruitment and development department and the Center for Methodology of HR Administration and Employment Relations are the succession methodology holders (methods for assessing and selecting promising internal candidates), line managers ensure continuous development of human resources. Succession planning mechanisms are focused on methods of collecting, storing and transferring knowledge and experience from one employee to another. Knowledge and experience are shared not only between employees of different qualifications, but also between employees involved in various stages of the tailings dam life cycle.

### Cross-functional interaction of personnel

Cross-functional interaction is an additional mechanism that makes it possible not only to maintain the expertise of employees, but also to ensure that new competencies are mastered.

The Company has the following mechanisms aimed at developing cross-functional interaction:

* Implementation of cross-functional projects;
* Horizontal staff rotation;
* Programs for replacement and combination of professions.

### Factor analysis of incidents

The deputy chief engineer for hydraulic structures of a structural division collects and analyzes information on the causes and circumstances of incidents related to the operation of hydraulic structures of tailings dams. Factor analysis can be developed for all recorded incidents. The relevant conclusions should be prepared and corrective actions should be developed based on the results of the factor analysis.

The deputy chief engineer of a specialized corporate design organization aggregates data at the Company level.

Results of the factor analysis are used for improvement of the current risk management system related to tailings dam failures.

## Development and maintenance of a feedback system

### Organization of interaction with employees

The Company has feedback collection mechanisms allowing all employees to promptly raise a question or report concerns about a possible or suspected threat to the tailings dam safety. The feedback mechanisms ensure confidentiality, so each concern can be communicated anonymously. For more information on the existing feedback mechanisms, please refer to the Company's Human Rights Policy.

Having developed feedback collection mechanisms, the Company undertakes to immediately consider all concerns received and to keep all employees up-to-date on the existing feedback mechanisms.

In order to improve the effectiveness of the feedback collection mechanism, the Company develops programs to increase employee motivation for timely response and reporting of hazards. Such programs are implemented as part of developing the system of key performance indicators or otherwise.

### Whistleblower protection

In accordance with the Human Rights Policy, the Company guarantees the confidentiality of all information received through feedback collection mechanisms, and provides for the function of anonymous feedback, which makes it possible to express an opinion without disclosing the identity.

# EMERGENCY RESPONSE AND LONG-TERM RECOVERY

## Preparation for emergency response

### Development and updating of emergency response plans

In accordance with legal requirements, emergency response plans are developed for all structural divisions of the Company operating tailings dams. The developed ERPs are in line with the Emergency Preparedness and Response Plans set out in Principle 13 of the Global Industry Standard on Tailings Management. ERPs are developed to ensure the preparedness of the personnel of structural divisions and emergency response services to tailings dam failures and to elimination of consequences of these failures.

Emergency response plans facilitate:

* Organization of personnel training on actions in case of emergency situations at the site;
* Review of the calculation of the adequacy of resources and equipment to eliminate the emergency situation;
* Review of the preparedness of personnel to eliminate emergency situations;
* Assessment of technical and financial funds to eliminate unusual situations;
* Development of measures to protect the population;
* Organization of cooperation between Company employees and emergency response teams.

In accordance with the laws of the Russian Federation, ERPs are developed every year and take into account the actual state of facilities, and therefore they reflect all the specifics of both local conditions and the actual state of the tailings dams. In case of any material changes, ERPs are updated before the agreed deadline and communicated to the relevant executives and employees.

ERPs may be updated based on the results of training taking into account participants’ opinion on weaknesses in organizing and ensuring emergency response. At the request of a stakeholder representative the deputy chief engineer for hydraulic structures of a structural division makes a decision to take into account the opinion for further adjustment of the ERP.

### Assessment of the developed emergency response plans

Until 01.01.2021 developed ERPs were subject to mandatory approval by the regional bodies of the Russian Emergencies Ministry. However, in accordance with the laws of the Russian Federation, at present no such approval is required, and all new ERPs are approved by the heads of organizations operating the facilities. At the Company, the chief engineer for each structural division is responsible for approving the ERP.

