TAILINGS AND WASTE

Sustainable waste management

GRI 306-1, 306-2, SASB EM-MM- 150a.10, EM-MM-540a.2

In line with top-priority national goals in waste management, Nornickel seeks to manage waste in a safe way by minimising waste disposal and increasing recycling and reuse as stated in its Environmental and Climate Change Strategy.

We handle waste in accordance with Russian laws which, among other things, require that we maintain records of waste generated, treated, recovered, neutralised, transferred to or received from third parties, and disposed of; these records are aggregated on a quarterly and annual basis.

The Company monitors management of waste throughout its entire life cycle, including waste management by third parties. Contracts for further waste management are made with third parties possessing all necessary permits, licences, state expert conclusions, technical regulations, and specifications.

From 1 January 2023, Nornickel introduced environmental protection requirements for contractors obliging them to abide by relevant standards established both by the government and the Company. The document envisages ongoing contractor monitoring and sanctions for violating the requirements and damaging the environment. Special attention is paid to amended laws on waste management, use and protection of water resources, and environmental requirements with respect to capital construction projects and their registration.

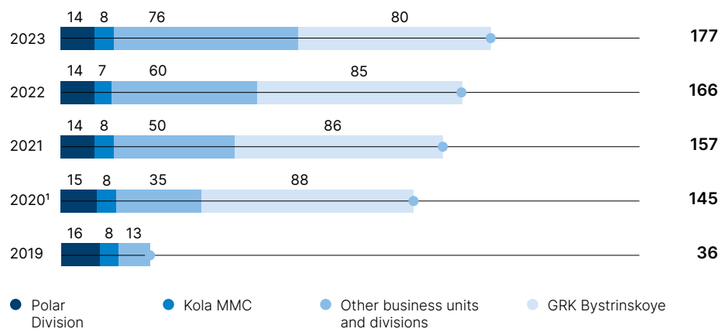
Waste categorisation

Nornickel operations generate hazard class 1-5 waste.

Hazard class	Waste generation in 2023, t	Share of total waste generation, %	Description
Hazard class 1	20.4	0.00001	Hazard class 1–2 (highly hazardous) waste includes mercury lamps and thermometers, batteries, acids and alkalis used in batteries, uninterruptible power supplies, and oils. As required by Russian laws, Nornickel transfers highly hazardous waste to a federal operator by signing an agreement in the federal state information system
Hazard class 2	47.2	0.00003	
Hazard class 3	8,018.6	0.0045	Waste associated with production or other economic activities, or coming from materials and products that have lost their consumer properties after having been used according to their intended purpose
Hazard class 4	1,595,458.0	0.9	Over 97% of hazard class 4–5 waste is generated by mining and concentration operations (overburden, host rock, and tailings). Mining and concentration hazard class 4 waste accounted for 894.9 kt (100% of tailings), while class 5 waste totalled 171.5 mt, including 29.9 mt of tailings and 141.6 mt of overburden.
Hazard class 5	175,290,849.8	99.1	
TOTAL	**176,894,394.1**	**100.0**	

Waste generation

mt



A 6.6% increase in waste generation from 166 mt in 2022 to 177 mt im 2023 is associated with the development of the new Mokulaevskoye limestone deposit.

Contribution to combating contamination with waste

GRI 306-2, 306-4

To foster non-waste production, Nornickel takes the following steps:

- develops and applies in-house waste recovery techniques;
- makes efforts to clean up the existing pollution.

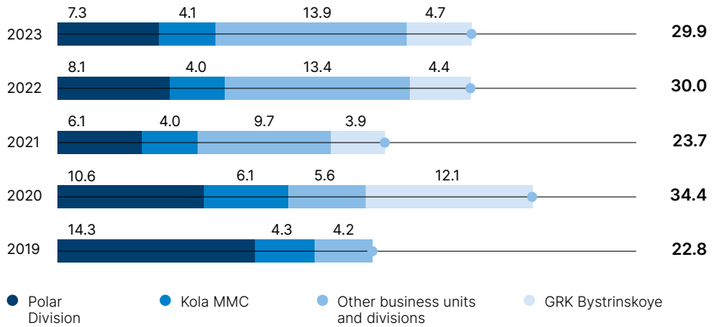
Recovery provides for the economic utilisation of waste and reduction of landfill disposal, which helps minimise adverse environmental impact.

