



**Update on the Clean-up Following the Accident
at a Fuel Storage of Norilsk Nickel**

October 2020

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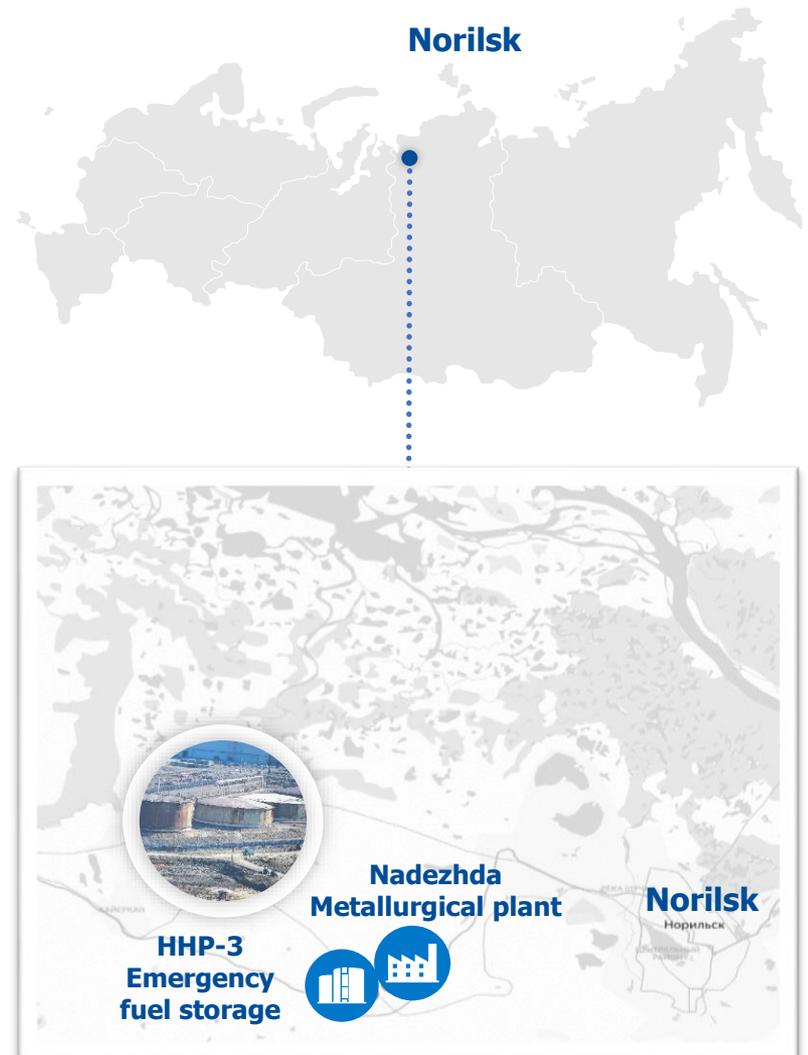
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HPP-3 Incident Overview

- On May 29, 2020, an incident occurred whereby the containment of the emergency fuel storage at Heat and Power Plant № 3 (HPP-3) in the Kayerkan neighborhood of Norilsk failed due to sudden sinking of support posts, resulting in the fuel leakage
- Over a short period of time, 21.2kt ⁽¹⁾ of diesel fuel leaked beyond the bunding perimeter into a designated pit, nearby soil and into the Bezymianny stream
- The fuel spill through Bezymianny stream via Daldykan river reached Ambarnya river, where boms prevented the contamination of Pyasino lake
- The city has not been impacted since the HPP-3 is located remotely from Norilsk
- Upon completion of the bulk of the clean-up in September, according to the Company's current estimates, the fuel spill was split approximately 33%/67% between soil and water



Source: Company data

Note: 1. the preliminary assessment of Rosprirodnadzor

HPP-3 Facility Overview

- HPP-3 is operated by Norilsk Nickel's wholly-owned subsidiary, Norilsk Taymir Energy Company (NTEC)
- HPP-3 predominantly serves the local municipality of the Norilsk Industrial District and supplies some power to Norilsk Nickel's facilities
- HPP-3 consumes natural gas, with diesel fuel used only in emergencies and stored in fuel reservoirs
- The reservoir #5, where the incident took place, was built in 1985
- After undergoing capital repairs in 2017-2018, the reservoir #5 went through hydraulic testing and Industrial Safety Audit (ISA) in 2018
- All recommendations of ISA regarding filling the reservoir #5 for the first time after the repairs were followed and controlled



ROSKOSMOS Satellite Images of HHP-3 and Damaged Fuel Tank



Source: Company data, Roskosmos

Investigation of the Incident: Current Update

- **Three investigations under way to identify the exact causes of the accident:**

- ✓ The government's joint Commission led by the General Prosecutor's office
- ✓ ERM, an independent third-party consultancy, hired at the request of the Board of Directors
- ✓ A technical investigation by the Company jointly with the government's technical supervision agency (Rostekhnadzor)

