



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

July 13, 2020

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Accident Overview

- On May 29, 2020, an accident 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
- According to the Company's assessment, the accident could have been caused by the thawing of permafrost which resulted in sinking of support posts
- Since the HPP-3 is located remotely from Norilsk, the city has not been impacted
- Over a short period of time, 21.2kt of diesel fuel has leaked beyond the bunding perimeter into a designated pit and partially 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 exact distribution of the contamination will be assessed through the soil recultivation, pumping out of the fuel from the pit and drain sumps, and cleaning of water



ROSKOSMOS Satellite Images of HHP-3 and Damaged Fuel Tank



Source: Company data, Roskosmos

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 accident took place, was built in 1985
- After undergoing 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



Immediate Response to the Accident – Clean-up and Monitoring

- **An emergency situation steering team** set up in the city of Norilsk comprised of the local, regional and federal government's officials and Nor Nickel senior management
- **June 3rd: a federal level emergency situation declared** by President of Russia, which resulted in deployment of a 100 people team and delivery of about 20kt of various equipment and supplies to Norilsk by the Ministry of Emergency Situations (MES)
- **May 29th - June 19th: Clean up phases 1-2 completed**
 - ✓ Over 90% of the leaked fuel was collected and contaminated soil removed
 - ✓ Teams deployed to clean up water spill: the Marine Rescue Service (from Murmansk), Russian oil&gas majors, Gazpromneft and Transneft;
 - ✓ Removal of the contaminated soil: Norilsk Nickel
 - ✓ In total, almost 700 people and 300 equipment items were involved in the clean-up
- **June: Immediate monitoring and regular inspections**
 - ✓ **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 by the government consumer supervision agency, Rospotrebnadzor, having detected no violation of permissible limits for hazardous materials;
 - ✓ **Water wildlife and water quality** from Ambarnaya river to the Pyasino Lake - observation points arranged;
- **June: prevention of further fuel spread and collection of remaining fuel in the water**
 - ✓ **Containment boms have been rolled out in the river Ambarnaya** – a total of 40 lines of conventional containment booms and 79 lines of absorbing booms with a total length of 14km⁽¹⁾

Risk Management and Corporate Governance Response

- **A complete revamp of risk assessment of hazardous industrial facilities has been launched:**
 - ✓ Upon completion, a comprehensive audit of all hazardous industrial facilities based on support posts sunk into permafrost will be carried out
 - ✓ A special focus will be put on potential environmental risks, including risks due to proximity of these facilities to water bodies
- NTEC is conducting **an inspection of emergency diesel fuel storage facilities**, with a special attention paid to assessing the risks of sinking soil under hazardous objects installed in permafrost
- **Strengthening of corporate governance mechanisms:**
 - ✓ Full disclosure and regular market and Board updates
 - ✓ Regular Board reviews of the accident and other environmental issues held in June-July
 - ✓ Independent Environmental Task Team of the Board of Directors comprised of independent directors has been set up
 - ✓ Andrey Bougrov, member of the Management Board and Senior Vice-President, has been appointed Chief Sustainability Officer
 - ✓ A new position, Deputy Director, Ecology, has been introduced in the Polar Division of Nornickel
- **Full investigation has been launched to identify the exact causes of the accident:**
 - ✓ Investigation by the government's joint Commission and General Prosecutor of Russia is underway
 - ✓ Upon completion of the government's investigation, the Company will conduct a technical investigation with the analysis of the foundation and drilling works

