

## MINING PROJECTS

### OKTYABRSKY MINE

#### Location

Norilsk Industrial District, Krasnoyarsk Region

#### Project overview

The Oktyabrsky Mine development project aims to maintain production of depleting reserves, and gradually ramp up production to 6.0 Mtpa until 2025, through mining 38.5 mln t of the rich disseminated and cuprous ore reserves of the Oktyabrskoye deposit. In 2020–2025, the project's CAPEX will total RUB 3.8 bn (USD 56.1 mln).

#### Ore reserves<sup>1</sup>

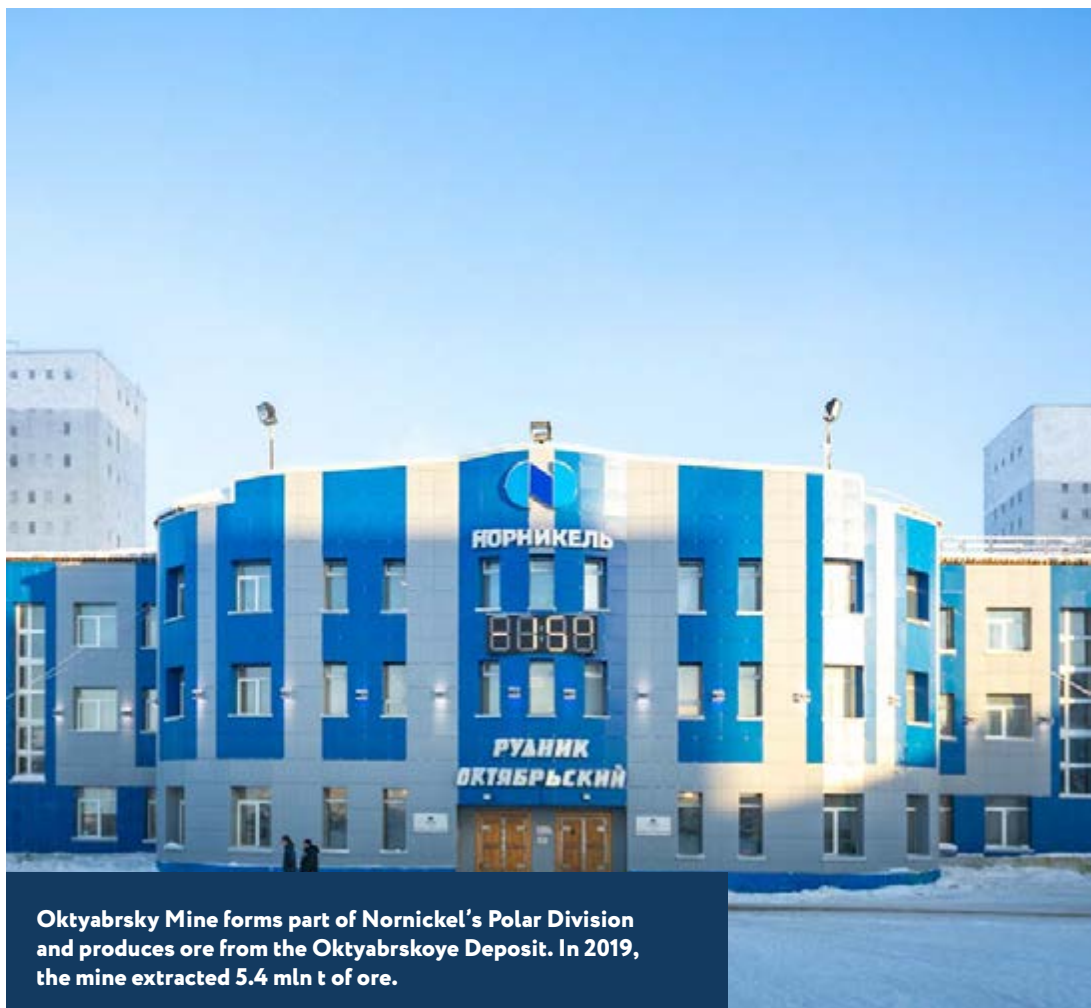
**215** mln t

#### Average metal content

NI – 0.6 %

Cu – 2.1 %

PGMs – 5.8 g/t



Oktyabrsky Mine forms part of Nornickel's Polar Division and produces ore from the Oktyabrskoye Deposit. In 2019, the mine extracted 5.4 mln t of ore.