- **Technical investigation includes:**

- ✓ Examination of metal samples from the shell of the reservoir
- ✓ Examination of the welded joints
- ✓ Examination of samples of concrete from the basement
- ✓ Examination of samples of the steel support posts
- ✓ Drilling holes alongside the support posts to verify the location of the rock bed
- ✓ Geological exploration of the area to study underground waters, which may have triggered the thawing of permafrost



According to the project design of 1981, the fuel reservoir #5 was supposed to be built on a concrete platform resting on 160 support posts sunk into permafrost and dug into a rock bed



According to the preliminary assessment, the incident has been caused by a combination of factors, which triggered sinking of several support posts under the basement of the fuel tank#5:

- ✓ Faults in the construction of the facility (finished in 1985)
- ✓ Thawing of permafrost



Technical investigation has already revealed that several of the support posts were shorter than designed length and in violation of the project design were not resting on the rock bed underneath the reservoir

Financial Implications of the Incident

- **The Company is currently estimating the total clean-up costs at approximately RUB12bn (circa USD150m at spot exchange rate)**
- **Additional investments into improvement of industrial safety of energy infrastructure estimated at RUB100 bn for 2020-2024 (circa USD1.3bn at spot exchange rate)**
- **On July 6th, the amount of environmental damages** to water bodies and land was assessed by Environment Supervision Agency (Rosprirodnadzor) **at RUB 148bn (circa USD 2.1bn)**
- **On September 10th, Rosprirodnadzor** filed a claim with the Arbitration Court of the Krasnoyarsk region against Norilsk-Taymyr Energy Company (NTEC), a subsidiary of the Company, seeking compensation of **RUB 148bn**
- **On October 5th, NTEC submitted to the Arbitration Court of Krasnoyarsk region a response** to the claim filed by the Rosprirodnadzor, where NTEC estimated the environmental damages **at RUB21.4 billion. According to NTEC assessment**, Rosprirodnadzor has materially deviated from the existing methodology for the calculation of environmental damages and legal precedents, with the most material deviations being:
 - ✓ **Unreasonable application of the maximum possible non-action multiple of 5x, which is applied** when no efforts to clean-up an incident been undertaken (or the efforts were delayed by more than 20 days), whereas **the Company started the clean-up campaign immediately on the very first day of the accident, thus suggesting a multiple of 1.1x**
 - ✓ **Overstatement of the volume of diesel spilled into water at 19.1kt vs** NTEC's estimates of 14.3kt
 - ✓ **Incorrect assessment of the damage to the soil, whereby** the size of the contaminated land was overstated by several times, with contamination impact including not only the spilled diesel, but also other pollutants
- An assessment of damages to fish and bio-resources by the government's fishing supervision agency (Rosrybolovstvo) is pending

Key Milestones of Clean-Up Program and Rehabilitation Plans

2020

Phases 1 & 2:

Clean-up

(launched May 29th, completed by June)



- More than 90% of leaked fuel was collected and contaminated soil removed (in July)
- Contaminated soil was placed into sealed-off hangars to prevent further risk to the environment
- Water-fuel mixture collected from Ambarnaya river and near HPP-3 placed into temporary tanks
- Almost 700 people and 300 equipment items were involved in the clean-up

2020

Phase 3:

Collection of the residues, transportation and utilization

(completion in October)



- By the end of September, 35k cubic meters of water-fuel mixture collected
- Collection of the fuel residues in soil & river (absorbent boms)
- Treating with absorbents and washing river shores
- Transportation of the collected water-fuel mixture to an industrial site near Nadezhda for further separation
- Separation of fuel from water completed

2020-2023

Phase 4:

Rehabilitation/ utilization
(in-progress)



2020

- Development of a monitoring programme (water bodies and soil) and rehabilitation plan for the contaminated land and river shores

2021-2022

- Reproduction of aquatic bio-resources

2020-2023

- Utilization of the separated water, contaminated sorbents, collected contaminated soil
- Rehabilitation of the impacted soil

Source: Company data

Read more:

<https://www.nornickel.com/news-and-media/press-releases-and-news/updates-on-the-clean-up-operation-following-diesel-spill-in-norilsk/>

Immediate Response to the Accident: Collecting Leaked Fuel and Clean-up of the Soil Near HPP-3

- ✓ **Clean-up was launched immediately after the incident on May 29th**
- ✓ **By the end of September, all of the contaminated soil (189 kt) was removed** and hauled for temporary storage into sealed-off hangars to prevent further risk to the environment
- ✓ A system of drainage shafts (sumps) arranged to collect fuel
- ✓ Approximately 9k cubic meters of water-fuel mixture was collected near HPP-3
- ✓ Rehabilitation of disturbed land near the HHP-3 (grass seeding) launched
- ✓ Teams deployed to remove the contaminated soil: Norilsk Nickel



Immediate Response to the Accident: the Ambarnaya River Clean-up of Water and Prevention from Further Water Contamination