[1] A significant increase in waste generation in 2020 is due to including Bystrinsky GOK in the reporting scope and more feedstock processed.

Key projects and initiatives contributing to increased waste recycling and treatment

Initiatives	Expected effect	2023 results
Building a crushing unit for processing construction waste into certified crushed stone	15% of waste generated by the Company will be recovered	104.5 kt of construction waste is recovered
Constructing a ferrous scrap recycling shop	Ferrous scrap metal processing capacity will be 100 ktpa	Project initiation
Building a non-ferrous scrap recycling shop	Non-ferrous scrap metal processing capacity will reach 2 ktpa	Preparation of design documents
Organising temporary waste storage and treatment sites at Kola MMC in line with the applicable Russian laws	Share of non-mineral waste recycling (other than gypsum and cake waste) at Kola MMC is expected to reach 60% by 2031	Share of non-mineral waste recycling (other than gypsum and cake waste) at Kola MMC is estimated at 58.5%
Processing large tyres and rubber products into crumb rubber / pyrolysis fuel	All of the Company's rubber products waste will be recycled	Project initiation. Funds are allocated to conduct a feasibility study for recycling options

In-house waste disposal,
mt[1]



In 2023, in-house waste disposal remained flat y-o-y at

29.9 mt

Operating expenditures on waste management in 2023

RUB 26.9 bn

Capital expenditures on waste management in 2023

RUB 0.3 bn

[1] Medvezhy Ruchey has the biggest share among other facilities.

Clean Norilsk programme

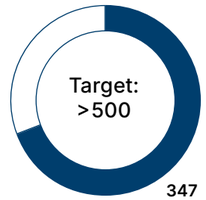
Our large-scale effort to clean up and revamp industrial territories as a way to improve environment in the Norilsk Industrial District and the Arctic, and restore affected and used land to the condition required by environmental, sanitary and epidemiological standards continued in 2023.

The 10-year programme is implemented in stages due to a large scope of works, seasonality, and significant distance between to-be cleaned areas and disposal sites. According to preliminary estimates, investments in the programme will exceed RUB 40 bn, with expenditures on works performed in 2021–2023 totalling RUB 11.5 bn.

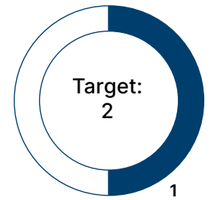
In 2023, along with demolition of abandoned buildings, clean-up, collection and removal of scrap metal and waste, the Company arranged for the biological reclamation of 78.8 ha of disturbed land.

Clean Norilsk goals through 2030 and actual 2021–2023 results

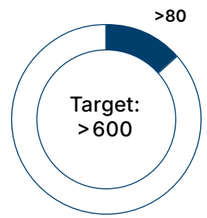
Demolition of abandoned buildings



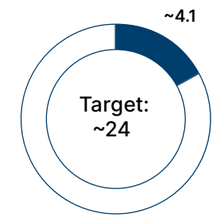
Waste removal,
mt



Removal of scrap metal,
kt



Clean-up,
million m²



In 2023, the programme received a prize as the best environmental project in the Arctic as part of the national contest of best practices in environmental protection called "Reliable Partner in Ecology".

RUB 3.3 bn
Operating expenses under the Clean Norilsk programme in 2023

Waste disposal

SASB EM-MM-540a.1, EM-MM-540a.2

Tailing dumps are assets with elevated risks capable of having a material impact on the environment and local communities. MMC Norilsk Nickel and its business units take steps to ensure safe storage of tailings, regularly monitor the state of hydraulic structures, and inspect discharge locations and adjacent areas. To regulate relevant matters, the Company approved a list of by-laws.