When developing an ERP, the following aspects should be taken into account:

* Previously issued orders of state supervisory bodies;
* Requirements of existing contracts/terms of cooperation with emergency response services engaged in case of HS failures;
* Legal requirements of local authorities.

When approving the ERP, the chief engineer of the structural division takes into account the aforementioned aspects.

### Preparedness for possible failure scenarios

Prepared emergency response plans for tailings dams contain substantive provisions with a detailed description of possible failure scenarios. The description of a failure scenario consists of:

* Information on a hypothetical failure, its type and place of occurrence;
* A description of consecutive measures to save people and eliminate failures;
* A list of persons responsible for the performance of measures and the executors of measures;
* A description of the location of equipment to save people and eliminate failures;
* Routes for people evacuation and vehicles.

When developing failure scenarios, at least the following scenarios are considered:

At a tailings dam:

* Collapse of the downstream face of the embankment dam of the stream diversion or another dam in the form of a landslide;
* Overflow of water over the crest of the embankment dam of the stream diversion or another dam with the formation of a passage;
* Fire in the premises of the recycled water pumping station;
* Fire at vacuum pumping stations;
* Collapse or sloughing of the slopes of the stream diversion channel or the diverting ditch.

At the shunting container:

* Collapse of a levee land side;
* Overflow of water over the crest level of the embankment dam, with the formation of a passage;
* Fire in the premises of the drainage pumping station.

Scenarios and response measures should be tailored to the views of stakeholders.

The deputy chief engineer for hydraulic structures of a structural division organizes drills for each of the ERP scenarios at least once a year in order to practice the procedure for responding to an emergency at the tailings dam.

### Immediate response to an emergency

In order to ensure immediate response to an emergency arising as a result of a HS failure the emergency response plans provide for the necessary resources and equipment. The ERP contains:

* A list of equipment, machinery and mechanisms to eliminate failures;
* A list of life-saving equipment, tools and materials to eliminate failures;
* A list of employees to be notified in emergency situations;
* Composition of the emergency response team.

## Preparation for long-term recovery

### Strategies of response to failures

The company has short-term plans of response to tailings dam failures which describe all possible scenarios of a failure, resources and means, and a sequence of actions on failure elimination. These plans are updated according to the established procedure and confirm compliance with the mandatory requirements of the laws of the Russian Federation on the receipt/extension of a permit for HS operation.

In the event of a catastrophic failure of a tailings dam, the Company may take a decision on mothballing and removal of the hydraulic structure; this activity is governed by the RF Government Resolution “On Approval of the Rules for Mothballing and Removal of a Hydraulic Structure” [[12].](#_НОРМАТИВНЫЕ_ССЫЛКИ) The decision on mothballing and removal determines, *inter alia:*

* A list of measures on HS mothballing and removal;
* Persons responsible for ensuring HS safety during its mothballing and removal;
* Timeframe for mothballing and removal measures;
* Assessment and forecast of possible changes in the natural and man-made conditions of the territory after mothballing and removal measures.

Also, if necessary, the HS owner ensures the development of a reclamation project, which includes:

* Description of the initial condition of land;
* Environmental and economic feasibility study for land reclamation;
* Content, scope and schedule of land reclamation activities;
* Land reclamation costs.

### Assessment of risks and consequences in the event of a failure

In accordance with the laws of the Russian Federation, the Company calculates the amount of damage that may be caused to the life, health of individuals, property of individuals and legal entities as a result of failures at hydraulic structures of tailings dams. This calculation is part of the HS safety declaration and is prepared by the Specialized Design Organization. Potential damage is calculated for two scenarios of a failure: the most probable and the most serious. The following parameters are determined in the calculation of damage:

* Assessment of the probable number of fatalities and injuries among HS personnel, permanent and temporary residents in case of a HS failure;
* Amount of social damage from HS failures in monetary terms;
* Amount of the main components of property damage from HS failures in monetary terms;
* Amount of damage to the natural environment from HS failures in monetary terms;
* Amount of total damage from HS failures in monetary terms;
* Amount of potential damage from HS failures in monetary terms.