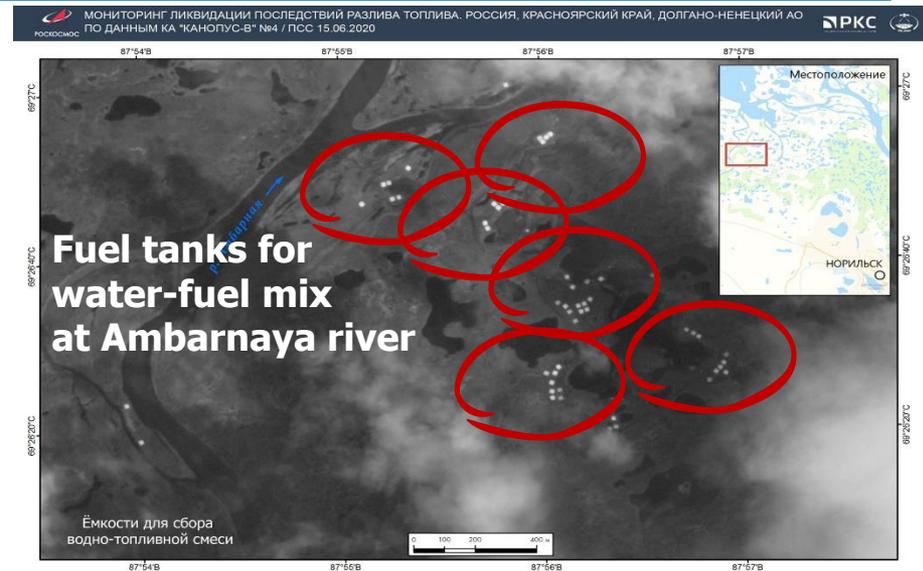
- **Clean-up of water and prevention of further fuel spread and water contamination**
 - ✓ Containment and absorbent boms were rolled out in the river Ambarnaya, 110 lines, 3.4km long as of the end of September
 - ✓ A total of almost 26k cubic meter of water-fuel mixture was collected from the Ambarnaya river
 - ✓ The water-fuel mixture was placed into 117 watertight tanks
 - ✓ Teams deployed to clean-up water spill: the Marine Rescue Service (from Murmansk), Gazpromneft, Transneft and EMERCOM



Source: Company data, satellite images by ROSKOSMOS
Note: 1. As of September 23, 2020

Temporary Fuel Storage Tanks Near HPP-3 and Ambarnaya River

- **The water-fuel mixture collected from pits and sumps near HPP-3 and from Ambarnaya river was placed for storage into temporary fuel tanks**
 - ✓ Overall, 163 tanks were utilized for the storage



Source: Company data, satellite images by ROSKOSMOS

Immediate Response to the Accident: Environmental Impact Monitoring

- **Immediate monitoring of the impacted area and regular inspections launched in June**
 - ✓ **Norilsk-Piasino water bodies** – air inspections to identify oil spills by the government’s environment supervision agency, Rosprirodnadzor, jointly with Norilsk Nickel;
 - ✓ **Drinking water sources of the city of Norilsk** – tests were conducted by the government consumer supervision agency, Rospotrebnadzor, which detected no violation of permissible limits for hazardous materials;
 - ✓ **Water wildlife and water quality** from Ambarnaya river to the Pyasino Lake - observation points were arranged



Transportation and Separation of Water-Fuel Mixture Collected from the Ambarnaya River

- **Transportation and separation of water-fuel mixture**
 - ✓ **Over 40 km of temporary pipelines were laid from the Ambarnaya river to a temporary storage facility near the Lebyazhye tailings dam**
 - ✓ By September, **all of the water-fuel mixture (25k cubic meters) collected from the river** was transported to temporary storage facilities near Norilsk
 - ✓ **All of the mixture was separated into water and fuel** with the help of high-capacity separator supplied by the Norwegian sea rescue service
 - ✓ After chemical analysis and further assessment, the recovered diesel will be utilized for heating purposes
 - ✓ The recovered water after further purification will be used as a technical water in closed water circuits of the Company's operations



Source: Company data,
Note: As of September 23, 2020

Area Rehabilitation and Restoration in Progress

- **Soil rehabilitation in the vicinity of HPP-3 in progress**
 - ✓ Replacing contaminated soil near HPP-3
 - ✓ Seeding grass at the impacted area
- **Rehabilitation of the coastline of the Ambarnaya river (as of end of September)**
 - ✓ A total of 489k sq m of land were treated with 121t of turf sorbents
 - ✓ Almost 1k of square meters of the coastline of Ambarnaya river and 21k square meters of the coastlines of the Bezymianny stream and Daldykan rivers were washed
 - ✓ The residues washed from the rivers' coastlines captured by 110 lines of absorbent boms
- **Collection of the fuel residues, washing and treatment of river shores with absorbent agents will continue until the start of the winter season of 2020**
 - ✓ Will resume in 2021 and 2022, as necessary



