

Sulphur Programme

The Sulphur Programme is Nornickel's flagship environmental project on sulphur dioxide (SO₂) capture and recovery, which is one-of-a-kind globally. The technology makes it possible to capture up to 99% of SO₂, convert it into sulphuric acid and then into gypsum.

The Sulphur Programme provides for gradual reduction in SO₂ emissions in the Norilsk Industrial District and on the Kola Peninsula as our key geographies. On the Kola Peninsula the programme was completed in 2021, with Kola Division's SO₂ emissions declining by 90% vs 2015.

In 2022, Norilsk Division continued to build off-gas recycling facilities and related infrastructure at Nadezhda Metallurgical Plant.

Progress against the Sulphur Programme in Norilsk Division

The first stage of the programme aims to design and introduce new solutions and technology to recycle SO₂ coming from off-gases produced by the key smelting units of Nadezhda Metallurgical Plant. The off-gases will be used to make sulphuric acid, neutralise this acid with natural limestone and obtain gypsum.

In 2022, the Company completed a wide range of procurement and construction works at the key facilities of the integrated project implemented at Nadezhda Metallurgical Plant as part of the Sulphur Programme, while also building a variety of infrastructure and linear facilities for this project. These works included:

- construction and installation (earthworks, concrete works, assembly of metal structures, erection of structural parts of buildings and structures, installation of electrical equipment, overhead power lines, pipelines, gas

- ducts and technical infrastructure, cabling, assembly of engineering equipment, road construction, etc.);
- supply of materials and technical resources and installation of process equipment (including large-size equipment);
- construction and furnishing of gypsum storage facilities;
- individual equipment tests.

The second stage of the programme envisages a comprehensive project to design and introduce new solutions and technology at Copper Plant with a view to obtaining sulphuric acid from off-gases of the existing Vanyukov furnaces and the new continuous converting facility, neutralising this acid with natural limestone and producing gypsum.

As a number of technology partners refused to continue cooperation with Nornickel in 2022, the Company began to review some of its design solutions in a bid to minimise the adverse effects of the sanctions on the integrated project implemented as part of the Sulphur Programme at Copper Plant.

Social and economic impacts of the Sulphur Programme on Russian economy

In 2022, Nornickel joined forces with the Institute of Economic Forecasting of the Russian Academy of Sciences to assess the social and economic impacts of the sulphur disposal facilities constructed and operated by the Company (Sulphur Programme) on Russian economy.

The total CAPEX for the Sulphur Programme is estimated at around

USD **4.1–4.3** bn¹

Researchers from the Russian Academy of Sciences found that the Sulphur Programme has a clearly articulated social dimension. Instead of focusing on commercial gains, the Sulphur Programme seeks to create significant social and environmental benefits beyond the scope of its design capacities by boosting the output of enterprises from allied sectors and encouraging the redistribution of additional profits throughout wider economy in the form of salaries for employees, earnings for businesses and taxes paid to the budget of Russia. Eventually, this will trigger an increase in end demand for domestically produced goods and have a positive macroeconomic impact on GDP growth.

Also important is the positive impact the Sulphur Programme will have on the environment, as it will help increase the quality of life in local communities. Fundamental environmental changes will be instrumental in improving public health and reducing excess mortality in Norilsk.

Water

Protection of water bodies

GRI 303-1, 303-2, 303-3, 303-4, 303-5, SASB EM-MM-140a.2

Nornickel takes a responsible approach to its use of water resources. The Company withdraws water for production needs strictly in line with the pre-approved limits and consistently ensures compliance with permissible wastewater discharge limits based on the Group companies' corporate environmental reporting and its analysis.

Nornickel uses water from surface and underground sources for drinking and production needs, as well as for recirculating

and recycling water supply. The Company regularly runs observation programmes for water bodies and water protection zones that serve as water sources for Nornickel. In 2022, no major impact of Nornickel's operations on water bodies was identified; water withdrawal was within the pre-approved limits. No water is withdrawn from the bodies included in the Ramsar Convention on Wetlands of International Importance. The Company's areas of operation are not water-scarce¹.

To decrease withdrawal volumes, the Company continues to improve its closed water circuit, which enables efficient use of water resources. In 2022, 82% of all water used by the Company was recycled and reused.

