

5. RF GosGorTechNadzor Resolution on June 6, 2003 №71 «On approval of rules protection of mineral resources.»

**ANALYSIS OF ROAD TRANSPORT LOAD OF THE ADJOINING AREAS IN A LARGE INDUSTRIAL CITY NOVOKUZNETSK**

**M.V. Rubin, N.G. Tomsina**

Scientific advisor associate professor N.B. Ermak

*Novokuznetsk Institute (Branch) of the federal state budgetary educational institution of higher education "Kemerovo State University", Novokuznetsk, Russia*

With the increasing number of owners of vehicles and lack of available garages, there is a problem of congestion of yards with private vehicles. This, in turn, creates air pollution problems, increasing the area of asphalt concrete pavement, as well as an increase in the number of accidents involving children and the elderly.

The aim of this study is to analyze the trucking congestion in the areas of the town.

To accomplish this goal we studied the requirements of urban planning documentation and investigated domestic territories of the Central and Kuznetsk districts. In the yards a record of standing and moving traffic from 5.00 to 8.00 p.m. was carried out. We took into account the type of the building, the area of the territory, the presence of organized parking lots, the estimated number of resident population. The observation results are shown in Table 1.

It is noted that the number of vehicles standing is about 81, passing vehicles - 75, the distance to the facades of houses on the average - 5 to 10 meters, the average area of the paved yard area - 2560 m<sup>2</sup>.

*Table 1*

*Observations of road congestion in researched yard areas in spring and autumn*

Yard playground	The area of the yard territory with asphalt	Number of standing cars		The number of passing vehicles			
				Arrived		Left	
		Spring	Autumn	Spring	Autumn	Spring	Autumns
№1	1900 m <sup>2</sup>	34	50	75	81	59	63
№2	2300 m <sup>2</sup>	29	46	57	43	41	29
№3	3350 m <sup>2</sup>	101	99	47	54	25	35
№4	3600 m <sup>2</sup>	80	156	204	210	168	144
№5	1650 m <sup>2</sup>	51	54	84	59	36	32

The basis of town planning legislation for a truck load adjoining areas is as follows:

I. Gap between facilities for the storage of cars and building facilities: distance from public car parks and parking lots to the facades of houses with windows with the capacity of parking spaces less than 10 is 10 m., 11-50 parking spaces - 15 m. 51-100 parking spaces - 25 m., 101-300 parking spaces - 35, more than 300 parking spaces - 50 m (Sanitary Regulations and Norms 2.2.1 / 2.1.1.1200-03, Article 7.1.12).

II. In the local area public car parks can be accommodated (parking lots) with the capacity - up to 50 parking spaces and parking garages and parking lots with a solid walling barrier for car storage up to 100 parking spaces, with observance of normative requirements of surrounding territory with improvement elements in size and name (Sanitary Regulations and Norms 2.2.1 / 2.1.1.1200-03, Article 18.3).

III. In residential areas open parking space for temporary storage of cars should be provided at the rate of not less than 70 % of the calculated individual cars, including in residential areas – 25 %. (Order of the RF Ministry of Regional Development from 28.12.2010 № 820).

IV. Indices of cars maintenance in parking lots (in the determination of total emissions): the total number of departures of vehicles at rush hour in percentage of the total number of parking places near residential buildings - 35, Town Planning Complex - 20; simultaneous arrivals near residential buildings -) Town Planning Complex - 4 (Moscow Urban Building Norms 5.01-01).

In all yard areas we observed from 30 to 50 official cars. The actual load is from 29 to 156 cars. Consequently, on the average of 62 % of the cars is outside of equipped parking lots. Most of the cars parked in the yards are located near the set distance to the facades of houses, thus violating the requirements of Sanitary Regulations and Norms. The transport stream arriving and leaving vehicles exceeds on the average in half statutory conditions for cars near the apartment buildings in all yard areas, that is a basis of vehicle emissions requirements.

Comparison of indices of the busiest yard areas in different seasons of the year showed that in autumn the number of vehicles increased by 27 %, which significantly increases the environmental load of these areas.