The Company must ensure the calculation of the actual amount of damage in the event of a HS failure. The failure scenario should fully reflect the situation at the failure site, and the parameters obtained should demonstrate social, environmental and local economic consequences.

The Company also uses the risk management system, approaches, structure and procedure for organizing this system, the distribution of responsibility among the participants in the risk management system and the nature of their interaction are set forth in the Risk Management Regulation. The chief engineer of the Company oversees production risk management, chief engineers of structural divisions ensure the risk management process, risk processing and monitoring, and implementation of risk minimization measures.

The risks of HS failures are included in the Company's list of critical risks. In this connection, the safe condition of the HS is constantly monitored in accordance with regulatory requirements and design documentation, and the most dangerous risks are contained in a timely manner.

In the event of a failure at a hydraulic structure, the Company identifies and reassess the risks that could lead to a failure or an emergency and take these risks into account in the existing register. Response measures should also be reviewed taking into account the realized risks, plans should be developed to prevent and mitigate the identified risks.

### Organization of monitoring and preparation of reporting in case of an emergency

In the event any failure scenario occurs, the Company should inform the population about:

* The threat (forecast) of an emergency;
* The fact and main parameters of an emergency;
* The measures to protect the population and territories, perform emergency response activities and other urgent work;
* The resources and means used to eliminate an emergency;
* The final report on the emergency.

The deadlines and forms for providing information on protecting the population and territories from emergencies are established by the laws of the Russian Federation.

In the event of an emergency, the Company assists government authorities in monitoring the development of the consequences of the emergency.

The Operating Log is completed in the course of eliminating a failure. The following information is entered:

* Place of the failure
* Time of the failure
* Nature of the failure
* Content of the failure elimination assignment
* Responsible persons
* Sign-off and time of completion of the assignment

Based on this log, the effectiveness of actions on failures elimination within the Company is assessed.

Information on the results of emergencies elimination is documented in the form of the Final Report on Emergencies submitted to the Emergencies Ministry.

The final report on an emergency should contain the following information:

* General information (name, type, source of occurrence, date of occurrence and elimination);
* Information on the place of occurrence of the emergency source, location and area of the emergency zone;
* Description of the facility where the source of the emergency appeared;
* Weather data at the time of the occurrence of the emergency;
* Destructive factors of the source of the emergency;
* Information on fatalities and injuries;
* Amount of damage from an emergency;
* Emergency elimination measures, resources and funds raised.

Stakeholders may request information on the results of eliminating an emergency from the Emergencies Ministry.

# PUBLIC DISCLOSURE AND ACCESS TO INFORMATION

## Requirements on public disclosure and access to information on tailings dams

### Disclosure of information on new tailings dams and tailings dams in operation

The Company discloses the following information on new tailings dams to stakeholders:

* Information on the feasibility study of the project and industrial site selected as a result of multi-criteria analysis of alternatives, impact assessments and mitigation plans;
* Information on the classification of consequences.

Every year the Company also publishes updated information on the tailings dams in operation, including:

* A description of the tailings dam;
* Consequence Classification;
* A summary of risk assessment findings;
* A summary of impact assessments and of human exposure and vulnerability to tailings dam credible failures;
* A description of the design for all phases of the tailings dam life cycle including the current and final height;
* A summary of material findings based on the results of monitoring tailings dams safety;
* A summary of material findings of the environmental and social monitoring programs;
* A summary version of the ERP;
* Dates of most recent and next independent reviews;
* Annual confirmation that the Operator has adequate financial capacity.

In the event of a failure at a tailings dam, the Company should publish information on the results of the failure analysis.