Selected Financial Implications of the Accident

- **The total clean up costs have been estimated at approximately RUB10bn (circa USD150m)**
 - ✓ RUB6bn has been already spent (as of early July 2020)
- **Additional investments into improvement of industrial safety announced:**
 - ✓ RUB2.5bn (circa USD36m) in 2020
 - ✓ RUB11.0bn (circa USD160m) in 2021
- **On July 6th, the amount of environmental damages** to water bodies and land was estimated by Environment Supervision Agency (Rosprirodnadzor) **at RUB 148bn (circa USD 2.1bn)**
- **On July 7th, Nornickel sent a letter to Rosprirodnadzor suggesting to hold consultations regarding the applicable methodology and the following assumptions made for the assessment:**
 - ✓ **Maximum multiple of 5x applied** (duration coefficient) for when there has been no effort (or a substantially delayed effort) to remediate the damage caused by the incident, which was not the case as the clean-up started immediately;
 - ✓ Further justification for the 5x multiple relates to **the high solubility of oil sub-products, which is not the case of diesel**, which is not a soluble pollutant;
 - ✓ **The assessment of the volume of oil products spilled into water**, since the calculation was done before collection of the oil products from the land was completed

Overview of the Clean-Up Program and Rehabilitation Plans

Stage	Initiatives	Timing
Stages 1&2: Clean-up campaign	<ul style="list-style-type: none"> ✓ Over 90% of the leaked fuel was collected and contaminated soil was removed ✓ 185kt of contaminated soil removed near HHP-3 ✓ Contaminated soil was placed into sealed-off hangars to prevent further risk to the environment ✓ 33k cubic meters of water-fuel mixture collected near HHP-3 and from the Ambarnaya river (25.7k cubic meters) ✓ The water-fuel mixture has been placed into 117 watertight tanks; ✓ 137.2km of river coastline has been treated with sorbents 	<p>May – June, 2020</p>
Stage 3: Collection of the remaining waste, transportation and utilisation	<ul style="list-style-type: none"> ✓ Collection of the remaining fuel near containment boms, collection of the fuel products from river shores; treatment of river shores with absorbent agents; collection of the contaminated absorbents from river shores ✓ Transportation of contaminated absorbents to temporary storage ✓ Construction of a temporary pipeline to transport the water-fuel mixture ✓ Transportation of the collected water-fuel mixture to an industrial site near Nadezhda Metallurgical Plant for further separation ✓ Separation of fuel from water 	<p>June – October, 2020</p>
Stage 4: Rehabilitation/ utilisation	<ul style="list-style-type: none"> ✓ Development of a monitoring programme (water bodies and soil) ✓ Development of a rehabilitation plan for the contaminated land and river shores ✓ Analysis of bio resources of the Daldykan and Ambarnaya rivers ✓ Reproduction of aquatic bioresources (release of juvenile fish into water bodies) ✓ Utilization of the separated water, utilization of the collected contaminated sorbents, utilization of the collected contaminated soil ✓ Rehabilitation of the impacted soil 	<p>July 2020</p> <p>2021-2022</p> <p>2020-2023</p>

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/>

Plans for Inspections, Monitoring and Improving Emergency Response

Initiatives	Period
Inspections of hazardous production facilities: <ul style="list-style-type: none">✓ Updating the register of hazardous production facilities and developing a schedule for their extraordinary inspections✓ Conducting comprehensive inspections/diagnostics of these facilities with the help of in-house and third-party experts✓ Development of facility upgrade and repair 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	3Q 2020
Introduction of soil monitoring system <ul style="list-style-type: none">✓ Upgrade of Diagnostics Center of Polar Division✓ Launch monitoring of permafrost, foundations of building and facilities jointly with Permafrost laboratory of Norilsk Industrial Institute	2H 2020
Improving emergency response <ul style="list-style-type: none">✓ Technical and equipment upgrade of the gas rescue service of Polar Division✓ Development of a joint response plan for emergency situations with the mining rescue team of the Ministry of Emergency Situations	2020-2022

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/>

Selected Initiatives within Soil 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. Top priorities for additional geological analysis

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

4. 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

Engagement with Stakeholders

- The Company is closely engaging with various environmental groups/NGOs, consultations are held with the local indigenous communities
- Ethnological expert review was launched on the Taimyr Peninsula to assess the damage caused by the fuel spill at HPP-3 to the indigenous minorities of the North. Ethnological map of all economic entities within the local indigenous communities will be prepared
- To mitigate the wider impact on local indigenous communities, the Company has committed to providing additional support to the following programs:
 - ✓ Reproduction of aquatic bio resources - release of juvenile fish into water bodies in order to preserve rare fish species
 - ✓ Biodiversity conservation - a program to preserve local rare species and their habitat

