

Ecomax

APPROVED
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REPORT

under contract No. 1149 dated 1 August 2023

for biological monitoring at 16 well sites of the Vatlorskoye, Suryeganskoye,
Verkhnekazymskoye, Lungorskoye fields and the I.N.Logachev field

located in the territories adjacent to Numto nature park

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INTRODUCTION

Field work was carried out by the team of Ecomax LLC in August - September 2023 at the Vatlorskoye, Suryeganskoye, Verkhnekazymskoye fields and the I.N.Logachev field in the territories adjacent to Numto nature park under contract No. 1149 dated 1 August 2023.

The study to determine the ecological state of the soil and vegetation cover at the monitoring sites for 2012-2022 was conducted at the following facilities:

1. Monitoring points established in 2013 in the area of well pad No. 113 at the Vatlorskoye field.
2. Monitoring points established in 2014 in the area of well pads No. 101 and 104 at the Vatlorskoye field. In 2023, monitoring sites were re-established in the area of well pad No. 104 based on the actual position of the well pad at the Vatlorskoye field.
3. Monitoring points established in 2017 in the area of well pad No. 5 at the I.N.Logachev field.
4. Monitoring points established in 2018 in the area of well pads No. 9 at the Verkhnekazymskoye field and No. 31 at the Suryeganskoye field.
5. Monitoring points established in 2019 in the area of well pads No. 116, 119, 120 at the Vatlorskoye field, No. 2 at the Verkhnekazymskoye field, No. 33 of the Suryeganskoye field.
6. Monitoring points established in 2022 in the area of well pads No. 12 and 44 at the Verkhnekazymskoye field.

All the well pads were in commercial operation at the time when the field work was carried out.

Work on biological monitoring of well pads in 2012-2022 included:

- Assessing the state of the main components of biogeocenosis. Geobotanical surveys were conducted (changes in species composition, vitality, phenological phases, changes in morphometric parameters were noted), permafrost levels were studied in frozen landscapes, and groundwater levels were studied in thawed landscapes. Also, at each site, a route survey of the territories and sectors adjacent to the access roads to the well pads was carried out (changes in soil and vegetation cover, degradation landscape processes and their development, changes in the hydrological regime of the territories, as well as a number of other natural and anthropogenic phenomena that determine the sustainability of the biocenoses of the study area were recorded).

- Zoological research in the area of these industrial facilities included route surveys of birds, mammals (visually and by tracks) and amphibians and reptiles in order to determine species composition and abundance. Thirteen walking routes with a total length of 63 kilometers were taken. At points at well pad No. 5 at the I.N.Logachev field, No. 31 and 34 at the Suryegansky license block, No. 119 at the Vatlorsky license block, the survey routes were taken along tracks laid in previous years. In total, the old routes amounted to 15.2 kilometers. A daily fish catch using nets

was carried out on the Ai-Kuryeh and Mindaty-aikuryohan rivers.

In addition to those already established in previous seasons, new monitoring points were established in the area of well pads No. 45 and 46 at the Verkhnekazymskoye field and No. 8 at the Lungorskoye field. At the time when the field work was carried out, the well pads were in commercial operation.

At the new monitoring sites the following was done:

1. Clarifying the structure of soil and vegetation cover at the well site that had been identified by preliminary interpretation of satellite images.
2. Choosing a location of monitoring sites, taking into account the direction of geochemical runoff from oil production facilities, landscape features of the surrounding territory, as well as ongoing destructive natural and natural-anthropogenic processes. Determining geographical coordinates of monitoring sites.
3. Geobotanical description of monitoring sites. Collecting the herbarium of difficult-to-identify plant groups. Marking monitoring sites using poles and signal tapes/ropes. Description of soils (soil sections), collecting peat samples to characterize the degree of decomposition and botanical composition. Taking photographs.
4. Route geobotanical surveys of areas adjacent to drilling sites to identify rare plant species and the most vulnerable communities requiring special protection measures.
5. Zoological research in the area of these industrial facilities also included route surveys of birds, mammals (visually and by tracks) in order to determine species composition and abundance. Ten new walking routes with a total length of 47.8 kilometers were taken. An additional survey of lakes and swamps was carried out using a quadcopter at several points.
6. Looking for existing signs of anthropogenic disturbances.

CONCLUSION

Biological monitoring carried out by Ecomax LLC at the licensed blocks within the boundaries of the Vatlorskoye, Suryeganskoye, Verkhnekazymskoye fields and the I.N.Logachev field is an important measure to prevent the negative impact of the oil production on the soils, plants and animals of Numto nature park and adjacent territories. Carried out for over 12 years (2012-2023), the observations showed generally insignificant impact of oil production infrastructure on soil, plants and animals. Changes in natural landscapes identified in a number of cases are of a purely local nature. All components of biogeocenoses continue to perform their ecosystem functions. Indicators of biological diversity prove that it is fully preserved. Populations of rare and protected species of plants and animals do not show any signs of degradation. In the reporting year, four species of birds listed in the Red Books of the Russian Federation and Khanty-Mansiysky Autonomous Okrug – Yugra (white-tailed eagle, pale harrier, osprey and peregrine falcon) were encountered. Mammals, including large predators, continue to be found in the business activity zone and in the area adjacent to the park. Estimated bird densities on most routes correspond to average values. During the entire monitoring period, no signs of oil pollution of the environment (soil surface, water bodies, vegetation) were found in the park. A number of phenomena – thawing of permafrost, fluctuations in water levels of swamps and water bodies – are associated mainly with climatic fluctuations, including global warming, which is especially pronounced in the northern taiga and forest tundra subzones of Western Siberia. A certain restructuring (recombination) of plant communities along roads and production sites, sometimes observed in the form of strips up to 10-25 meters wide, does not lead to dangerous invasions of new species into the park. Individual specimens of invasive plant species, with rare exceptions, do not extend beyond the territory of the production infrastructure and only in individual cases are observed at a distance of several meters from well pads.