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Background

The landfill of toxic wastes “Krasny Bor” was listed in early 1990-s as HELCOM Hot Spot No. 23 for inadequate handling of hazardous wastes and associated environmental risks of toxic chemicals leaching into the Baltic Sea.

By the request of HELCOM 37-2016, PRESSURE 4-2016 considered detailed information on the current conditions and the state of environmental measures at the landfill; current state of wastewater treatment facilities and maintenance of embankments, walls, construction, and the drainage system at the landfill. PRESSURE 4-2016 requested Russia to arrange a study visit to the site. The visit was held in June 2016.

HOD 50-2016 took note of the information on the state of the landfill discussed by PRESSURE 4-2016 and the report on the study visit and highlighted the importance of further developing plans to prevent environmental risks and comprehensive and regularly updated information on the state of the environment around the landfill.

HOD 50-2016 requested the Pressure Group to follow up progress at the Krasny Bor landfill.

The document contains information on the state of the environment in the vicinity of the landfill, current activities to minimize environmental risk posed by the hot spot and step-by-step plan to eliminate environmental damage accumulated on the landfill.

Action requested

The Meeting is invited to:

- take note of the information and evaluate the progress in undertaken measures to prevent current environmental risks posed by the landfill;
- provide a feedback on the effectiveness of the undertaken measures;
- exchange views on the action plan to reclaim the area of the landfill and to delete the Hot Spot from the HELCOM list, indicating potential involvement of the international experts and organizations in implementation of the action plan and particular actions where international experience could be utilized to find sustainable and coast effective solutions.

Current situation and activity of St.Petersburg State Unitary Environmental Enterprise “Krasny Bor” Landfill”

1. Ecological situation

St.Petersburg State Unitary Environmental Enterprise “Krasny Bor” Landfill” (hereinafter – Landfill) is located at the address: Leningrad Region, Tosnensky District, Lyubanskoye Forestry, Ulyanovskoye Divisional Forestry, Quarters 21 (p.alloc. 20), 22 (alloc, 4, p.alloc. 5), 23 (p.alloc. 1, 2) and occupies the area of 67.4 ha.

On the territory adjacent to the Landfill, there are lands of various categories: lands of settlements (2.5 km to the east from the Landfill boundary – Nikolskoye Settlement, 1 km to the south – collective gardening establishments, 1.3 km to the south-east – Mishkino Village, 1.3 km to the south-west – Krasny Bor Settlement), agricultural lands, lands of the stock of forestry, lands of the stock of water, etc.

In order to determine the level of environmental impact, the Landfill monitors the state of its components: atmospheric air, superficial, waste and underground waters, soil cover, flora and fauna. In 2016 contracts were signed with OOO “Tekhnoterra” for this purpose.

The following was ascertained as a result of the conducted studies, including within the framework of state ecological supervision:

1. No excess of norms of pollutants content in atmospheric air directly at the border of the Landfill and at the border of the sanitary protective zone was recorded (the size of the sanitary protective zone is 3 km).
2. Insignificantly increased content of pollutants was noted in samples of superficial, waste and underground waters at the borders of the Landfill.

No signs of suppression of vegetation development, worsening of the state of flora and fauna were detected during visual examinations of the territory adjacent to the Landfill.

Investigations of the qualitative composition of soil, vegetative parts of plants (leaves and needles), examination of vegetable cover, fauna will be carried out in September 2016 (results will be presented at the meeting of the Commission).

2. Current activities and prospects of development

St.Petersburg Government has made a decision about perpetual cessation of activity on placement of industrial waste at the Landfill.

Taking into account this decision, the main task of the Committee for Nature Use, Environmental Protection and Ecological Safety (hereinafter – the Committee) at present is bringing the Landfill territory into accord with the norms, current safe operation (including safe passing of spring floods) as well as further territory reclaiming and withdrawal of the Landfill out of operation.

Scientific-Technical Council (STC) has been created under the Committee, which is chaired by M.P.Fedorov, Academician of Russian Academy of Sciences and consists of 5 Doctors of Sciences and 7 Ph.D. of Sciences, including representatives of Research Center of Environmental Safety of Russian Academy of Sciences, Technological and Polytechnic Universities.

5 meetings of STC were held, which considered proposals about technologies of elimination of the ecological damage accumulated at the Landfill, as well as about necessary preventive activities on exclusion of emergency situations.

