

/ Business Overview /

Key investment projects

TAIMYR PENINSULA (NORILSK NICKEL'S POLAR DIVISION)



Talnakh Concentrator



Geography
Norilsk Industrial District

HIGHLIGHTS

Stage 2

- Design ore processing capacity of 10,2 mtpa
- Increased nickel content in nickel concentrates from 8.6% to 13.5%
- Reduced smelting costs due to a 12% decrease in sulphide mass in the concentrate received (starting from 2016)
- Increased sulphur disposal to tailings by 16%
- 2016 CAPEX of ca. RUB 10 bn (USD 148 mln)
- Outstanding CAPEX of ca. RUB 4 bn (USD 69 mln)
- IRR (Stages 1–2) > 40%

Project overview

The main phase of a major Talnakh Concentrator reconstruction project was launched in April 2014. Stage 1 was commissioned in January 2015. Talnakh Concentrator's Stage 2 involved expansion of the main building, reconstruction of the reagent preparation building, and construction of several new facilities. In fact, Stage 2 was equivalent to constructing a new concentrator capable of processing all ores from the Talnakhskoye Field.

Environmental effect

Sulphur emissions per tonne of produced non-ferrous metals were reduced due to a 12% decrease in sulphide content in the concentrate.

PROJECT STATUS

Stage 2: Phase 1 of the new tailings pit fully commissioned in September 2016; processing equipment installation completed in October 2016.

Project schedule





Skalistaya mine



Geography
Norilsk Industrial District

HIGHLIGHTS

- Gradual increase in the annual ore output to 0.95 mln t by 2018 and 2.4 mln t by 2024
- Ore reserves of 58 mln t
- 2016 CAPEX of ca. RUB 10 bn (USD 153 mln)
- Outstanding CAPEX for 2017–2024 of ca. RUB 80 bn
- IRR > 30%

Project overview

The project is aimed at boosting the existing annual ore output by stripping rich cuprous ore reserves of the Talnakhskoye and Oktyabrskoye Fields and preparing them for extraction.

PROJECT STATUS

Commissioned in 2016: Stage 1 and Stage 4 of the production facility with an annual capacity of 300 kt of rich ore.
Sinking in 2016: 420 metres of ventilation shaft–10 (1.8 out of 2.1 km completed) and 455 metres of skip-cage shaft–1 (1.3 out of 2.1 km completed); drifting of over 2.3 km.