«We note openness and willingness of the Company's to engage into a dialogue [with stakeholders]»

Alexander Zakondyrin

Deputy Chairman of the Public Council at the Ministry of Natural Resources and Ecology of the Russian Federation



Source: Company data

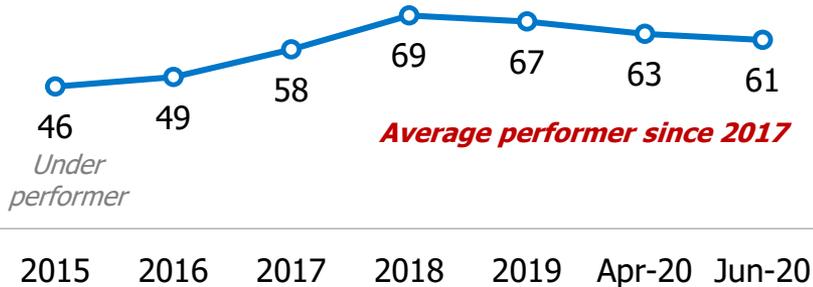
Read more: <https://www.nornickel.com/investors/esg/>
https://www.nornickel.com/upload/iblock/882/NN2019_Digital_ENG.pdf

ESG Rating Agencies' Action upon Accident

Sustainalytics: ESG Score Reduced to 61 from 63 points (out of 100), «Average Performer» Reiterated; ESG Risk – “High Risk” Reiterated



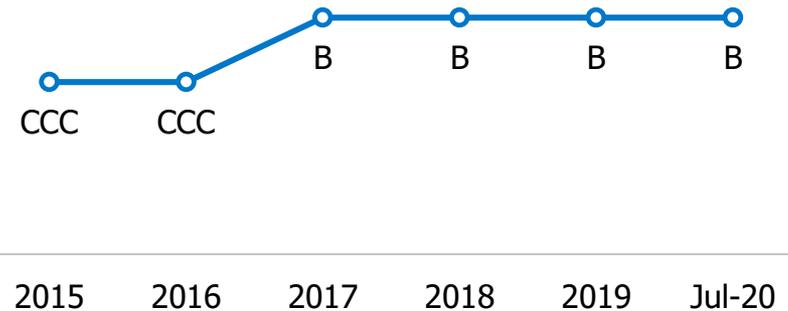
- Industry Position #27/57
- ESG Risk rating reduced to 38 from 35 points (0 is low risk)



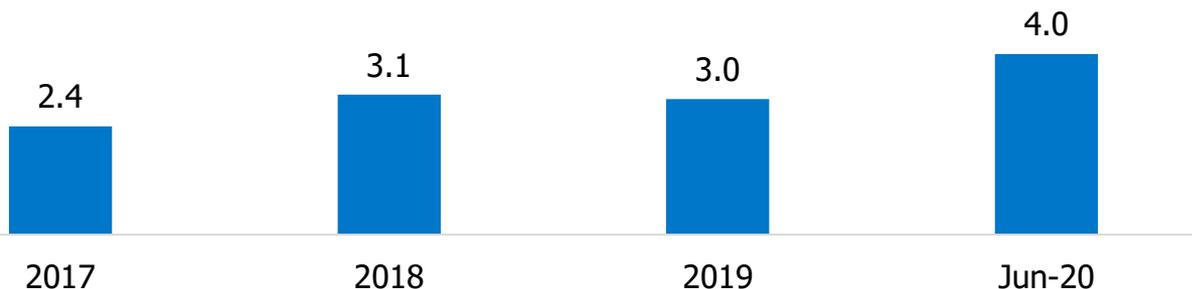
MSCI ESG: «B» Rating Reiterated



- Industry average – «B»