Immediate Response to the Accident: Launch of Industrial Safety Improvements

- **A complete revamp of risk assessment of hazardous industrial facilities launched in June:**
 - ✓ [Detailed action plan](#) to improve industrial safety at the Company's facilities has been developed and presented to Rostekhnadzor
 - ✓ An ad-hoc audit of the technical conditions of all industrial buildings and facilities has been launched, covering more than 600 industrial facilities
 - ✓ The fuel reservoirs #5 and #4 (neighboring #5) at HHP-3 as well as two similar fuel tanks at HHP-2 have been dismantled
 - ✓ Repairs and upgrade of fuel tanks #2,3 at HPP-3 include: anticorrosion treatment and painting of the tanks, upgrade the bunding perimeter, installation of new gas detectors
 - ✓ Additional RUB100 bn (circa USD1.3 bn at spot FX rate) are planned in total into repairs and upgrade of energy infrastructure aiming at improvement of industrial safety



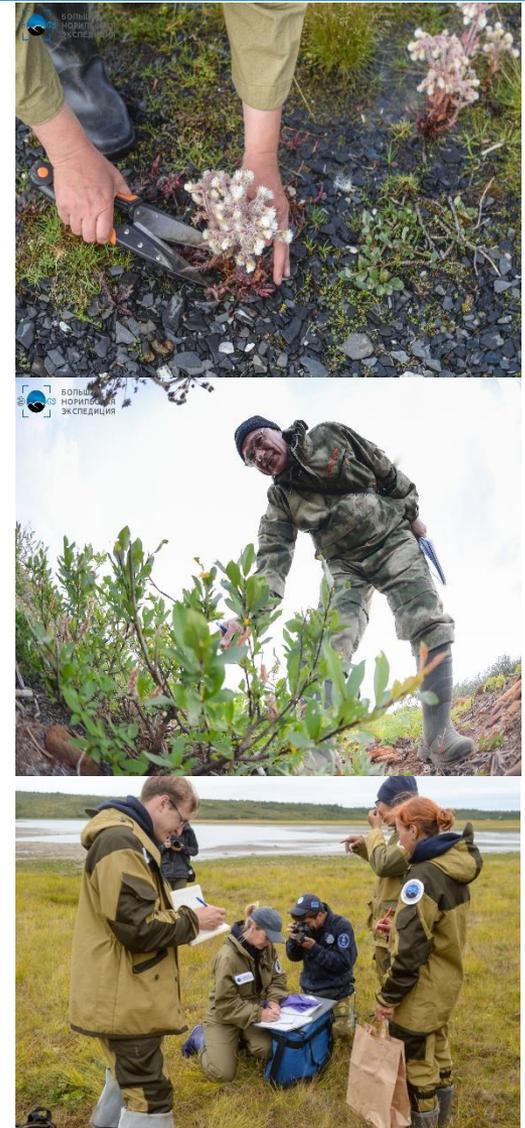
Source: Company data

Monitoring Wildlife: Selected Initiatives



Additional rehabilitation programs (2020-2023)

- New monitoring programs (water bodies and soil), rehabilitation plan for the contaminated land and river shores
- Rehabilitation of the impacted soil – landscaping of the territory near HHP-3
- Analysis of bio resources of the Daldykan and Ambarnaya rivers
- Reproduction of aquatic bio resources - [release of juvenile fish into water bodies](#) in order to preserve rare fish species
- Construction of 3 fish breeding plants
- Biodiversity conservation - a program to preserve local rare species and their habitat



Source: Company data

Read more: <https://www.nornickel.com/investors/esg/>
https://www.nornickel.com/upload/iblock/882/NN2019_Digital_ENG.pdf

Great Norilsk Expedition

- **Great Norilsk Expedition:** 30 leading scientists from 14 research institutes of the Siberian branch of the Russian Academy of Sciences with a support of Norilsk Nickel
- **Expedition scope:** a 6-weeks-long field trip to the Taymyr Peninsula to conduct a comprehensive study of the ecosystems and environment of the Arctic
- **Research scope:** surface water, bottom sediments, soil and vegetation, perennally frozen soils (permafrost), biological and zoological diversity
- **Expedition targets:**
 - Development of viable, sustainable solutions to address local environmental issues and area remediation following the recent fuel spill in Norilsk
 - Development of recommendations on minimization of environmental impact of operations in the Arctics
- **Methodology and key deliverables:**
 - Collection of soil, plant, and sediment samples around Norilsk and water samples from Taimyr rivers and Pyasino Lake for further analysis
 - Examination of the Norilskaya-Pyasino water system
 - Examination of the area impacted by the fuel spill and its vicinity, assessment of the current status of permafrost areas
 - Preparation of expert opinions and reports based on analytical studies, development of recommendations
- **Timeline:**
 - Fieldwork and samples' collection (completed): July 27 – September 2, 2020
 - Laboratory research: completion by the end of October 2020
 - Results and final report: December 2020



Great Norilsk Expedition – Selected Facts



30 scientists

split in 5 teams focusing on terrestrial ecosystems, hydrobiology, biodiversity, bottom sediments, and permafrost soils



over 1,000 km

have been covered by expedition from the Bezymyanny Stream to the Kara Sea



6 rivers

inspected (including the Pyasina, Daldykan, Barn, Tareya, Dudypta, and Boganida), 2 lakes (Melkoe and Pyasino) and the coastline of the Kara Sea