#### Project timeline

'19

- CAPEX – RUB 1.7 bn (USD 27 mln)
- 2.6 km of underground workings completed

'20-'25

- Commissioning 300 Ktpa cuprous ore and 1.15 Mtpa ore capacity to maintain production reserves

## KOMSOMOLSKY MINE



The Komsomolsky Mine forms part of Nornickel's Polar Division and produces ore from the Talnakhskoye and Oktyabrskoye deposits. In 2019, the mine extracted 4.0 mln t of ore.

#### Location

Norilsk Industrial District, Krasnoyarsk Territory (Polar Division)

#### Project overview

The Komsomolsky Mine development project aims to maintain ore production at 4 Mtpa until 2023, by mining the rich, cuprous, and disseminated ore reserves of the Talnakhskoye and Oktyabrskoye deposits. In 2020–2023, the project's CAPEX will total RUB 13.7 bn (USD 204.5 mln).

#### Ore reserves<sup>1</sup>

182 mln t

#### Average metal content

NI – 0.6 %

Cu – 1.1 %

PGMs – 4.8 g/t

#### Project timeline

'19

- CAPEX – RUB 3.5 bn (USD 54 mln)
- 4.5 km of underground workings completed

'20-'23

- Commissioning 1.5 Mtpa of saleable ore capacity

<sup>1/</sup> According to JORC standards.

## MINING PROJECTS

### SOUTH CLUSTER

#### Location

Norilsk Industrial District, Krasnoyarsk Region

#### Project overview

The project aims to ramp up ore production to 9 Mtpa by 2027, first by expanding the pit (open-pit operations) and then through underground mining. In 2020–2027, the project's CAPEX will total RUB 63.1 bn (USD 0.9 bn).

#### Ore reserves<sup>1</sup>

42 mln t

#### Average metal content

NI – 0.3 %

Cu – 0.4 %

PGMs – 6.0 g/t



In 2017, Nornickel established Medvezhy Ruchey, a wholly-owned subsidiary that operates the assets of the South Cluster. The South Cluster comprises the Norilsk Concentrator (processing capacity of 9.3 Mtpa), the northern part of the Norilsk-1 deposit, developed by the Zapolyarny open-pit mine and the Zapolyarnaya mine, as well as the tailing dump No. 1 and Lebyazhye tailing dump. The Norilsk Concentrator processes all disseminated ores from the Zapolyarny Mine and cuprous and disseminated ores from the Oktyabrskoye and Talnakhskoye deposits. In 2019, the plant processed 7.5 mln t of ore, with nickel recovery in bulk concentrate reaching 71.3%. In 2019, the Zapolyarny Mine produced 1.6 mln t of disseminated ore. In 2019, the South Cluster project's CAPEX was RUB 5.0 bn (USD 76 mln).

#### Project timeline

'19

- CAPEX – RUB 1.6 bn (USD 24 mln)
- Stripping completed
- Exploration conducted
- Design documentation development started

'20

- Feasibility study and detailed engineering conducted
- Completion of design documentation
- Securing of approval from the Main Department of State Expertise
- Launch of construction and installation works

'21-'22

- Construction and installation works, equipment delivery
- Launch of ore production

<sup>1</sup> According to JORC standards.

## ARCTIC PALLADIUM

In 2018, Nornickel and Russian Platinum, a Russian private company, signed a memorandum of intent to set up a joint venture (JV) with a view to develop the Norilsk Industrial District's deposits. Contributions to the JV's authorised capital included Nornickel's licence to develop the Maslovskoye deposit and Russian Platinum's licence to develop the southern part of the Norilsk-1 deposit and the Chernogorskoye deposit.

In March 2020, Russian Platinum has notified the Company of its decision to terminate the negotiations regarding Arctic Palladium JV and to proceed with the development of the Chernogorskoye Deposit and the southern part of the Norilsk-1 Deposit on its own. This decision owes to UC RUSAL, one of Nornickel's shareholders, not issuing due corporate approvals to Nornickel to participate in the proposed joint venture.

## PROCESSING PROJECTS

### BYSTRINSKY GOK (CHITA PROJECT)

#### Location

16 km east of Gazimursky Zavod,  
Gazimuro-Zavodsky District,  
Zabaykalsky Region

#### Project overview

The Bystrinsky GOK construction project is made up of an open-pit mine at the Bystrinskoye deposit; a mining and processing plant (MPP) with all associated infrastructure, including a power line and the 227 km Borzha–Gazimursky Zavod railway line; as well as a rotation camp.

Construction of the open-pit mine and the MPP started in 2013. In 2017, a 220 kV power line was commissioned and a camp for 1,047 people was built. Hot commissioning of the MPP started in October 2017. The MPP came online in December 2019. The project is expected to ramp up to design capacity by 2021.