The Company may disclose information on tailings dams in the following formats:

* Disclosure of information on the Company's official website;
* Appendix to the annual Sustainability Report;
* Independent report on the condition of tailings dams.

The information on tailings dams is prepared and regularly updated by the deputy chief engineer for hydraulic structures of the company. Decisions on the disclosure of the necessary information are made by the Sustainability Working Group consisting of the heads of the Company's core lines of business.

# DOCUMENTS AND RECORDS RETENTION REQUIREMENTS

Documents and records are stored in accordance with the requirements of the laws of the Russian Federation, or in the absence thereof – in accordance with the requirements of the Company.

# RESPONSIBILITY

Responsibility for the implementation of the requirements of this Standard at the Company level lies with the Chief Executive Officer – Chairman of the Management Board of the Company, at the level of a structural division – with the head of the structural division.

Certain duties assigned by this Standard to certain categories of employees are added to their job duties or set forth in the organizational and administrative documents of the Company or the structural division.

# TERMS AND DEFINITIONS

|  |  |
| --- | --- |
| **PJSC ALROSA, ALROSA, Company** | one of the largest diamond mining companies in the world, a Russian mining company with state participation |
| **Stakeholder engagement** | actions and processes implemented by the Company to engage stakeholders in its activity and to take their interests into account in its performance |
| **Hydraulic structures**  | dams, hydroelectric power station buildings, spillway, water discharge and outlet facilities, tunnels, channels, pumping stations, shipping locks, ship elevators; facilities designed to protect against floods, destruction of coasts and the bottom of reservoirs and rivers; structures (dams) protecting liquid waste storage facilities of industrial and agricultural organizations; scour protection devices on channels, as well as other structures, buildings, devices and other facilities intended for the use of water resources and the prevention of the negative impact of water and liquid wastes, except for facilities of centralized hot water supply, cold water supply and/or sewage disposal systems stipulated by Federal Law No. 416-FZ of 7 December 2011 “On Water Supply and Sewage Disposal”; (as amended by Federal Law No. 291-FZ dated 30.12.2012) |
| **Stakeholders** | for the purposes of this Standard, individuals and legal entities or groups of persons (employees, clients, representatives of business, civil society, government authorities, local communities, trade unions, etc.) to various degrees involved in the Company's activity that affect the Company's performance and/or are influenced by it |
| **Project owner** | a legal entity that concludes contracts on the performance of engineering surveys, on the preparation of design documentation, on construction, reconstruction, and overhaul; prepares assignments for the performance of the these types of work, provides persons performing engineering surveys and/or preparing design documentation with the materials and documents necessary to perform these types of work, approves the design documentation, signs documents to obtain a commissioning permit for a capital facility, performs other functions stipulated by the urban development legislation |
| **Stakeholder identification** | process of regular identification of stakeholders, as well as analysis and documentation of relevant information on their interests, engagement, interdependence, influence and potential impact of stakeholders on the Company's activities |
| **Safety criteria for a hydraulic structure** | limit values of quantitative and qualitative indicators of the state of a hydraulic structure and its operating conditions that correspond to the acceptable level of the risk of the hydraulic structure failure and are properly approved by federal executive bodies performing government supervision over the hydraulic structure safety |
| **International Council on Mining and Metals****(ICMM)** | an international organization dedicated to a safe, fair and sustainable mining and metals industry. ICMM brings together 28 mining and metals company members and over 30 regional and commodities association members to improve environmental and social performance |