Nornickel has in place a Position Statement on Water Stewardship, which outlines key relevant principles, commitments, initiatives and targets.

Key principles of Nornickel's water stewardship:

Complying with applicable national laws and rules	Enabling information accessibility and transparency as regards water stewardship	Working towards water consumption and discharge targets, efficient water use
Adherence to international best practices and requirements of leading sustainability associations	Liaising with government bodies to participate in drafting environmental responsible water protection regulations	No Company's or its branches' operations in waterscarce areas as they are defined in the World Resources Institute's Aqueduct Water Risk Atlas
Proactively engaging stakeholders on matters of external water resource management to support predictable, consistent and effective regulation	Making sure that the employees of the production facilities belonging to the Company and its branches comply with the 2021 Position Statement on Water Stewardship at all stages of these facilities' life cycle	Fostering employee knowledge and skills in responsible water use at our sites and branches, identifying meaningful incentives to stimulate responsible water use

The Company works to reduce and, where possible, prevent negative impact on water resources caused by production and delivery operations.

¹ CAPEX to be updated in 2023 following the review of certain design solutions.

¹ The methodology to identify water-scarce areas is based on the data of the Aqueduct project of the World Resources Institute and Climate Zoning of the Russian Federation.

Management of water stewardship risks

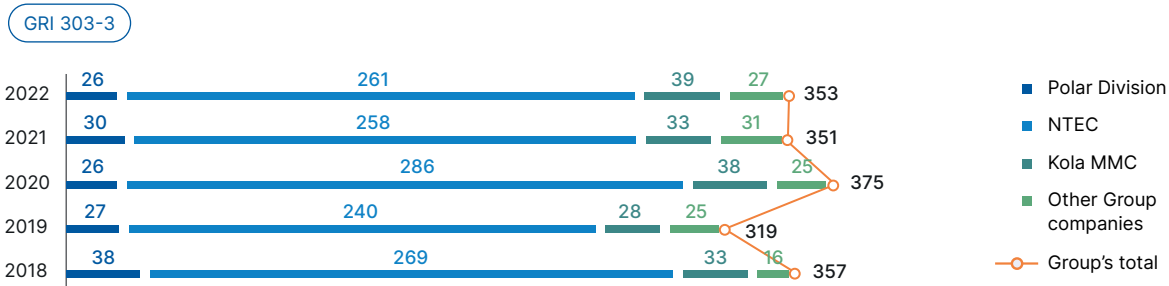
To manage risks, Nornickel regularly assesses its impact on water resources using the following procedures:

- wastewater inventory;
- monitoring of effluent volumes and quality at the discharge locations;

- observations of surface water bodies at control points upstream and downstream of the discharge locations;
- monitoring of wastewater treatment processes at treatment facilities and taking measures to improve treatment efficiency.

The Company continuously invests in improving the efficiency of existing water treatment systems and building new ones.

Total water withdrawal from external sources¹, mcm



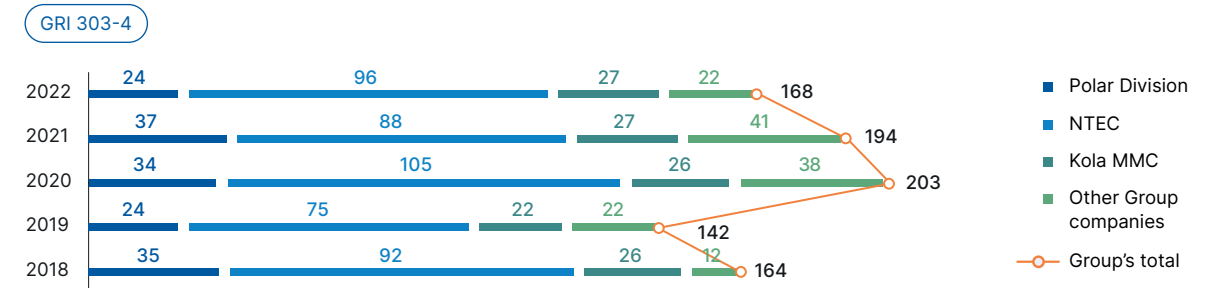
Water withdrawal in 2022 remained broadly flat y-o-y.