In 2023, the Company updated MMC Norilsk Nickel's Tailings Management Policy setting out goals, principles, rules, requirements, and restrictions related to the Company's operations to ensure the safe operation of tailing dumps throughout their life cycle. The updated policy was approved by the Board of Directors. In the reporting year, the Company also continued to draft a standard to operate hydraulic structures at tailing dumps, which will describe, among other things, an approach to and frequency of reporting on tailings management from the section to executive level. The standard will be implemented before the end of 2024.

Tailing dumps

The Company currently operates the following tailings dumps:

Division/subsidiary	Number of tailing dumps	User
Polar Division	2	• Talnakh Concentrator • Nadezhda Metallurgical Plant
Medvezhy Ruchey	2	• Norilsk Concentrator
Kola MMC	1	• Zapolyarny Concentrator
GRK Bystrinskoye	1	• Bystrinsky Concentrator

Norilsk hosts a gypsum storage facility as part of the Sulphur Programme, which is currently at the pre-commissioning stage.

Our tailing dumps comply with Russian laws and have all permits along with design and expert documentation in place for the commencement of construction and operation.

Additionally, we developed mandatory safety criteria to operate each tailing dump and had them approved by regulators. At least once in five years, the regulator (Rostechnadzor) performs a mandatory audit preceded by drafting a safety declaration for hydraulic structures. The declaration is issued by an independent expert organisation approved by Rostechnadzor following an inspection of said structures.

In 2023, an independent company conducted an audit with subsequent reporting on the compliance of tailings management processes in the Company with the Global Industry Standard on Tailings Management (GISTM) for two facilities:

- **a tailing dump at Nadezhda Metallurgical Plant (operating facility);**
- **gypsum storage at Nadezhda Metallurgical Plant (facility under construction).**

Tailing safety monitoring

Every facility has a safety monitoring system that encompasses internal production control and environmental monitoring.

For each tailing dump, there is a safety monitoring project for hydraulic structures defining the scope (type) and time frames of such monitoring. Daily visual monitoring is the responsibility of operators, while instrumental measurements (surveying, environmental and hydrogeological control, etc.) are performed in line with project timelines.

In 2023, we started designing an automated monitoring solution for hydraulic structures at three tailing dumps of Norilsk Division (Polar Division and Medvezhy Ruchey). Design completion and implementation of project solutions are scheduled for 2024–2025.

In 2023, we completed inspection of the tailing dump at Kola MMC Concentrator (Zapolyarny). In 2024–2025, we plan to develop a strategy for setting up the tailing dump's analytical situation centre, after which new process solutions will be tested for automating the monitoring of hydraulic structures.

All hydraulic structures are subject to ongoing comprehensive monitoring for industrial safety. Tailing dumps are also inspected for stability by competent independent organisations certified by Rostechnadzor.

Assessment of tailing dump risks

There are two processes in place to assess the Company's tailing dump risks:

- estimates of potential damage to life and health of individuals, and to property of individuals and legal entities as a result of an emergency at a hydraulic structure. The estimates are prepared at least once every five years, when developing a safety declaration. The document outlines emergency scenarios, assessment of potential emergency risks and negative impact on communities, ecosystems, and critical infrastructure in case of a disaster / dam break, defines the most probable and serious emergency that may occur at a hydraulic structure, and predicts the parameters of a dam-break wave along with flooding and flow spreading boundaries in case of a hydrodynamic accident at a tailing dam;
- assessment of technical and production risks carried out in line with Nornickel's Regulations on Technical and Production Risk Management.

To address tailing dump-related risks, the Company has organisational units and officers providing regular reports to the management. Such units engage qualified and experienced staff.

The Company identifies tailing dumps, reviews the timeframes for decommissioning, and determines the future closure and land rehabilitation costs. Based on the results, the Company calculates the present (discounted) value of future costs, recognising its environmental provision with respect to the tailing dumps.