| **Local population** | a community of people living and/or performing activities in the Company’s regions of presence |
| **Independent Tailings Review Board** | a body ensuring independent technical review of the design, construction, operation, removal and management of tailings dams. Independent reviewers are third-parties who are not, and have not been directly involved with the design or operation of the particular tailings dam. The following organizations may act as the ITRB: an independent accredited laboratory; independent expert center/organization; state control and supervisory bodies |
| **Independent expert center** | a specialized expert organization accredited to provide services on the preparation of documents related to a hazardous production facility, and drafting of safety declarations. It can also perform the functions of the ITRB |
| **Emergency response plan** | a document stipulating the measures and actions to save people and eliminate failures at the initial stage of their occurrence, and including a detailed plan of coordinated actions of employees during a failure |
| **Working group** | a group approved by Resolution No. 02/283-r dated 31.08.2021 and established to implement a project on introducing the requirements of the Global Industry Standard on Tailings Management |
| **Free, prior and informed consent****(FPIC)** | Russian legislation establishes the right of citizens, non-governmental organizations (associations) and representatives of local government bodies to participate in public discussions of draft materials on environmental impact assessment when designing new tailings dams. This right is a Russian equivalent of the FPIC, which is a universal norm of international law in accordance with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP), the Convention on Biological Diversity (CBD) and Convention No. 169 of the International Labor Organization |
| **Responsible Jewellery Council****(RJC)** | an international non-profit organization engaged in the certification and development of standards in the field of responsible jewelry business, whose activity is focused on strengthening consumer confidence in the jewelry industry through the promotion of responsible business practices applicable to rough diamonds, gold and platinum group metals |
| **Specialized Corporate Design Organization** | Yakutia Research and Design Institute of the Diamond Mining Industry (Yakutniproalmaz) – a structural division of PJSC ALROSA that acts as a general designer and is the coordinator and provider of design work |
| **Structural division** | a division of PJSC ALROSA that performs the functions stipulated by the Regulation on a structural division (mining and processing division, capital construction division, geological survey expedition, MUAD, MAP, etc.) |
| **Tailings dam** | a set of special facilities and equipment designed and operated in accordance with its design and intended for storage or disposal of waste from minerals processing (tailings) |
| **Emergency**  | a situation in a certain area resulting from a hydraulic structure failure that may entail or has entailed human casualties, damage to human health or the environment, significant material losses and disruption of living conditions |
| **Environmental Сenter** | a division of the Company responsible for coordination of environmental protection activities in structural divisions managed by the Company |
| **Federal Service for Environmental, Technological and Nuclear Supervision (Rostekhnadzor)** | a federal executive body responsible for the development and implementation of state policy and regulations in the specified area of activity, as well as in the area of technological and nuclear supervision, and functions of control and supervision in the area of safe performance of work related to the use of the subsoil, industrial safety, and safety when using nuclear energy (except for the development, manufacture, testing, operation and disposal of nuclear weapons and military nuclear power plants), safety of electrical and heat installations and networks (except for household installations and networks), safety of hydraulic structures (except for shipping and port hydraulic structures), safety of production, storage and use of industrial explosive materials, as well as special functions in the area of national security in this field |