These meetings have made the following decisions:

- on the necessity to cover open cards No. 64 and No. 68 in order not to allow getting of precipitation into the open cards and increase of the waste level therein, to provide fire safety and minimization of evaporation from the cards; the coverage technology was selected which supposes making and placing of a system of pontoons with antifiltering coating (geomembrane) on the surface of the cards, installation of pumping and water-drain equipment. To date over 60% of the mirror area of card No. 68 has been covered with the pontoons. All covering works will be completed by the end of 2016.
- on development of a schematic diagram of the complex of treatment facilities for treatment of water of internal and bypass channels and reduction of the liquid level in cards No. 64 and No. 68. One of the primary measures within the framework of elimination of the accumulated ecological damage of the Landfill is implementation of the complex of activities on designing and construction of the complex of treatment facilities which will allow: to purify storm waste water from the territory of the enterprise for safe passing of seasonal high water, and it will also allow to treat watered waste from pit cards No. 64 and No. 68, which is a compulsory condition for further reclaiming of the Landfill territory. The project will develop 4 treatment plants with the overall efficiency of at least 60 m³/h.
- on creation of Work Group of scientists-geologists from academic members of the Council for analytical work regarding survey works of previous years and development of the technical assignment for necessary survey for development of the Landfill reclaiming design.

Within the period of the spring flood of 2016, a hazardous emergency situation formed on the Landfill territory. The actual level in the open pit cards No. 64 and No. 68 (hereinafter – cards) exceeded the criterion (limiting) level by over 90 centimetres, and less than 10 centimetres were left till the top of the clay core of the flood wall.

In February the Landfill locked flood walls of open cards No. 64 and No. 68 in order to exclude the possibility of overflow of the cards content beyond their perimeter. These activities allowed to increase the level margin by over 1 meter.

Inter-departmental Commission consisting of representatives of the Committee, Main Department of Emergency Ministry of Russia for St.Petersburg, Main Department of Emergency Ministry for Leningrad Region, North-West Department of Rostekhnadzor and the Landfill staff carried out visual examination of the cards and flood walls. According to the examination results, the state of the cards banking up was assessed as the emergency one, the safety level of the hydraulic structure was assessed as “hazardous”.

Taking into account the fixed dynamics of the developing processes of reduction of strength and stability of the flood walls, for the purpose of elimination of considerable risk of accident at the hydraulic station leading to the emergency situation and technogeneous environmental disaster, the only possible decision in the formed circumstances was made on the necessity of immediate commencement of works on elimination of the emergency situation on cards No. 64 and No. 68, on selection of technologies for level reduction in the cards and strengthening of the flood walls of the cards.

Works on elimination of the emergency situation on the cards include reduction of the current level of waste on pit cards No. 64 and No. 68 by elimination of the waste unloading area of card No. 64. For this purpose, two temporary pits were arranged in Cambrian clay on the Landfill territory, which exclude penetration of liquid waste into underground waters where a part of liquid waste is pumped over from the cards. Temporary reduction of the waste level is technologically necessary for execution of works on elimination of the unloading area.

On completion of the works on elimination of the unloading area of card No. 64, waste from temporary pits will be returned to the cards, and extracted soil will be backfilled to the temporary pits.

Execution of the works on elimination of the emergency situation on the cards will allow to carry out examination of the state of the flood walls of cards No. 64 and No. 68, to develop workshop documentations and to carry out repair and restoration works on the flood walls.

Plan of Actions (roadmap) of step-by-step elimination of the environmental damage accumulated on the Landfill territory has been developed, which consists of 6 main items.

1. Change of organizational-legal form of the Landfill. Transfer of State Unitary Environmental Enterprise into State Budgetary Institution (2017). This activity is carried out in connection with the made decision on perpetual cessation of activity on placing industrial waste of the Landfill which is an exclusive source of profit necessary for safe maintenance and operation of the Landfill. Change of the organizational-legal form will make it possible to reduce tax load on St.Petersburg budget.
2. Conduction of examination of the Landfill territory with the full complex of engineering survey (2017).
3. Development of design estimate documentation on reclaiming (2018-2019).
4. Obtaining of positive conclusion of State Appraisal with regard to the design estimate documentation (2020).
5. Conduction of the Landfill reclaiming in accordance with the developed design (2021-2025).
6. Postreclaiming monitoring of the object (2025-...)

The Committee intends to use the international experience in the process of remediation the Landfill and removing the hot spot from the HELCOM list.

In this connection the study visit of the international HELCOM experts to the Landfill was organized by the Committee on the 10th June, 2016.

The aim of the visit was to assess the current state of the Landfill and to discuss possible assistance to the Russian side in searching potential sources of external financial support of the project in minimization of environmental risks and elimination of the negative environmental impact of the Landfill.

The visit resulted in establishing of working contacts with representatives of NEFCO. Further development of the contacts should be most efficient with the support of HELCOM.