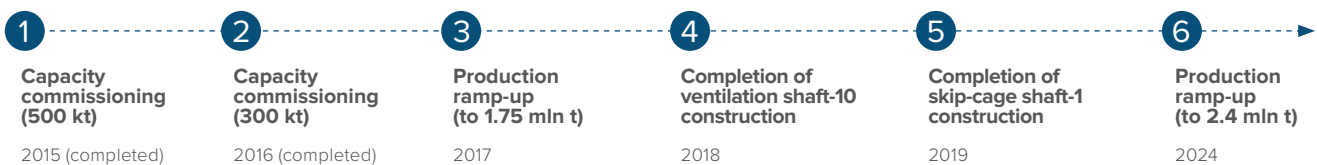
Average metal content

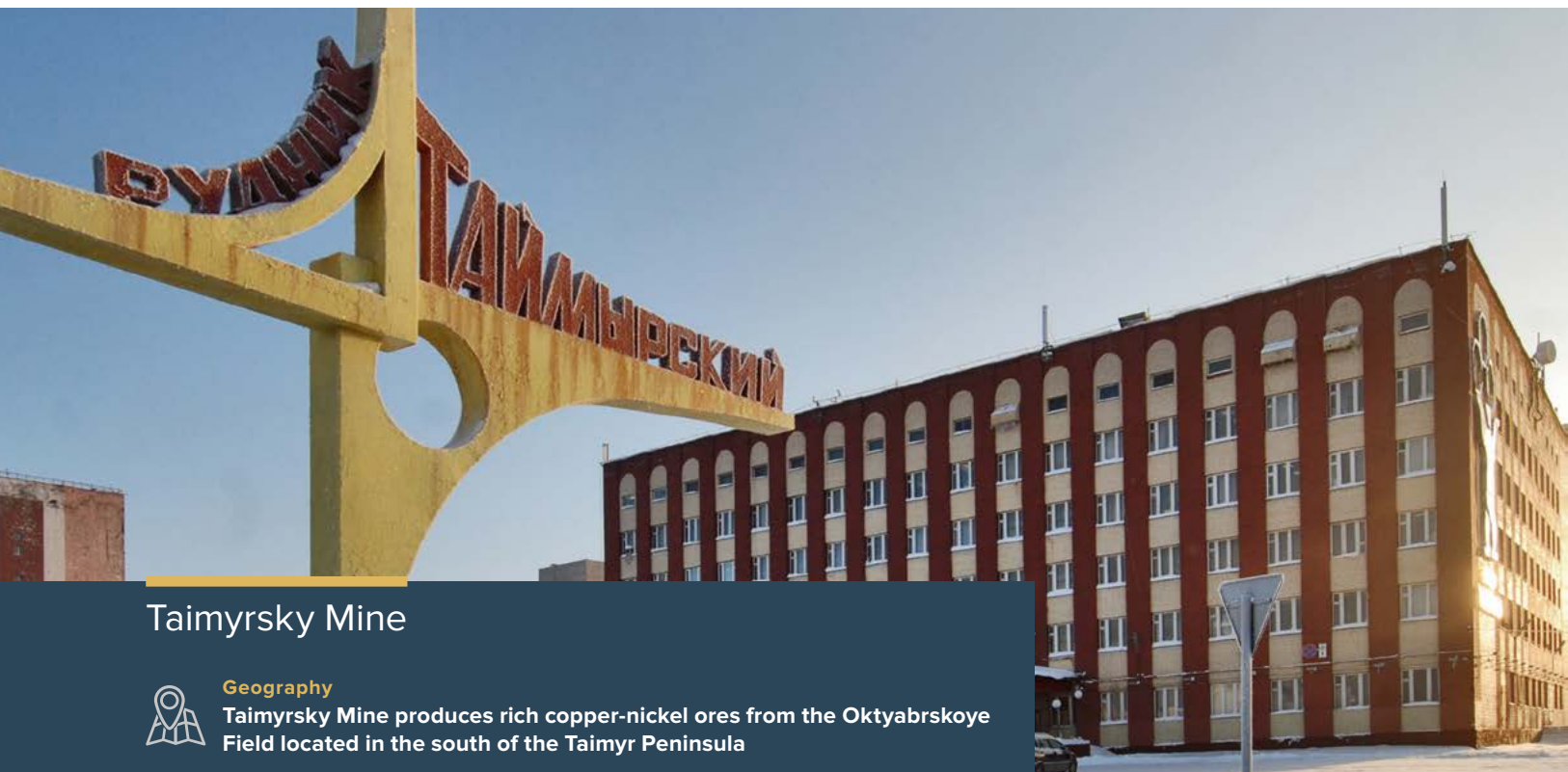
Ni 2.7%

Cu 3.1%

PGM 8.0 g/t

Project schedule





Taimyrsky Mine



Geography

Taimyrsky Mine produces rich copper-nickel ores from the Oktyabrskoye Field located in the south of the Taimyr Peninsula

HIGHLIGHTS

- Ore reserves of 63.0 mln t
- 2016 CAPEX of ca. RUB 4 bn (USD 68 mln)
- Outstanding CAPEX for 2017–2022 of over RUB 30 bn
- IRR > 60%

Project overview

The project is aimed at increasing rich ore production from 3.5 mln t to 3.9 mln t by 2020 through improved performance.

PROJECT STATUS

Over 5.9 km of underground workings completed and 0.2 mtpa of new capacity commissioned in 2016.

Average metal content



Project schedule





Oktyabrsky Mine



Geography

Oktyabrsky Mine produces rich, disseminated and cuprous ores from Oktyabrskoye Field located in the south of the Taimyr Peninsula

HIGHLIGHTS

- Ore reserves of 59 mln t
- 2016 CAPEX of ca. RUB 4 bn (USD 59 mln)
- Outstanding CAPEX for 2017–2022 of ca. RUB 11 bn
- IRR > 75%

Project overview

The project is aimed at maintaining the current annual production level at 5.2 mln t until 2023.

PROJECT STATUS

In 2016, 6 km of underground workings were completed and Stage 4 commissioned to maintain cuprous ore output at 3.0 mtpa.

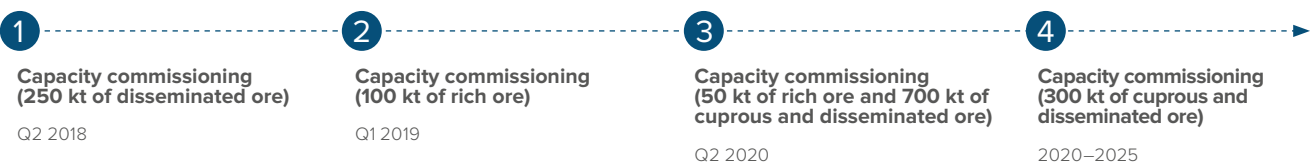
Average metal content

Ni 1.0%

Cu 3.1%

PGM 7.6 g/t

Project schedule



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Komsomolsky Mine (excluding Skalistaya mine)



Geography

Komsomolsky Mine is located in the Norilsk Industrial District on the outskirts of Talnakh

HIGHLIGHTS

- Ore reserves of 24.9 mln t
- 2016 CAPEX of ca. RUB 3 bn (USD 40 mln)
- Outstanding CAPEX for 2017–2020 of over RUB 16 bn
- IRR > 43%

Project overview

The project is aimed at maintaining the current annual production level at 3.8–4.1 mln t until 2020.