30 selected locations

for sampling examined



over 1,500 samples

totaling ca. 600 kg in weight collected

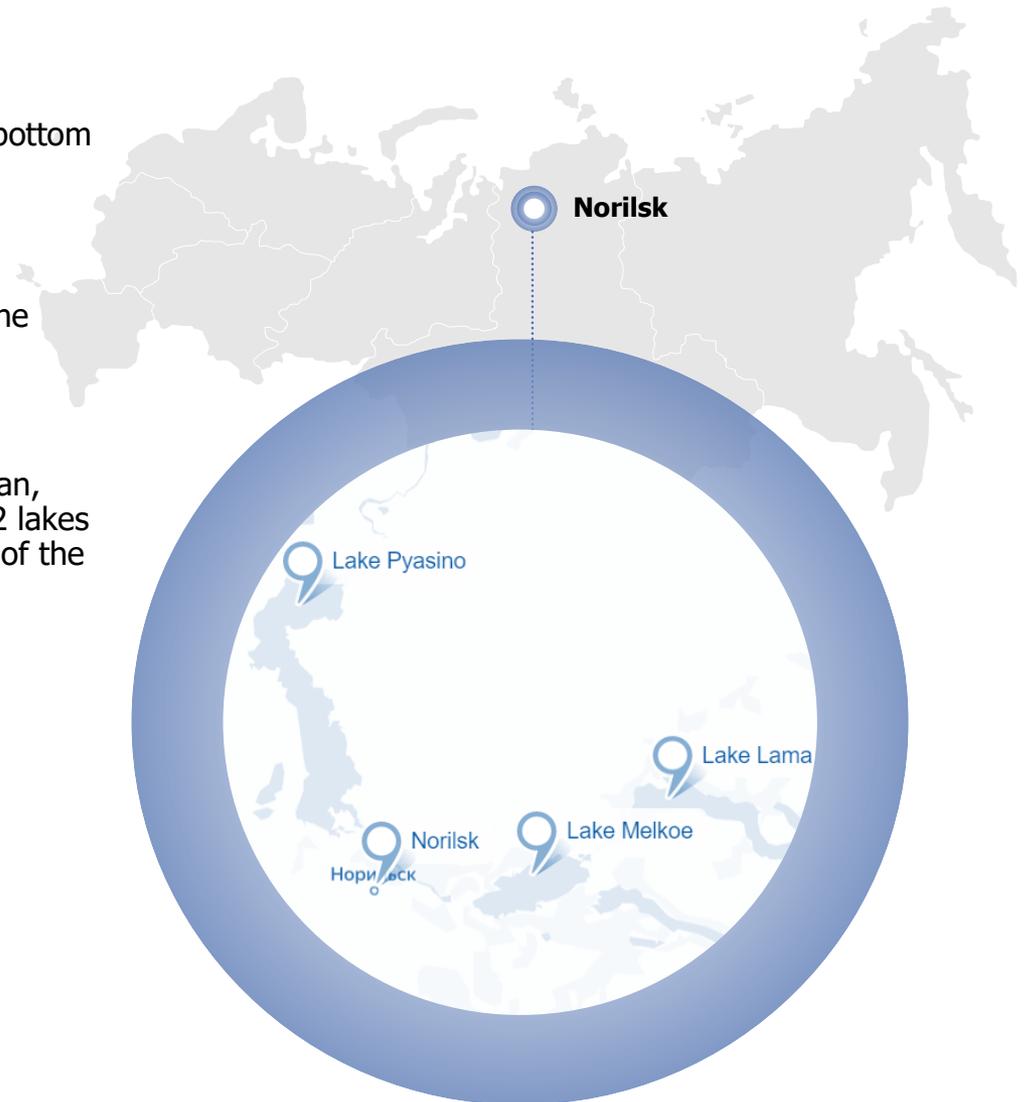


the samples from Pyasino Lake collected

at a 7-8m depths

measuring permafrost temperatures

at a 15m depth



Engagement with Stakeholders: Comprehensive Support Programme for Indigenous Peoples Has Been Rolled Out

- **On September 25th, Nornickel signed cooperation agreements** with three associations, representing **over 90% of the indigenous population** living in the north of Russia
 - ✓ RUB 2 bn ⁽¹⁾ five-year support programme developed jointly with local indigenous communities
- **The programme includes over 40 initiatives aimed at the protection of the natural habitat and support of the traditional activities of the indigenous peoples, including:**
 - ✓ Projects in support of traditional activities of indigenous peoples of Taimyr Peninsula (building workshops for processing of wild reindeer and fish, accounting Lake Pyasino's fish resources etc)
 - ✓ Housing projects (building houses)
 - ✓ Health projects (new first aid posts, purchase of special equipment etc)
 - ✓ Educational and cultural projects (supporting educational projects, building a community center etc.)
 - ✓ Sporting and infrastructural projects (playgrounds, providing sport equipment etc)



Source: Company data

Note: 1. Equivalent to approximately USD30 mln

Read more: https://www.nornickel.com/upload/iblock/93f/Program_en.pdf

Long Term Strategy for the Reduction of Industrial Facilities-Related Risks

Satellite monitoring of permafrost-based industrial structures (launched)