Preparedness to respond to accidents and emergencies

SASB EM-MM-540a.3

Although all tailings facilities operated by the Company and its Russian business units are located far from production sites and residential areas, we view them as assets with elevated risks capable of having a material impact on the environment and local communities.

In accordance with the Russian laws and the principles of responsible tailings management, the Company and Russian business units simulate the occurrence of accidents at tailing dumps. For the most unfavourable and most probable scenario of an accident that can translate into an emergency, the development of an action plan for emergency prevention and response is underway. The plan calculates parameters of such an emergency and describes in detail the emergency response actions of the personnel and rescue teams aimed at protecting the life and health of employees and the public, reducing the amount of environmental and financial damage.

Action plans for emergency prevention and response shall be agreed with the head of local administration on whose territory the Company or a Russian business unit operates, as well as with the heads of professional emergency rescue teams engaged for servicing the facilities. The plans are updated on an annual basis and fully revised once every five years. We also conduct regular training sessions with the personnel and emergency rescue services to practice actions in accordance with the plans.

Emergency preparedness and response system for tailing dumps

Federal Law No. 68-FZ On Protection of the Population and Territories from Natural and Man-made Emergencies dated 21 December 1994

Federal Law No. 117-FZ On Safety of Hydraulic Structures dated 21 July 1997

Rostechnadzor Order No. 497 On Approval of the Form of Regular Inspection Certificate for a Hydraulic Structure dated 4 December 2020

EMERCOM's guidelines for planning actions under the Unified State System for Prevention and Elimination of Emergencies dated 15 March 2021

Action plans for emergency prevention and response at class 1 and class 2 tailing dumps

Forecast emergency parameters:
- emergency boundaries;
- scope of emergency and rescue operations;
- calculation of the sufficiency of resources for emergency response.

Procedures and responsible persons:
- notification and communication of the threat and occurrence of emergencies;
- accident-free process shutdown;
- emergency, rescue, and recovery operations;
- management and interaction.

Financial and material provisions for emergency management

Local warning systems across Norilsk Nickel Group's tailing dumps

Briefings with employees on possible emergencies and methods of protection against them

Annual drills, personnel training sessions involving emergency rescue services, preparation for accident-free flood routing

All tailing dumps of the Company and Russian business units of extremely high and high hazard class have local warning systems in place for emergency notification of employees and the public. To keep such systems ready for use, daily technical checks are carried out and at least once a year comprehensive checks are conducted with alarms activated.

There have been no emergencies at tailing dumps of the Company or Russian business units over the past five years.

SOIL PROTECTION AND RESPONSIBLE MINING

As a result of field development in the Trans-Baikal Territory, Taimyr and Kola peninsulas[1], waste disposal, construction and other works, Nornickel produces a negative impact on land resources, which is mitigated by consistent efforts to rehabilitate affected soils.

In accordance with the Russian law, design documents for the development, construction and operation of fields include an environmental impact assessment, a list of measures to prevent and/or reduce possible environmental impacts and ensure the rational use of natural resources throughout the life cycle of the facility.

The Company complies with all applicable regulations for land rehabilitation and other environmental protection initiatives associated with field development and other operations. Upon completion of field development, the Company commits to restore land plots, liquidate mine workings and rehabilitate lands.

Environmental protection measures taken during the field life cycle

Environmental monitoring

Prospecting

Exploration and production testing[2]

Pilot production

Commercial development

Abandonment or enhanced recovery of remaining reserves

Shutdown

Environmental measures taken: protection of air, subsoil resources, plant and animal species, habitats, water resources, water life, land resources and soil in waste management

Mine liquidation and land rehabilitation

Environmental Impact Assessment (EIA):
- review of layout options and technology;
- environment analysis and environmental impact assessment;
- mitigants;
- monitoring programmes;
- public discussions with local community.

[1] For the full list of fields, please see the Norilsk Nickel Group Profile section.
[2] State and public environmental review