Total water consumption², mcm



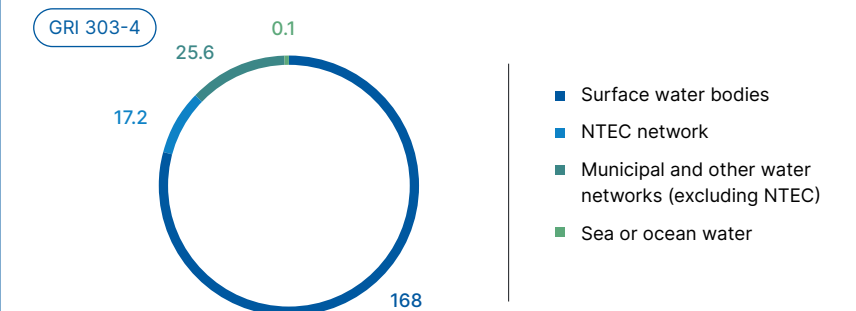
The water consumption for production needs increased due to the launch of new shops at Kola MMC, ramp-up of the Carbonyl Nickel Section, achievement of the designed capacity of the concentrate shipment section of the concentrator, and commissioning of a system for commercial accounting of power consumption at Polar Division.

Total effluents, mcm



Nornickel's wastewater discharges into water bodies are predominantly in line with the pre-approved limits as required by Russian laws. Effluent discharge in 2022 went down by 13% y-o-y. The discharge of wastewater pollutants in 2022 decreased by 12% y-o-y, mostly due to changes in mine workings' inflow caused by weather conditions.

Effluents by destination in 2022, mcm



¹ Excluding water reuse from NTEC. Until 2019 (incl.) the water withdrawal of Polar Division also accounted for the water withdrawal of Norilskenergo (MMC Norilsk Nickel's branch); since 2020, the latter has been accounted for as part of NTEC's water withdrawal. Data includes the natural inflow of mine water.

² The data in the chart is presented in line with GRI 303 (2018) methodology.



Impact of transport on water bodies

GRI 303-1

The Company operates water and other modes of transport, which affects the environment. Nornickel's impact on water bodies was analysed during the big scientific expedition.

→ for more details, please see the [Biodiversity section](#).

The environmental impact of water transportation largely arises from:

- use of oil-containing fuel (mainly diesel fuel), which directly contributes to air pollution during combustion and indirectly – to water bodies' contamination;
- noise pollution affecting hydrobionts, marine birds and marine mammals;
- ballast, bilge and wash water sent by the Company to treatment facilities and then discharged into water bodies.

A fuel spill has the most potential adverse impact and is the key hazard for marine mammals.

The Company recognises that there are risks that may potentially lead to adverse environmental impacts. These risks include:

- losses during cargo operations (loading and unloading of oil products, bulk cargo, other substances);
- fuel spills;
- emergencies (leakage of oil products into water bodies);
- dispersal of invasive species by ballast water.

Risks associated with the negative impact of the Company's transport on water bodies are identified and mitigated within the framework of the environmental risk management system.

Nornickel's management of its impact on water bodies includes liaising with a wide range of stakeholders, in particular external experts and employees directly engaged in operations involving the Company's

water transport. Interaction with dedicated professionals helps Nornickel be more effective and efficient in reducing the negative and building up the positive impact on water resources.

In managing its impact on water bodies, the Company regularly carries out:

- pollutant emissions and discharges' review;
- industrial environmental control;
- measurement of the volume of water withdrawn from water bodies, as well as the volume and quality of effluent discharge, including drainage water;
- observations of water bodies (their morphometric features);
- observations of water protection zones;
- development of standards.

To reduce its environmental footprint, the Company also implements environmental protection measures and programmes aimed at reducing fuel consumption and preventing contamination of the Dudinka and Yenisey rivers. To compensate for the estimated damage to aquatic biological resources, Nornickel regularly releases juvenile fish.

Port infrastructure, including water transport with a negative impact on the environment, is operated in accordance with the Russian laws.

In 2022, Yenisey River Shipping Company (part of the Group) spent RUB 301.7 mln on environmental protection, up 65% y-o-y.

The funds were mainly used to support the maintenance and operation of the auxiliary fleet which serves to prevent river water contamination during the operation of vessels. The auxiliary fleet comprises five waste collecting vessels with a carrying capacity of 100–600 t, two vessels for complex waste processing and two treatment plants located at Podtyosovo and Yermolaevo repair and operations bases.