- ✓ An agreement with the leading Russian space monitoring company, [Sovzond](#)
- ✓ Real life monitoring of permafrost-based structures using satellite images
- ✓ Images taken every 48 hours with 1cm precision
- ✓ Precision to improve to 1mm by mid-2021
- ✓ Side-by-side analysis of images should help to detect early any possible deformations of structures

Design and roll-out of real-time foundations' monitoring system (in progress, by the-end of 2021)

- ✓ Upgrade of Diagnostic Center of Polar Division and Permafrost laboratory
- ✓ Design and launch real-time monitoring of foundations of buildings and facilities

Inspections of industrial facilities (in progress)

- ✓ Updating the register of industrial facilities and scheduling their extraordinary inspections
- ✓ Comprehensive in-house and third-party inspections/diagnostics of these facilities
- ✓ Development of facility upgrade and repairs programmes
- ✓ Development of score model to assess the technical and production risks related to climate change, facilities technical condition and its potential impact on environment

2020-2022: Improving emergency response (in progress)

- ✓ Technical and equipment upgrade of the rescue team of Polar Division
- ✓ Upgrade of emergency response plans

Source: Company data;

Read more:

<https://www.nornickel.com/news-and-media/press-releases-and-news/updates-on-the-clean-up-operation-following-diesel-spill-in-noriisk/>

Selected Initiatives within Foundations Monitoring System

1. Mapping of Norilsk industrial district

- ✓ Digitization of historical geological studies
- ✓ Confirmation of lithological layers: rock formations and permafrost
- ✓ Objects location on the map

2. Confirmative geological drilling

- ✓ Confirmation of historical studies
- ✓ Comparison of historical permafrost / temperature diagrams with current data

3. Real-time control of supporting posts deformation and soil temperature

- ✓ Installation of strain gauges and temperature sensors on all sites at risk
- ✓ Establishment of a monitoring center
- ✓ Expansion of permafrost analysis laboratory and R&D

4. Top priorities for additional geological analysis

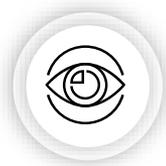
- ✓ Fuel storage tanks operated by Norilsk Nickel's subsidiaries (NTEC, TTK)
- ✓ Other hazardous industrial objects

Corporate Governance Response: Improvements Targeting ESG Performance and Reduction of Environmental Risks

Selected ESG-related corporate governance initiatives:

-  **New Independent Environmental Task Team** of the Board of Directors has been created, comprised of independent directors and chaired by the Board Chairman, Gareth Penny, to oversee environmental matters
-  **New Management Risk Committee has been created**, chaired by the Company's President, Vladimir Potanin
-  **New Environmental Department** has been created, outside the Operations, to ensure independent internal oversight of ecological matters led by an external hire from a Russian blue-chip mining major
-  **New Environmental inspection** has been created within Controls and Internal Audit
-  **New Senior Vice President, Sustainable Development, has been appointed, Andrey Bougrov**
-  **New position**, Deputy Director, Ecology, in the Norilsk Division has been arranged, to consolidate the oversight of environmental protection efforts within the largest operating unit of Nornickel
-  **New divisional organizational structure introduced:** consolidated oversight of auxiliary operations with regional productions heads, increased capex limits 3x to local subsidiaries and divisions to ensure greater investments' flexibility
-  **New sustainable development KPIs to be developed and introduced** for the management/ introduction of cardinal environmental rules, similar to cardinal safety rules

Maintaining Full Transparency, Utilizing Best Practices



Full information transparency:

- Special lives updates [on the company's www site](#) and social media
- An ad hoc investor's call and communication
- Regular IR disclosures and Board updates
- Regular Board reviews of the environmental matters held in June-September



Active utilization of best industry practices during clean-up and rehabilitation:

- Close engagement with the Russian environmental regulators over the clean-up, monitoring and preparation of rehabilitation program
- Utilizing most internal resources and engaging most external help to deliver the fastest possible clean-up (EMERCOM, Russian oil&gas majors)
- Appointment of ERM, a world-class, international specialist environmental company, to provide independent environmental advisory review of the events surrounding the oil spill, the potential causes and remedial actions undertaken and planned
- Cooperation with the Norway marine rescue service on water-fuel separation
- Consultations with leading Russian and international private and government research institutes and scientists over the most efficient rehabilitation initiatives



- **[Detailed action plan to improve industrial safety at the Company's facilities](#) has been developed** and presented to the government's technical supervision agency (Rostekhnadzor)
- **[Detailed rehabilitation plan to mitigate the impact of the fuel spill in Norilsk](#) has been developed** and presented for approval by the Interagency Commission created in accordance with the order of the Russian Ministry of Natural Resources

Most Recent ESG Rating Agencies' Actions



- **«Average Performer»** reiterated
- **ESG Score Reduced to 61 from 63 points** (out of 100) in June 2020
- ESG Risk Rating "High" Reiterated
- Industry Position №27 (out of 57)



Under performer

Average performer since 2016

2015 2016 2017 2018 2019 Apr-20 Jun-20



- **«B» rating confirmed** in July 2020 vs industry average «B»

