

## COMPREHENSIVE MEASURES TO IMPROVE THE ENVIRONMENTAL SITUATION IN THE KOMI REPUBLIC

LUKOIL began operations in the Komi Republic in 2001, after acquiring a 100% of stake in OJSC Komi FEC, which, in turn, was created through a spin-off of state-owned shares of oil production and

refining enterprises. Oil fields have been developed in the region since the 1930s.

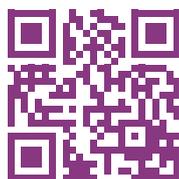


### LUKOIL Group entities operating in the Komi Republic include

LLC LUKOIL-Komi - the exploration and production of oil in six municipalities: the urban districts of Usinsk, Ukhta, and Vuktyl, as well as the municipal districts Pechora, Sosnogorsk, and Izhma;



LLC LUKOIL-Ukhtaneftepererabotka (Ukhta urban district) - the oldest oil refinery operating in the Russian industry



Gross emissions of pollution into the atmosphere in 2018 fell by

**24%**

**42.7 thousand tons**

of waste were disposed of and neutralized



Since starting work in the Komi Republic, LUKOIL has had to tackle a range of urgent tasks, including the renovation of almost entirely worn-out production assets, the restoration of the technical condition and performance of oil wells, and the elimination of the consequences of a very large oil spill that occurred in 1994 on the Kharyaga-Usinsk pipeline. Thanks to the implementation of two large-scale investment programs, the most critical tasks were largely accomplished. We voluntarily committed to eliminating the consequences of the 1994 oil spill and reclaimed over 700 hectares of contaminated land, engaging research and specialized organizations from Russia, the Czech Republic, and France. After the implementation of the Corporate Program of work on the environmental rehabilitation of contaminated areas and the prevention of emergency oil spills in the Komi Republic for 2000-2005, the Usinsk district had its emergency zone status removed.

Moreover, at the Yaregskoye oil and titanium field, production has been carried out via the mining method for approximately 80 years. During this time, rock from rock tunneling has been brought to the surface and located in three slagheaps, the storm drains from

which still form a polluted discharge into local water bodies. We call this waste "pre-privatization" or "accumulated during the pre-privatization period" (before OJSC Komi FEC was incorporated into LUKOIL). The Company has also voluntarily assumed obligations to dispose of this oil-contaminated waste at its own expense and includes relevant measures in each environmental safety program.

Beginning with the first environmental safety program, annual measures are taken in the Komi Republic, including to repair pipelines, rehabilitate contaminated land, and dispose of waste.

Despite the considerable efforts made, it is impossible to resolve all issues simultaneously. In order to change the environmental situation in the Komi Republic for the better, we adhere to the following approaches.

- We believe the renovation and repair of pipelines is one of the primary ways to mitigate negative impacts, and should result in a reduction in fresh oil spills.
- By including appropriate measures in each environmental safety program, we reduce the total amount of pre-privatization waste and rehabilitate contaminated land and water bodies.

- We are taking steps to conserve unique local ecosystems.

#### Improving the reliability of pipelines

Each year, LLC LUKOIL-Komi takes measures to improve the reliability of pipelines. In 2018, considerable work was performed in this area, as a result of which all respective indicators improved:

- The share of pipes made of anticorrosive materials reached 21% of the total, thereby reducing the risk of oil spills due to corrosion, which is the main cause of upstream pipeline failures.
- **Inhibitor protection covers 32% of the length of pipelines - this is the highest proportion of pipes with inhibitor protection among LUKOIL pipelines in Russia. As a result of these measures, the service life of pipelines will rise from 10-15 to 20-35 years.**
- 1,568 oil fields were surveyed as part of flood preparation measures.
- Requirements for contractors that provide repair and equipment maintenance services were increased.



In 2018, the Comprehensive Program for Improving the Reliability of Field and Main Pipelines of LLC LUKOIL-Komi for 2019-2021 was approved.

Measures from previous years had a positive effect on the structure of the age composition of pipes: in 2018 the share of pipes older than 20 years declined to 24%, and pipes from 10 to 20 years old (laid in the late 1990s - early 2000s) fell to around 30%.

New pipelines are being built using pipes with improved properties. For example, in the Izhma District, the complete renovation of the Makaryel - Shchelyayur pipeline, 33 km in length, is close to completion. The pipeline is built using internal double-layer and external triple-layer industrial anti-corrosion protective coating. Crossing the Pechora River is performed via controlled drilling in an encasement pipe on the principle "pipe in pipe." The encasement pipe is laid at a distance of 5 to 20 meters from the bed of the Pechora River in order to eliminate impacts on the animal and plant world.

A project is being implemented to eliminate oil spills in water bodies (marine and freshwater ecosystems) in northern conditions, using specially developed sorbent materials and biotechnologies.

Nevertheless, despite these efforts, in 2018 two oil spills occurred as a result

of pipeline corrosion. LLC LUKOIL-Komi specialists reacted swiftly to localize these spills: the average response rate<sup>1</sup> was no more than four hours. The consequences of the spills were eliminated and measures to reclaim contaminated land are being undertaken.

#### Environmental Safety

Since 1994, within the framework of the Environmental Safety Program of LUKOIL Group entities in the Komi Republic, measures have been taken to improve environmental safety, including the environmental monitoring of waste disposal facilities and licensed areas and monitoring water bodies and indicators in water protection zones. **In 2018 the following results were achieved:**

- **Gross emissions of pollution into the atmosphere fell by 24% in comparison with 2017, or by 23,000 tons**
- **220,700 cubic meters of wastewater were cleaned**
- **42.7 thousand tons of waste were disposed of and neutralized**

LLC LUKOIL-Komi's plans include introducing a system for the separate collection and recycling of waste that is not subject to disposal in landfills (paper, plastic, office equipment, etc.)