#### Ore reserves<sup>1</sup>

**316** mln t

#### Average metal content

Cu – 0.7 %

Fe<sub>3</sub>O<sub>4</sub> – 23 %

Au – 0.9 g/t

#### In 2020–2022, the project's CAPEX will total

**RUB 16.7** bln  
(USD 252.0 mln).

#### The project's design capacity

**10** Mtpa

#### New jobs

**~2,000** positions



Launched in 2019, GRK Bystrinskoye (Bystrinsky GOK) is Nornickel's new copper, gold and iron concentrate project. It is the largest greenfield project in the Russian mining industry, covering ore mining, concentration and shipment of end products to customers. Nornickel owns 50.01% in Bystrinsky GOK, with CIS Natural Resources Fund holding 39.32%, and the remaining 10.67% belonging to Highland Fund. In 2005–2020, the project's CAPEX will total RUB 92.5 bn (USD 1.8 bn).

#### Project timeline

'19

- CAPEX – RUB 6.7 bn (USD 103 mln)
- Mining of 7.5 mln t of ore and production of 43.5 kt of copper concentrate, 177 koz of gold concentrate, and 1.3 mln t of iron ore concentrate. EBITDA – USD 349 mln

'20

- The MPP is expected to reach design capacity with the following annual concentrate volumes: Cu – 55–65 kt; Au – 220–240 koz; Fe<sub>3</sub>O<sub>4</sub> (Fe – 66%) – 1.5–1.7 mln t

<sup>1/</sup> According to the Russian classification (A+B+C1+C2)

## TALNAKH CONCENTRATOR



The upgrade has been rolled out in three stages. Stage 1 was completed in 2015, and included the reconstruction of existing flotation capacity and the replacement of flotation cells that were beyond their useful lives, in order to maintain the concentration capacity at 7.5 Mtpa. Stage 2 involved the expansion of the main building, the reconstruction of the reagent preparation building, and the construction of additional ball mills and vertical mills, as well as the 1st Stage of the tailing dump, all of which helped to boost capacity to 10 Mtpa. This stage was completed in 2018. Plans for the 3rd Stage of the Talnakh Concentrator Upgrade include a capacity ramp-up to 18 Mtpa and construction of the tailing dump's 2nd Stage. The new concentration technology will increase recovery by 4%–7% for all key metals. The project's completion is slated for 2023, reaching design capacity by 2024+. CAPEX for the 3rd Stage of Talnakh Concentrator in 2020–2024 is estimated at RUB 40 bn (about USD 0.6 bn).

## Location

Norilsk Industrial District, Krasnoyarsk Region

## Project overview

The Talnakh Concentrator (Polar Division) processes rich, cuprous, and disseminated ores from the Oktyabrskoye and Talnakhskoye deposits to produce nickel-pyrrhotite and copper concentrates. In 2019, the plant processed 10.7 mln t of ore, with nickel recovery in bulk concentrate reaching 85.9% (+2.7% y-o-y).

**The new concentration technology will increase recovery by 4%–7% for all key metals.**

## 3rd Stage project timeline

'19

- CAPEX – RUB 424 mln (USD 7 mln)
- Inspection of the construction site and completion of preparatory work
- Development of design documentation completed
- Approval from the Main Department of State Expertise received and construction permit secured
- Completion of preparatory work in the main building of Talnakh Concentrator

'20-'22

- Development of engineering documents
- Construction and installation works
- Equipment delivery
- Pre-commissioning

'23-'24

- Commissioning
- Ramping up to design capacity

## PROCESSING PROJECTS

### NICKEL TANKHOUSE UPGRADE

#### Location

Monchegorsk, Murmansk Region

#### Project overview

The tankhouse 2 upgrade will create a highly effective nickel cathode production unit, harnessing the technology of nickel electrowinning from chlorine dissolved tube furnace nickel powder, which will help increase output of nickel cathodes from 120 ktpa to 145 ktpa. The new technology will help achieve the highest purity of metal and reduce air emissions. In 2020–2021, the project's CAPEX will total RUB 2.9 bn (USD 43.4 mln).



Tankhouse 2 is part of Kola MMC, which produces nickel cathodes using electrowinning technology.

#### Project timeline

'19

- CAPEX – RUB 4.8 bn (USD 74.5 mln)
- Refurbishment of electrowinning cells – the project reaches 98% completion

'20

- Pre-commissioning and ramping up to design capacity