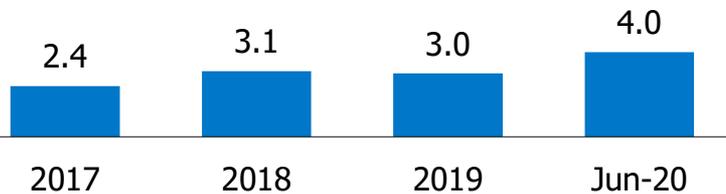


2015 2016 2017 2018 2019 Jul-20



FTSE4Good

- **Reiterated as an Index Constituent in 2020**
- **Overall ESG rating has been increased** from 3.0 to 4.0 (out of 5) in June 2020



2017 2018 2019 Jun-20



- **Overall ESG score has been decreased** from 37 to 33 (out of 100) in July 2020 vs industry average of 36



2016 2017 2018 2019 2020

(as of July)

Read more: <https://www.nornickel.com/investors/esg/>

Credit Rating Agencies' Assessment of the Impact of the Incident

**S&P
BBB-/Stable**

«**Norilsk Nickel may have to lower dividends to preserve investment-grade rating after \$2 billion fine. The maximum fine will add about 0.3x EBITDA to our previous leverage estimates, potentially pushing debt to EBITDA outside of the 2x...Management is committed to maintaining an investment-grade rating. Therefore, we believe the company will take the necessary measures to preserve its credit metrics**»

**Moody's
Baa2/Stable**

«**We therefore expect the amount that the company eventually pays to be significantly lower than Rosprirodnadzor's estimate and spread over many months, if not years. Norilsk Nickel had strong liquidity as of year-end 2019... As measured by Moody's-adjusted debt/EBITDA, will approach 2.0x by year end 2020 under a stressed scenario that assumes it will pay the damages estimated by Rosprirodnadzor in full in 2020....still below the 2.5x quantitative trigger for a downgrade**

**Fitch
BBB-/Stable**

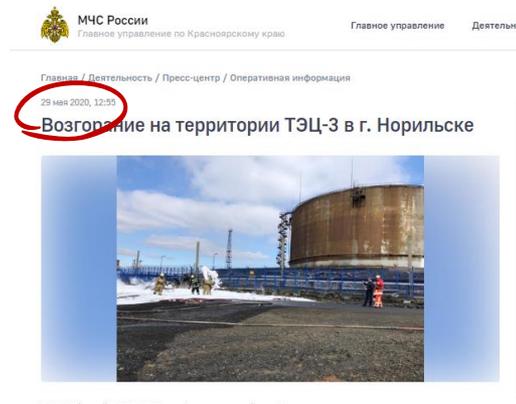
«**We expect that NN's credit metrics will remain commensurate with the rating in 2020-2021. This is based on a scenario that the company pays the full RUB148 billion (around USD2 billion) voluntary compensation in 2020. The additional USD2 billion cash payment could result in leverage and rating coming under pressure from 2022, should the company fail to adjust its capex or dividends. [If] NN's output and capex guidance as well as dividends are largely unchanged, its post-2021 leverage would rise to the 2.5x-3.0x range**»

Selected Fact Checks

Allegation

“The company has not promptly reported accident to the government/ information was delayed”

- **The company informed the local authorities and government agencies** on May 29th immediately after the accident in line with the due procedures and emergency response plan
- A press release was published on www site of the Ministry of Emergency Situations, local branch, on May 29, 12:55



Facts

The accident reporting timeline, May 29th 2020:

- 12.55 pm – the leak of diesel fuel was first reported by a dispatcher and was confirmed by HPP-3 at 12.57 pm
- 1.08 pm – the accident reported to the United Dispatch Service of the Siberia Power System, based in Kemerovo
- 1.10 pm — report to the United Dispatch Service (UDS) of the Civil Defense and Emergency of the city of Norilsk
- 1.20 pm — report to the Situation Analysis Centre of the Russian Ministry of Energy based in Moscow
- 1.49 pm — report to the Situation Analysis Centre of the System Operator of the Unified Energy System
- 2.59 - 5.05 pm — Emergency Forms No 2, No 3 and No 4 submitted to UDS
- 6.40 pm — NTEC issued an order declaring a state of emergency

See details at:

https://www.nornickel.com/news-and-media/press-releases-and-news/ntec-provides-law-enforcement-agencies-with-copies-of-official-incident-reports/?redirect_url=/news-and-media/press-releases-and-news/&redirect_url=%2Fnews-and-media%2Fpress-releases-and-news%2F

Selected Concerns (1/2)

Concern

The oil spill has spread into Pyasino lake and is heading for the Kara Sea

- **Special containment booms have been installed in the Ambarnaya River**, which have prevented the spill from spreading to the downstream Pyasino Lake, including 40 lines of conventional containment booms and 79 lines of absorbing booms
- The spill has not reached Pyasino Lake
- There is no risk of pollution of the Kara Sea
- Regular aerial monitoring of the impacted area is carried out