# ABBREVIATIONS

|  |  |
| --- | --- |
| **ICMM** | International Council on Mining and Metals |
| **RJC** | Responsible Jewellery Council |
| **HS** | Hydraulic structures |
| **SEER** | State Environmental Expert Review |
| **EOR** | Engineer of Record |
| **EPRC** | Emergency Prevention and Response Commission |
| **NPO** | Non-profit organization |
| **ITRB** | Independent Tailings Review Board |
| **EIA** | Environmental impact assessment |
| **UN** | United Nations Organization |
| **ERP** | Emergency response plan |
| **USEPRS** | Unified State Emergency Prevention and Response System |
| **FPIC** | Free, prior and informed consent |
| **RMS** | Risk management system |
| **TMS** | Tailings Management System |
| **EMS** | Environmental Management System |
| **ESMS** | Environmental and Social Management System |
| **ToR** | Terms of Reference |
| **FS** | Feasibility study |
| **TDS** | Tailings dam section |
| **TD** | Tailings dam |
| **ES** | Emergency situation |
| **OMSM** | Operations, Maintenance and Surveillance Manual |

# REGULATORY REFERENCES

1. RF Government Resolution No. 1607 “On Approval of Criteria for Classification of Hydraulic Structures” dated 5 October 2020
2. Federal Law No. 174-FZ “On Environmental Expert Review” (as amended on 2 July 2022) (version effective from 1 March 2022).
3. The Practice of FPIC: Insights from the FPIC Solutions Dialogue, 2021. Kennedy, T., Martin, T., Lee, M.
4. RF Law No. 4530-1 "On Forced Migrants" (as amended by Federal Law No. 202-FZ dated 20 December 1995) (as amended on 8 December 2020).
5. RF Government Resolution No. 1892 “On the Declaration of Safety of Hydraulic Structures” dated 20 November 2020
6. Rostekhnadzor Order No. 516 “On Approval of the Methodology for Determining the Amount of Damage that May be Caused to Life, Health of Individuals, Property of Individuals and Legal Entities as a Result of a Hydraulic Structure Failure (Except for Shipping and Port Hydraulic Structures)” dated 10 December 2020.
7. RF Government Resolution No. 87 “On the Composition of Sections of Design Documentation and the Requirements for Their Content (as amended on 1 December 2021)” dated 16 February 2008
8. Rostekhnadzor Order No. 462 “On Approval of the Requirements for the Content of Rules for the Operation of Hydraulic Structures (Except for Shipping and Port Hydraulic Structures)” dated 26 November 2020.
9. Guideline document RD 03-417-01 “Methodological Recommendations on the Preparation of a Project for Monitoring the Safety of Hydraulic Structures at Production Facilities, Sites and Organizations Supervised by the Gosgortekhnadzor) of Russia”.
10. Federal Law No. 177-FZ “On the Safety of Hydraulic Structures” (as amended on 11 June 2021) (version effective from 1 January 2022).
11. Rostekhnadzor Order No. 497 “On Approval of the Form of the Report on Regular Review of a Hydraulic Structure (Except for Shipping and Port Hydraulic Structures”) dated 4 December 2020.
12. RF Government Resolution No. 1589 “On Approval of the Rules for Mothballing and Removal of a Hydraulic Structure” dated 1 October 2020

# APPENDIX 1 Consequence Classification of Tailings Dam Failures

1. ICMM Matrix of Consequence Classification of Tailings Dam Failures

|  |  |
| --- | --- |
| Category according to the Consequence Classification of Tailings Dam Failures | Incremental losses |
| Population at risk | Potential loss of life | Environment | Health, social and cultural | Infrastructure and economics |
| Low | None | None expected | Minimal short-term loss or deterioration of habitat or rare and endangered species. | Minimal effects and disruption of business and livelihoods. No measurable effect on human health. No disruption of heritage, recreation, community or cultural assets. | Low economic losses: area contains limited infrastructure or services. <USD 1 mln |
| Significant | 1-10 | Unspecified | No significant loss or deterioration of habitat. Potential contamination of livestock/fauna water supply with no health effects. Low potential toxicity of process water. Tailings not potentially acid generating and have low neutral leaching potential. Restoration possible within 1 to 5 years. | Significant disruption of business, service or social dislocation. Low likelihood of loss of regional heritage, recreation, community, or cultural assets. Low likelihood of health effects. | Losses to recreational facilities, seasonal workplaces, and infrequently used transportation routes.<USD 10 mln |
| High | 10-100 | Possible (1–10 persons) | Significant loss or deterioration of critical habitat or rare and endangered species. Potential contamination of livestock/fauna water supply with no health effects. Process water moderately toxic. Low potential for acid rock drainage or metal leaching effects of released tailings. Potential area of impact: 10 km2 – 20 km2. Restoration possible but difficult and could take > 5 years. | 500-1,000 people affected by disruption of business, services or social dislocation. Disruption of regional heritage, recreation, community or cultural assets. Potential for short-term human health effects. | High economic losses affecting infrastructure, public transportation, and commercial facilities, or employment. Moderate relocation/compensation to communities. <USD 100 mln |
| Very high | 100-1000 | Possible (10–100 persons) | Major loss or deterioration of critical habitat or rare and endangered species Process water highly toxic. High potential for acid rock drainage or metal leaching effects from released tailings. Potential area of impact >20 km2. Restoration or compensation possible but very difficult and requires a long time (5 years to 20 years). | More than 1,000 people affected by disruption of business, services or social dislocation for more than one year. Significant loss of national heritage, community or cultural assets. Potential for significant long-term human health effects. | Very high economic losses affecting important infrastructure or services (e.g., highway, industrial facilities, storage facilities for dangerous substances), or employment. High relocation/compensation to communities. <USD 1 bln |
| Extreme  | >1000 | Many (>100 persons) | Catastrophic loss of critical habitat or rare and endangered species. Process water highly toxic. Very high potential for acid rock drainage or metal leaching effects from released tailings. Potential area of impact >20 km2. Restoration or compensation in kind impossible or requires a very long time (>20 years). | More than 5,000 people affected by disruption of business, services or social dislocation for years. Significant national heritage or community facilities or cultural assets destroyed. Potential for severe and/or long-term human health effects. | Extreme economic losses affecting critical infrastructure or services, (e.g., hospital, major industrial complex, major storage facilities for dangerous substances) or employment. Very high relocation/compensation to communities and very high social readjustment costs.>USD 1 bln |

