

запылённости в середине мая проходит очевидный локальный минимум (в парке – слабо выраженный максимум). Поскольку в составе замеров в двух точках наблюдения имеется общая фракция пыли – тонкодисперсная пыль, всё заключения, которые касались динамики фона пыли, остаются в силе. Следовательно, минимум на планшете «дорога» связан с уменьшением доли именно грубодисперсной фракции, на горизонтальный перенос которой, гипотетически, мог повлиять геохимический барьер. Однако подобное (оперативное) влияние могли оказать и кратковременные осадки, которые больше влияют на грубодисперсную пыль, чем на мелкодисперсную.

УДК 502.13

IMPACT OF RAILWAY TRANSPORT FACILITIES ON THE ENVIRONMENT

Korytko D.

Scientific supervisor Basalay I.A.

Belarusian National Technical University

The article considers the sources of pollution of the atmosphere, water, soil in railway transport.

Factors of influence of objects of railway transport on environment can be classified on the following signs:

1. mechanical (solid waste, mechanical impact on the soil of construction, road, track and other machines);
2. physical (thermal radiation, electric fields, electromagnetic fields, noise, infrasound, ultrasound, vibration, radiation, etc.);
3. chemical substances and compounds (acids, alkalis, metal salts, aldehydes, aromatic hydrocarbons, paints and solvents, organic acids and compounds, etc.), which are classified as not extremely dangerous, highly dangerous, dangerous and low-risk;
4. biological (macro-and microorganisms, bacteria, viruses).

These factors can affect the natural environment for a long time, relatively short, short and instantaneous. The effect of the duration of the factors activity does not always determine the amount of harm done to nature. On scales of action harmful factors are subdivided on operating on small areas, operating on separate sites of the district, global. Chemicals and compounds can migrate and disperse in air, water, soil, causing reversible, partially reversible and irreversible

damage to nature. Transport plays an important role in the migration of chemicals and infectious microorganisms. The main directions of reducing the amount of environmental pollution are: rational choice of technological processes for the production of finished products and its transportation; the use of environmental protection and maintaining them in good condition. The degree of disturbance of the natural balance in the region serves as an integral criterion of ecological efficiency of production activities of railway transport facilities.

The danger of disturbance of natural balance is quantitatively connected with anthropogenic factors of production and economic activity of people in the region. If the natural environment is not able to cope with the impact of rail transport, it is necessary to provide treatment facilities or carry out restoration work. Equilibrium in the natural environment is ensured by maintaining energy, water, biological, biogeochemical balances and their change in a certain period of time. The quantitative characteristics of these balances depend on the geographical location of the regions, climatic conditions, the magnitude of resource use, natural phenomena and the degree of environmental pollution. It is possible to provide balance in the nature by means of legal, socio-economic, organizational, technical, sanitary-hygienic, biological and other methods. Legal methods regulate the rules and procedure of nature management based on the conditions of preservation of relative equilibrium in the environment. Social methods are based on the responsibility of all sectors of society for the state of environmental protection. Economic methods provide for certain types of costs to maintain the balance of the environment, rational.

Payment for resources, compensation for damage [1]. Organizational methods are based on the scientific organization of nature management and the implementation of administrative and law enforcement measures to prevent harmful effects on the environment.

The functioning of any element of the technosphere, including rail transport, should be based on the following principles:

1. Quantitative and qualitative assessment of total and local consumption of natural resources based on local regional and Federal opportunities;
2. Quantitative and qualitative assessment of the impact of various activities of the company on the state of environmental systems, natural complexes and natural resources;
3. Regulation of the level of anthropogenic impacts from various activities of the company, including railway transport facilities on the natural environment;

4. Ensuring equilibrium in the circulation of substances and energy by limiting the impact on nature, based on its capabilities for self-purification and reproduction;

5. Limiting the impact on the natural environment through various methods and means of cleaning emissions into the atmosphere, effluents into water bodies, industrial waste, physical radiation;

6. Creation of environmentally friendly industries, technologies, rolling stock, equipment and transport systems;

7. Use of methods of ecological prevention of functioning of branches and objects of railway transport by performance of nature protection actions and introduction of technological means;

8. Continuous monitoring of the environment;

9. The use of economic methods in the management of environmental protection and environmental management;

10. Inevitability of liability for violation of rules, norms, laws on environmental protection.

To assess the level of impact of transport objects on the ecological state of nature the following integral characteristics are used:

1. Absolute environmental losses expressed in specific units of biocenosis (flora, fauna, people);

2. Compensatory opportunities of ecosystems characterizing their recoverability in the natural or artificial mode created forcibly;

3. The risk of disruption of the natural balance, the occurrence of unexpected losses and local environmental shifts that can cause environmental risk and crisis situations in the natural environment;

4. The level of environmental losses caused by the impact of transport facilities on the environment [2].

Atmospheric air pollution. In railway transport, the sources of emissions of harmful substances into the atmosphere are objects of industrial enterprises and rolling stock. When solid fuel is burned, oxides of sulfur, carbon, nitrogen, fly ash and soot are released into the atmosphere. Fuel oil during combustion in boiler units emit sulfur oxides, nitrogen dioxide, solid products of incomplete combustion of vanadium with flue gases.

Locomotive engines can contribute significantly to air pollution in urban areas, especially near freight stations. Globally, approximately 60 % of passenger trains and 80 % of freight trains are diesel locomotives emitted into the atmosphere the products of combustion, including nitrogen oxides and particulate matter, creating health problems, and carbon dioxide, which is greenhouse gas. Transportation and handling of dry granular materials (e.g. minerals and grains) can cause

dust emissions, and storage and handling of fuels or volatile chemicals can cause unorganized emissions [3].

Pollution of water bodies. Water is used in many technological processes of the railway economy. In order to save this valuable natural resource, water consumption and diversion standards have been developed. After use in enterprises, water is contaminated with various impurities and passes into the category of industrial wastewater. Many substances polluting the effluents of enterprises are toxic to the natural environment. Qualitative and quantitative composition of effluents depend on the nature of technological processes of the enterprise.

Noise and vibration. The main sources of noise in railway transport are moving trains, track machines, production equipment.

A common source of noise is the locomotive. Noise in certain environments can have a significant impact on human health and behavior. Noise can cause irritation and aggression, hypertension (high blood pressure), tinnitus, hearing loss.

References

1. *Правовые основы охраны природы на железнодорожном транспорте. Коллектив авторов. Методическое пособие. М.: "Калейдоскоп", 1997. – 96 с.*
2. *Павлова Е.И. Экология транспорта М.: Транспорт 1998.*
3. *Ишков А. Г. Проблемы охраны окружающей среды на ж/д транспорте. Железнодорожный транспорт. Изд.«Транспорт» М., 1995. № 2. – С.53 – 54.*
4. *Развитие реформ на железнодорожном транспорте в 1996г. Железнодорожный транспорт. Изд. «Транспорт» М.,1996. № 2. – С.3 – 4.*

УДК 620.95

THE PERSPECTIVE OF BRIQUETTES PRODUCTION ON THE BASE OF PEAT AND RENEWABLE BIOMASS

Greк V.A.

Scientific Supervisor Rodzkin A.I.

Belarusian National Technical University

Briquettes are special type of solid fuel which may be produced from different type of feedstock. The traditional raw for briquettes is peat. Peat as a fuel for energy production are using in Finland, Rus-