After analyzing the five adjoining areas of the city, which differ according to the type of building and development of social infrastructure, we came to the conclusion that in the yard areas there is a large concentration of vehicles with the violation of parking rules and we identified legislative shortcomings:

1. Parking without taking into account distances from cars to buildings specified in Sanitary Regulations and Norms 2.2.1 / 2.1.1.1200-03;
2. Percentage discrepancy of public parking in residential areas at the request of Building Norms and Regulations 2.07.01-89;
3. The existing regulatory legislative framework does not establish clear requirements for the number of parking spaces with respect to adjoining areas, the number of passing vehicles and the responsibility for violation of parking lots in the yard areas.

#### References

1. Sanitary Regulations and Norms 2.2.1 / 2.1.1.1200-03 "Sanitary protection zones and sanitary classification of enterprises, buildings and other objects" [Electronic resource] access mode: [http://www.consultant.ru/document/cons\\_doc\\_LAW\\_163543/?frame = 1 # p221](http://www.consultant.ru/document/cons_doc_LAW_163543/?frame=1#p221). - 23.10.15.
2. Building Norms and Regulations 2.07.01-89 \* "Town planning. Planning and construction of urban and rural settlements [Electronic resource] access mode: <http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=STR;n=2713>. - 23.10.15.

3. Moscow Urban Building Norms "Car parking" 5.01-01 [Electronic resource] access mode:  
<http://base.consultant.ru/cons/cgi/online.cgi?req=doc;base=MLAW;n=47764>. - 23.10.15

**MEDICAL GEOLOGY AS A CHALLENGING ISSUE  
(WITHIN THE FRAMEWORK OF HUMAN ECOLOGY)**

**A.I. Savoskin**

Scientific advisor associate professor E.V. Shvagrakova  
*National Research Tomsk Polytechnic University, Tomsk, Russia*

During the last several centuries humanity has conquered the majority of the Earth's places, no matter how far or difficult to approach they are. A high-level ability to adapt allows people not only to survive during the Ice Age, but also to transform the environment under their own preference, so humanity has become the prevailing species on the Earth. But it should be noted that people's activities not only have made the habitat of people more comfortable than in earlier centuries, but they have created a number of ecological problems.

Unlimited deforestation resulting in the massive soil erosion and species extinction, soil and atmosphere pollution by toxic wastes of factories - all these ecological problems can cause the destruction of the sustainability of ecosystems all over the world. Although general ecology deals with the elimination of the consequences of possible accidents, such scientific branches as human ecology and medical geology research the influence of human activities consequences on humanity. So, it is very important to identify what kinds of questions are studied by these scientific branches.

At first, it is necessary to select questions investigated by human ecology. The necessity of this scientific branch has arisen from the demand to know the dependence of individual and population human health on biosphere conversion. It is important to note that adaptation to the rapidly changing conditions causes the appearance of specific forms of health stresses, which are expressed in growing costs of physical and psychological reserves to prevent the pathological processes in human organisms [5].

It is very important to mention the contribution of Russian and foreign scientist in human ecology, which is expressed in promotion of the human ecology as a new interdisciplinary branch of science [4]. For example, such scientists as A. Peccei, A. King, J. Forrester and others, who were the representatives of "Club of Rome", identified the hazards of possible ecologic and demographic crisis, which may occur in the case of human impact on environmental issues. Besides, such Russian scientists as A.A. Gromyko and V.P. Lomeyko investigate effects of social problems and possible global conflicts on population health [6].

Concerning the necessity of medical geology, it is very important that this scientific branch combines and systematizes the databases of general ecology and medicine. The research area of medical geology covers the impact of geological subjects of the natural and technogenic origin on people's, animals' and plants' health.

Let us consider the range of questions that are investigated by medical geology. After comparing the situation of impact with the mechanism of impact scientists have revealed the dependence of the increase in the number of cancer, diabetes, skin and cardiovascular diseases among the population of Bangladesh, Thailand and Taiwan on the pollution of the groundwater by arsenic from the sulfide formations.