# APPENDIX 2 Criteria for assessing tailings dam reliability

1. Flood criteria

|  |  |
| --- | --- |
| Category according to the Consequence Classification of Tailings Dam Failures | Flood criteria – annual exceedance probability |
| Operations and removal(active care) | Period after removal (passive care) |
| Low | 1/200 | 1/10000 |
| Significant | 1/1000 | 1/10000 |
| High | 1/2475 | 1/10000 |
| Very high | 1/5000 | 1/10000 |
| Extreme | 1/10000 | 1/10000 |

1. Seismic design criteria

|  |  |
| --- | --- |
| Category according to the Consequence Classification of Tailings Dam Failures | Flood criteria – annual exceedance probability |
| Operations and removal(active care) | Period after removal(passive care) |
| Low | 1/200 | 1/10000 |
| Significant | 1/1000 | 1/10000 |
| High | 1/2475 | 1/10000 |
| Very high | 1/5000 | 1/10000 |
| Extreme | 1/10000 | 1/10000 |

# APPENDIX 3 Compliance of this Standard with ICMM and RJC

1. Compliance of this Standard with ICMM and RJC requirements as of Q1 2022

|  |  |  |  |
| --- | --- | --- | --- |
| Section of this Standard No.  | Name of the section of this Standard | ICMM requirement | RJC requirement |
| 2.1 | Stakeholder identification | Principle 1 | COP 32 |
| 2.2 | Stakeholder engagement | Principles 1, 5, 14, 15 | COP 32, 33 |
| 3.1 | Development of an interdisciplinary knowledge base | Principle 2 | COP 34 |
| 3.2 | Use of the interdisciplinary knowledge base | Principle 3 | — |
| 4.1 | Development of tailings dam design plans and criteria | Principle 4 | COP 39 |
| 4.2 | Development of a robust design of a tailings dam | Principles 3, 5 | COP 42 |
| 4.3 | Planning, construction, operation and removal of a tailings dam | Principle 6 | — |
| 4.4 | Tailings dam monitoring system | Principle 7 | — |
| 5.1 | Organization of the Tailings Management System | Principle 8 | — |
| 5.2 | Organization and performance of internal and external reviews of tailings dams | Principles 8, 9, 10 | COP 42 |
| 5.3 | Development of a safety culture | Principle 11 | — |
| 5.4 | Development and maintenance of a feedback system | Principles 11, 12 | — |
| 6.1 | Preparation for emergency response | Principle 13 | COP 30, 37 |
| 6.2 | Preparation for long-term recovery | Principle 14 | — |
| 7.1 | Requirements on public disclosure and access to information on tailings dams | Principle 15 | — |

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