FTSE4Good: Reiterated as an Index Constituent in 2020



Credit Rating Agencies' Assessment of the Impact of the Accident

**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**

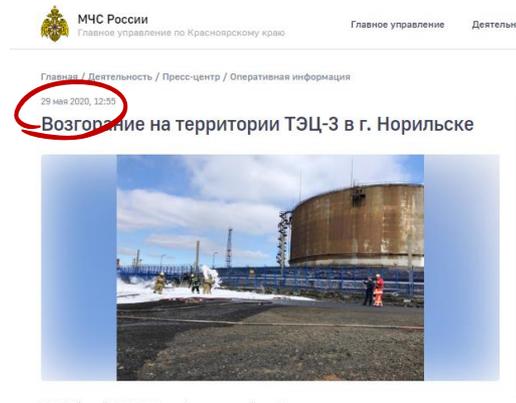
«**We expect that NN's credit metrics will remain commensurate with the rating in 2020-2021. This is based on a scenario that the company pays the full RUB148 billion (around USD2 billion) voluntary compensation in 2020. The additional USD2 billion cash payment could result in leverage and rating coming 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 6th:

- ✓ **More than 90% of leaked fuel was collected and contaminated soil was removed**
- ✓ 185 kt of contaminated soil has been removed
- ✓ 33k cubic meters of water-fuel mixture has been collected near HHP-3 and from the Ambarnaya river
- ✓ 137.2 km of the coastline and 265,720 sq m of contaminated surface have been treated with sorbents