Facts

- **Satellite images published by Roskosmos on June 4th confirm that the oil spills were well contained in the Ambarnaya river**



➤ **According to Rosprirodnadzor's latest assessments**, concentrations of hazardous materials in the Ambarnaya river were in line with the maximum permissible levels

Selected Concerns (2/2)

Concern

90% of leaked fuel cannot be collected

Facts

As of July:

- ✓ **More than 90%** of leaked fuel was collected and contaminated soil was removed

As of the end of September:

- ✓ **All of the contaminated soil was removed** (188kt) and hauled to disposal sites
- ✓ 35k cubic meters of water-fuel mixture has been collected near HHP-3 and from the Ambarnaya river
- ✓ 185.2 km of the coastline and 361,720 sq m of contaminated surface have been treated with sorbents

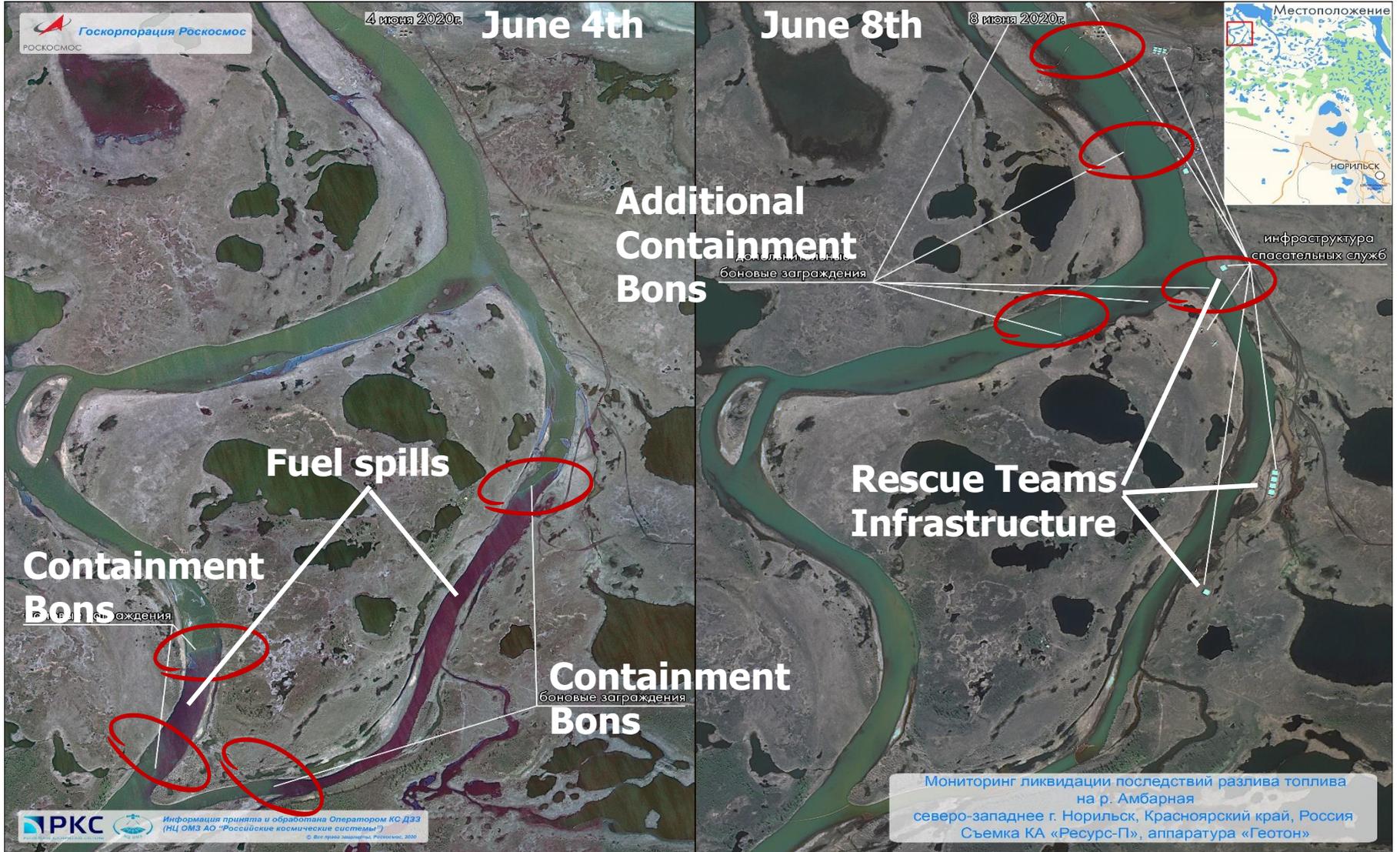


ROSKOSMOS Satellite Images of Norilsk-Pyasinsky Water System



Source: Company data, satellite images by ROSKOSMOS

ROSKOSMOS Monitoring of the Cleanup Progress: June 8th vs June 4th



Source: Company data, satellite images by ROSKOSMOS

ROSKOSMOS Monitoring of the Cleanup Progress: June 13th vs June 8th



Source: Company data, satellite images by ROSKOSMOS