In 2022, Nornickel expanded its environmental fleet with Sborshchik-2, a motor vessel with a capacity of 150 t, which was acquired and put into operation after a repair.

During the navigation period, waste collecting vessels collect oil-contaminated water, sewage and rubbish from motor vessels along the Yenisey River and the Lower Angara River. Yenisey River Shipping Company has a licence to collect, transport, treat, utilise, neutralise, and dispose of waste of hazard classes 1–4. Waste collecting vessels also provide crews with drinking water. The company also renders these services to third parties lacking such a licence and auxiliary fleet.

In the 2022 navigation period, the collecting vessels collected a total of

13.1 kt
of wastewater, including

4.3 kt
of oil-containing water, and approximately

1 kt of rubbish,
while also delivering

3.5 kt of drinking water.

Tailings and waste

Sustainable waste management

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

In accordance with the Russian laws, the Company maintains 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 aims to monitor waste management throughout its entire life cycle, including the management of waste 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.

More than 99% of waste generated by the Company is associated with mining and concentration and is not hazardous as this is overburden and host rock (hazard class 5), and tailings (hazard classes 4 and 5)¹.

All other waste not associated with mining and concentration is a result of various production or other economic activities,

or comes from materials and products that have lost their consumer properties after having been used according to their intended purpose.

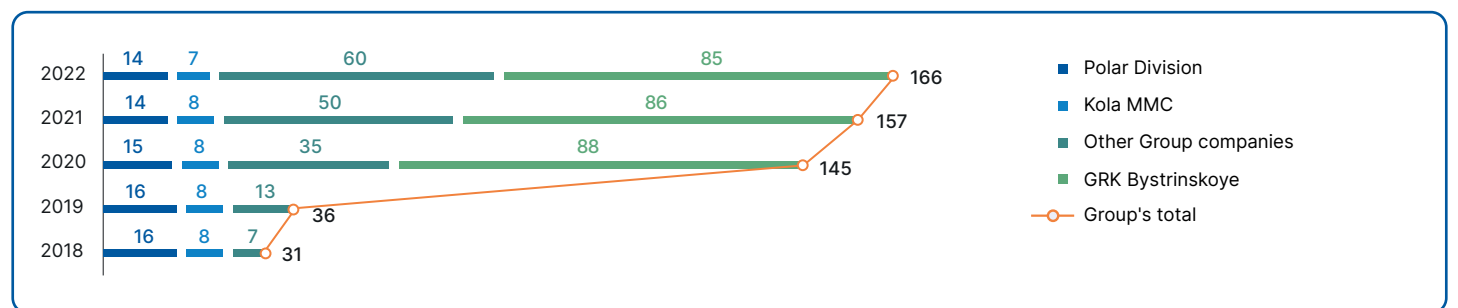
The most hazardous waste generated by the Company is hazard class 1 (extremely hazardous) and hazard class 2 (highly hazardous) waste. The majority of this waste is mercury lamps and thermometers, batteries, acids and alkalis used in batteries, uninterruptible power supplies, and oils.

Hazard classes 1 and 2 waste is below 0.001% of the total waste generated. In 2022, hazard classes 1 and 2 waste amounted to 57 t.

In compliance with the new legal requirements, in March 2022 Nornickel switched to a new procedure for managing hazard classes 1 and 2 waste, which includes the use of the dedicated state information system. As a result, in 2022:

- the Group companies generating hazard classes 1 and 2 waste entered into contracts with the Russian Environmental Operator for hazard classes 1 and 2 waste management;
- a series of meetings on the management of hazard classes 1 and 2 waste and on the performance of the federal state information system were held jointly with the Russian Environmental Operator;
- the business process target map for using the Federal State Information System for the Accounting and Monitoring of Hazard Class 1 and Hazard Class 2 Waste was developed from the moment of registering with the system to signing the primary accounting documents.

Waste generation, mt



The total amount of waste generated in 2022 increased due to the expansion of production activities (mining and

concentration), as well as implementation of a programme on land clean-up and dismantling of unused buildings

and structures, which resulted in the generation of construction waste in the Norilsk Industrial District.

¹ Hereinafter hazard classes are as per the waste hazard classification adopted in Russia.