#### Biodiversity

**In 2018 LLC LUKOIL-Komi developed a "Plan of measures for the preservation of biological diversity in the Russian Arctic Zone on the Territory of Activity (Fields) of LLC LUKOIL-Komi,"** as part of which the following new procedures were introduced:

- Registering and keeping a log of indicative<sup>2</sup> representatives of flora and fauna appearing in the fields of LLC LUKOIL-Komi
- Conducting a mandatory introductory briefing of LLC LUKOIL-Komi employees on the need to preserve biodiversity in the Arctic Zone, and completing related information sheets

The Action Plan includes<sup>3</sup> nine indicative bird species (barnacle goose, eider, king eider, ivory gull, glaucous gull, black-legged kittiwake, common murre, thick-billed murre, and black guillemot) and one animal species (polar bear).

Since 2007, we have been carrying out activities to artificially reproduce fish resources in the Timan-Pechora rivers: each year, between 100,000 and 150,000 fish spawn (larvae) of grayling and whitefish were released into the Pechora, Izhmu, Kolvu, Usu, Big Synya, Ilych, and Kozhva rivers. In 2017, in honor of the Year of Ecology, the scale of the event was significantly expanded (over 3.5 million

<sup>1</sup> The time that elapses from the moment the loss of the integrity of the pipeline system is detected to the commencement of actions to eliminate the causes and consequences of the incident.

<sup>2</sup> Indicative species of ecosystems are species that meet three criteria: 1) the species is widespread in the region and spends most of its life there; 2) the species is plentiful and available for study; 3) the responses of the species to changes in the habitat can be recorded and assessed (measured).

<sup>3</sup> The basis for selecting indicative species are the following documents: The Red Book of the Russian Federation and the NAO, Directive No. 25-r of the Russian Ministry of Natural Resources and Ecology dated September 22, 2015 "List of Flora and Fauna Species,," and engineering surveys at oil and gas facilities of the northern fields of the Arctic Zone of TPU LUKOIL-Severneftegaz.

## Log book of indicative representatives of flora and fauna

Nº	Date, time	KCDNG / production field	Post / name	Specie / object	Number, pieces	Object condition
1.	07.21.2018, 11.30 am	KCDNG-2, Tedinskoe	Process engineer – Arslanov A.R.	Blaucous gull	1	Normal
2.	07.25.2018, 8 pm	KCDNG-4, Perevoznoe	Foreman – Drozdov O.A.	Barnacle goose	20	Good, photo report
3.	07.28.2018, 9.30 am	KCDNG-4, Perevoznoe	Foreman – Drozdov O.A.	Blaucous gull	1	Good
4.	09.03.2018, 11.45 am	KCDNG-4, Perevoznoe	Machine operator – Evseev V.Y.	Kittiwake	1	Good
5.	09.18.2018, 4.20 pm	KCDNG-4, Perevoznoe	Foreman – Drozdov O.A.	Blaucous gull	1	Good, photo report
6.	10.15.2018, 7.10 am	KCDNG-4, Toboyskoe	Operator – Shukshin I.A.	Barnacle goose	6	Perfect

fish were released); and in 2018, 284 thousand fish were released into the rivers (in accordance with a decision from the Federal Agency for Fisheries). In 2019 it is planned to repeat the large-scale release of young fish.

In 2016, a project to monitor the state of marine animals was executed. An expedition to study the Atlantic walrus in the southeastern Barents Sea, in the area of operations of LLC Varandey Terminal, was organized jointly with the World Wildlife Federation (WWF) and the Council of Marine Mammals public organization. The results of satellite tracking were used to assess the impact of the Company's activities on walruses during the ice-free period. At the same time, it was confirmed that the water area adjacent to the terminal is outside the main range of their summer habitat, which is located between Vaygach Island and the islands of the Nenetsky Reserve.

#### Interaction with communities

In 2016, a hotline on environmental safety issues began operating for Komi residents. Reports are handled by deputy general directors, the heads of structural units, and the heads of departments and divisions of LLC LUKOIL-Komi. Necessary actions are carried out for each report.

In 2018, issues related to the construction of a landfill to process solid and liquid sludge for the Shchelyayur group of fields were most actively discussed during meetings with residents.

LLC LUKOIL-Komi was able to reach a common understanding with the public of the Izhma Region on a project to build a landfill. Initially, the landfill was to be built between the Krasnobor and Shchelyayur settlements; however, at the request of local residents and public organizations ("Pechora Rescue Committee", "Izvas"), the plans were altered. Residents, the heads of the Ministry of Natural Resources of the Komi Republic, and environmental activists representing the "Pechora Rescue Committee" took part in choosing a new location for the facility. Seven sites were proposed for consideration, and a site located within the boundaries of the Makarielskoye oil field (TPU LUKOIL-Ukhtaneftegaz) was selected by stakeholders.

**LLC LUKOIL-Komi was awarded a 1st Degree Laureate Diploma at the International Ecological Awards ECOWORLD 2018, in the category "Conservation of Biodiversity and Landscapes." Project: "Conservation of biodiversity by replenishing aquatic biological resources in the territory of LLC LUKOIL-Komi's activities." The awards are organized by the All-Russian Public Organization Russian Academy of Natural Sciences (RANS).**