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Main activities in the field of environment protection and environmental safety in operation of St. Petersburg metro facilities

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Abstract

This report presents main activities of St. Petersburg Metro in the field of environmental protection and environmental safety. The quantitative and qualitative characteristics of the negative impact on the natural environment components have been analyzed. This report contains information on the ongoing activities in this area, as well as in the field of sanitary and epidemiological safety of the public in operation of passenger space of stations and the rolling stock. Also the goals and primary objectives in environmental management as part of the development strategy of the St. Petersburg Metro have been described.

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1. Goals and Main Activities in the Field of Environmental Protection and Environmental Safety

St. Petersburg Metro is the largest transportation company in St. Petersburg, vested with the task to provide passenger transportation at the optimal cost, in compliance with safety requirements, and with equal access to all members of the public.

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Due to ongoing economic activities, environmental pollution takes place in the form of emissions of hazardous substances (pollutants) into the atmospheric air from stationary sources, discharges of pollutants into water bodies, and placement of production and consumer waste.

The enterprise's activities in the field of environmental protection and environmental safety (hereinafter referred to as environmental activities) are primarily aimed at preventing the negative impact of economic activities on the environment, eliminating its consequences, as well as at rational use of natural resources, and:

- Compliance with environmental protection requirements;
- Prevention of financial risks of the enterprise in terms of excess (over-the-limit) payments for the negative impact on the environment, and administrative fines;
- Providing for the relationship between strategic goals and environmental activities of the enterprise.
- The enterprise's main activities in the field of environmental protection and environmental safety are as follows:
 - Planning and implementation of measures for environmental protection, rational utilization and restoration of natural resources;
 - Process monitoring of environmental protection activities (industrial environmental monitoring);
 - Environmental activity analysis and forecast of negative impact changes in the environment as a result of changes in production and other processes in economic activities;
 - Administration of environmental activities using the integrated approach;
 - Prevention of non-compliance with environmental protection requirements;
 - Introducing technologies designed for reduction of the enterprise's negative impact on the environment;
 - A dynamic response to changing requirements of laws of the Russian Federation in the field of environmental protection;
 - A proper level of automation in environmental planning and control activities etc.

2. Atmospheric Air Protection

In operation of St. Petersburg metro facilities, the sources of atmospheric air pollution include emissions of hazardous substances (pollutants) due to burning of fuel to generate heat energy (43%) production processes (mechanical processing and welding of metals, mechanical processing of wood, electroplating production, foundry, heat treatment, painting, etc.) and the noise impact.

In order to comply with atmospheric air protection requirements, maximum allowable emissions of hazardous substances (pollutants) were established for the facilities of the St. Petersburg metro. The annual norm of maximum allowable emissions of hazardous substances (pollutants) for all facilities of the enterprise is 132.2 tons (104 pollutants, including 42 solid pollutants and 62 gaseous/liquid pollutants).

The types of emissions (pollutants) which hit the atmospheric air are shown in Figure 1 (46.8% – carbon monoxide; 25.2% – nitrogen oxides; 20.3% – hydrocarbons with volatile organic compounds; 5.6% – solid substances; 1.9% – sulfur dioxide; 0.3% – other gaseous and liquid substances).

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