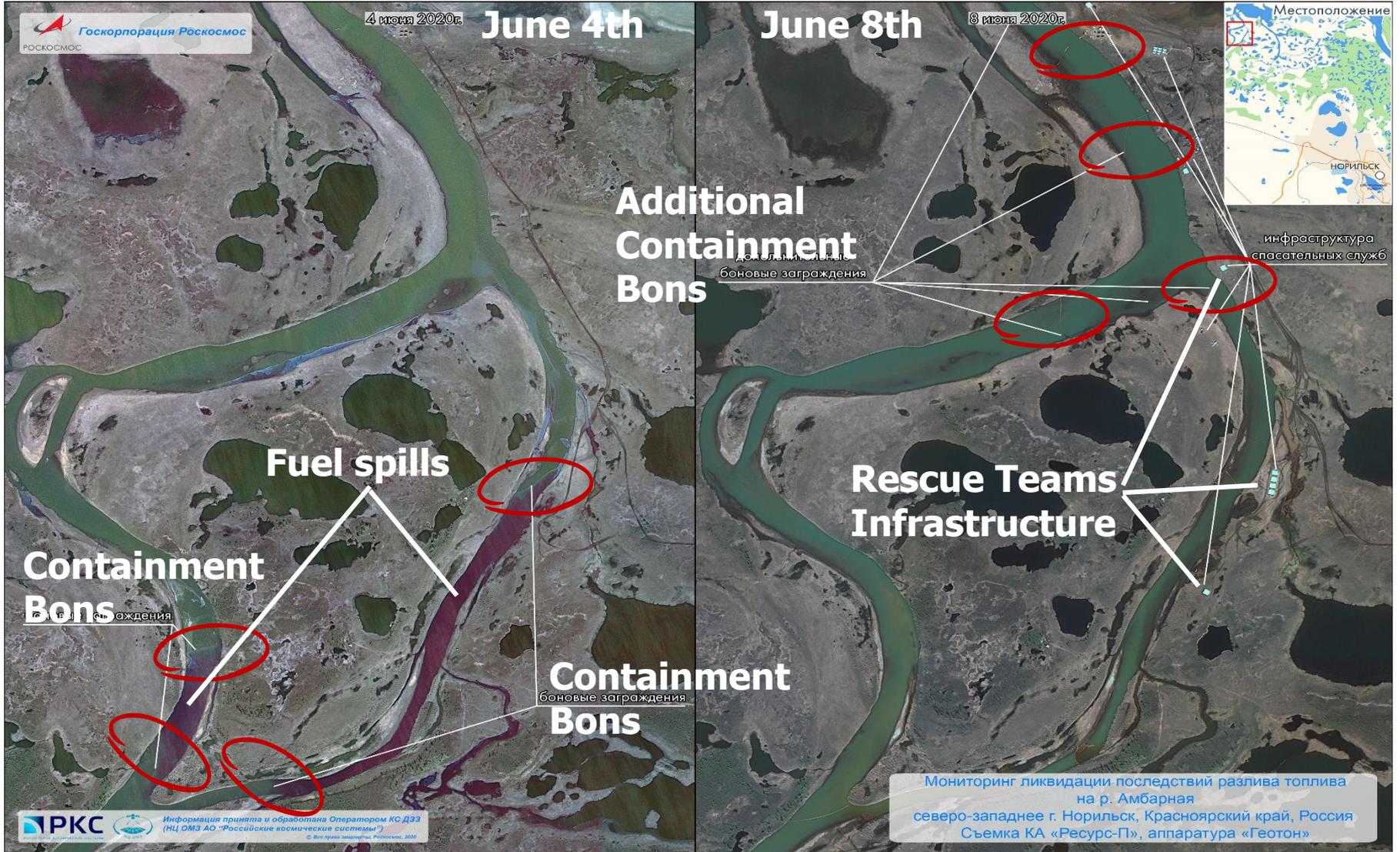


ROSKOSMOS Satellite Images of Norilsk-Pyasinsky Water System



Source: Company data, Roskosmos

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



Source: Company data, Roskosmos

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

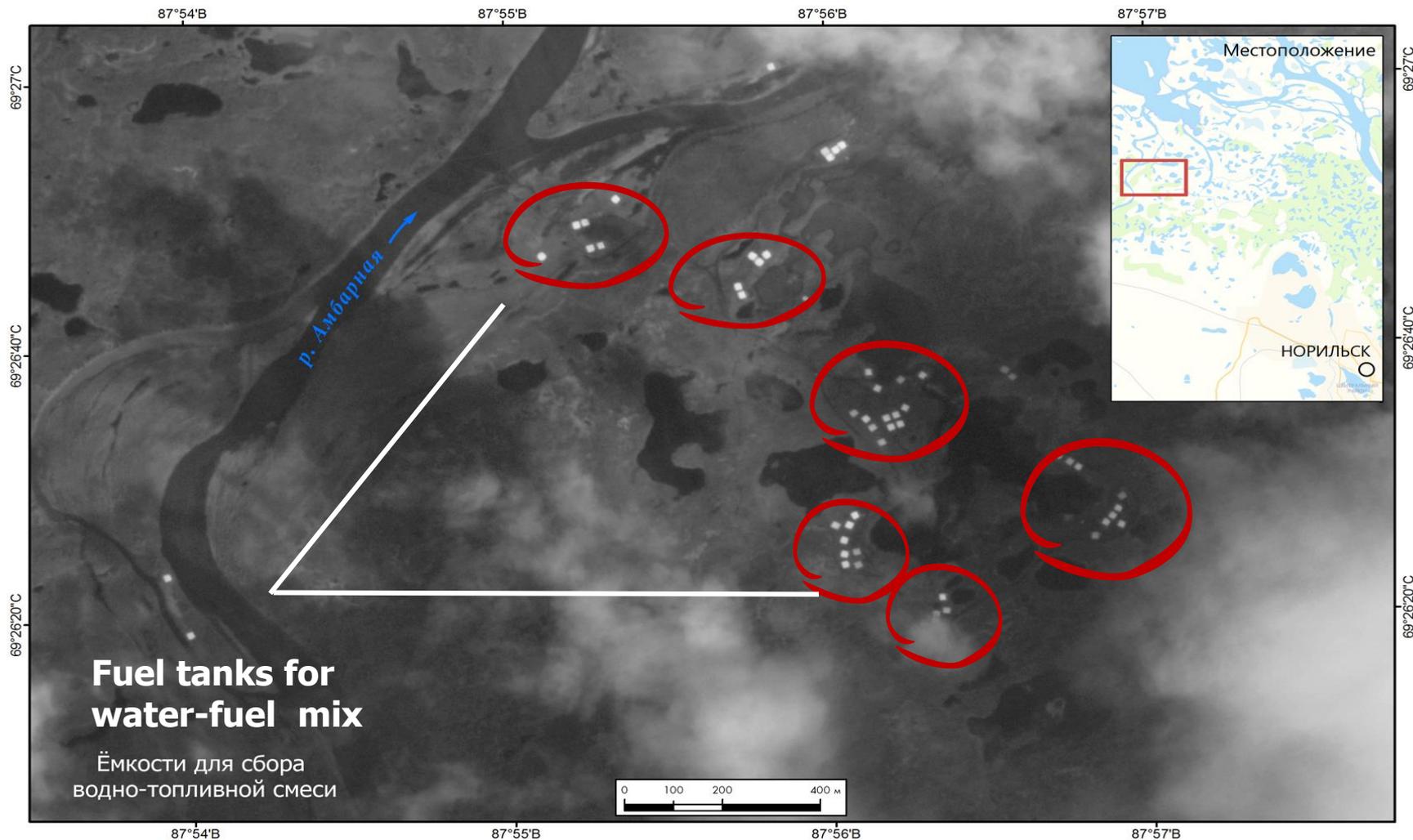


Source: Company data, Roskosmos

ROSKOSMOS Monitoring of the Cleanup Progress as of June 15th

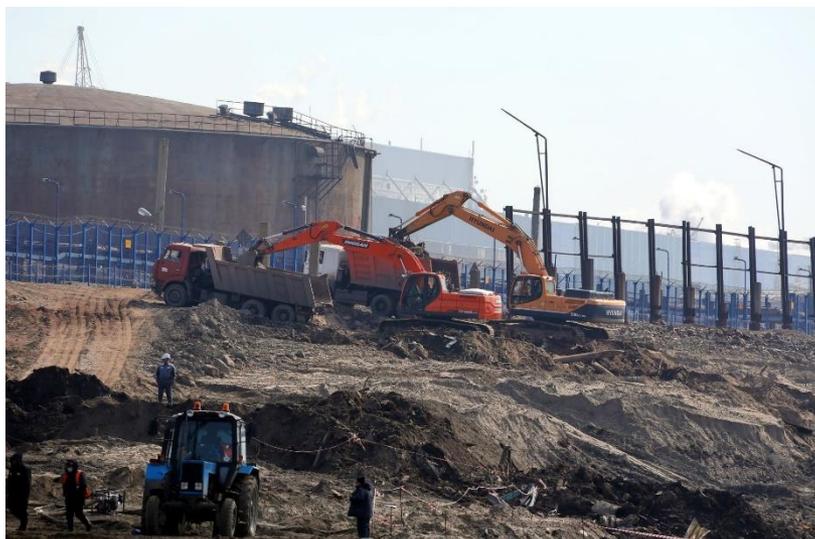


МОНИТОРИНГ ЛИКВИДАЦИИ ПОСЛЕДСТВИЙ РАЗЛИВА ТОПЛИВА. РОССИЯ, КРАСНОЯРСКИЙ КРАЙ, ДОЛГАНО-НЕНЕЦКИЙ АО
ПО ДАННЫМ КА "КАНОПУС-В" №4 / ПСС 15.06.2020



Source: Company data, Roskosmos

Removal of Contaminated Soil, Temporary Fuel Storage Tanks near HPP-3



Source: Company data, TASS

Clean Up Operations near HPP-3



Source: Company data

Containment Boms, Temporary Fuel Storage and Rescue Team Camp at the Ambarnaya River



Source: Company data, TASS

Temporary Fuel Storage Tanks, Water Sampling and Containment Boms on the Ambarnaya River



Source: Company data, TASS

Special Equipment Have Been Brought to Norilsk to Pump out Water and Fuel Mixture



Source: Company data

Photos of Norilsk-Pyiasinsky Water System (as of June 28th)



Source: Company data