PROJECT STATUS

In 2016, ca. 3 km of underground workings were completed and 100 ktpa of new capacity commissioned.

Average metal content

Ni 1.5%

Cu 1.8%

PGM 5.5 g/t

Project schedule





Nickel Plant shutdown



Geography

Nickel Plant is the Company's oldest asset (put in operation in 1942) located within the boundaries of Norilsk

Project overview

All operations at Nickel Plant were shut down on 1 September 2016, with pyrometallurgical capacity at Nadezhda Metallurgical Plant expanded to process all nickel feedstock of Polar Division. Refining operations are being moved to Kola MMC and Norilsk Nickel Harjavalta.

Environmental effect

Upgrade of Talnakh Concentrator and shutdown of Nickel Plant are expected to reduce sulphide emissions by 15% and significantly decrease ground-level concentrations of pollutants in adverse weather conditions.

PROJECT STATUS

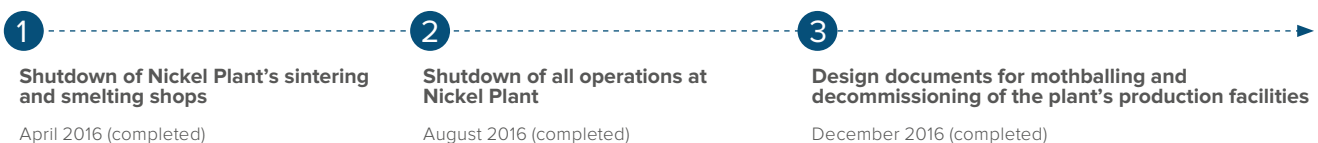
Nadezhda Metallurgical Plant

March 2016: smelting operations launched to process all of the Polar Division's nickel concentrate by ramping up pyrometallurgical capacity to 2.4 mtpa of ore; 2016 CAPEX of ca. RUB 1.3 bn; outstanding CAPEX for 2017 of ca. RUB 0.8 bn.
Q1 2016: existing capacity upgraded to process 150 ktpa of nickel slag from Copper Plant; CAPEX of RUB 0.1 bn.
July 2016: all nickel feedstock transferred from Norilsk Concentrator; CAPEX of RUB 0.7 bn.

Copper Plant

Project launched to transfer sodium bisulfate production from Nickel Plant's sintering shop; CAPEX of RUB 0.7 bn.

Project schedule





Sulphur project at Nadezhda Metallurgical Plant



Geography
NMP site, 8 km from Norilsk

HIGHLIGHTS

- Sulphur output of up to 600 ktpa
- Sulphur dioxide recovery rate of at least 95%
- 2016 CAPEX of RUB 0.6 bn.

PROJECT STATUS

- SNC Lavalin began to develop engineering documents
- Estimation of power supply infrastructure costs in progress
- Engineering surveys for the Engineering Documents stage completed
- Preparation of the construction site in progress.

Project overview

The project aims to design and introduce new solutions and technology to extract elemental sulphur from waste gases of Nadezhda Metallurgical Plant’s flash smelters, and reduce sulphur dioxide emissions down to the level prescribed by regulations.

Environmental effect

This project will have the strongest impact on improving environmental performance among other upgrade projects of the Company. Its goal is to reduce sulphur dioxide emissions with the most effective technology.

Project schedule

1

Sulphur project design documents; approval of design documents and results of engineering surveys and inspections by Russia’s State Expert Review Board

2015 (completed)

2

Engaging SNC Lavalin (Canada) to develop engineering documents

Q4 2016 (completed)



Sulphur project at Copper Plant



Geography
Copper Plant site, 1 km from Norilsk

HIGHLIGHTS

- Sulphur output of up to 280 ktpa
- Sulphur dioxide recovery rate of at least 90%
- 2016 CAPEX of ca. RUB 13 mln
- Estimated completion in 2021

Project overview

The project aims to design and introduce new solutions and technology to extract elemental sulphur from waste gases of Copper Plant's Vanyukov furnaces, and reduce sulphur dioxide emissions down to the maximum permitted level. The project is an alternative solution to high sulphur dioxide emissions and provides for sulphur production refurbishment at Copper Plant with technology developed by Gipronickel Institute with an option to use some of the existing buildings, structures, machinery and infrastructure.

PROJECT STATUS

Feasibility study and preparation of design specifications in progress; completion expected in Q1 2017.