ISSN: 2994-7510

Scientific Article

Journal of Water Research

Problems of Legal Regulation of Industrial Extraction of Alluver Gold from Man-Made Mineral Formations in the Russian Federation

Valentin E. Chernyakov *

researcher, general director of the association AZDK "Gold of Yakutia", co-author of the scientific report at the International Scientific Symposium "Miner's Week MISIS" 2025., Moscow, Russia

***Corresponding Author**
V. E. Chernyakov, Joint Stock Gold Mining Company "Gold of Yakutia" is a large Russian group of companies, a leading enterprise in the gold mining industry of the Republic of Sakha (Yakutia).

Submitted: 2025, Jan 20; **Accepted:** 2025, Feb 26; **Published:** 2025, Feb 28

Citation: Chernyakov, V. E., (2025). Problems of Legal Regulation of Industrial Extraction of Alluver Gold from Man-Made Mineral Formations in the Russian Federation. *J Water Res,* 3(1), 01-04.

Abstract

The article considers the problem of legal regulation of extraction of alluvial gold from technogenic mineral formations (dumps) in the Russian Federation. The relevance of the topic is due to the growing interest in the processing of mining waste and the need to optimize legislation in this area. The work analyzes the existing regulatory framework, and identifies gaps and contradictions in legal regulation. The positions of the professional and scientific community are also analyzed. Additional attention is paid to licensing, environmental protection and the rights of local communities. In conclusion, recommendations are offered for improving the legal and management mechanism aimed at sustainable and efficient use of technogenic mineral resources, which can contribute not only to economic development, but also to improving the environmental situation in the regions, including in the gold-bearing areas of the Republic of Sakha (Yakutia).

Keywords: Technogenic Mineral Formation (TMF), Solid Minerals, Placer Gold, Legislative Regulation of Subsoil Use, Secondary Mining, Mining Allotment Area, Economic Motivation of Subsoil User

1. Introduction

The problems of placer gold mining in the Russian Federation are becoming especially relevant in light of the latest changes in legislation concerning the regulation of the development of technogenic mineral formations. Federal Law No. 598-FZ "On Amendments to the Law of the Russian Federation "On Subsoil" and Article 2 of the Federal Law "On Production and Consumption Waste", adopted on December 29, 2022, affects key aspects affecting the scope of the concept, which is not defined in legislation, the legal status of technogenic mineral formations and the procedure for their use for the extraction of minerals, including placer gold, which is of commercial interest to the mining enterprises of the AZDK "Zoloto Yakutii" association.

That is why in this scientific study we will examine the main legal aspects and conflicts associated with the process of gold extraction from man-made mineral waste dumps in the Republic of Sakha (Yakutia) and other gold-bearing regions of the Russian Federation [1,2].

It is worth noting the importance of industrial development of technogenic mineral formations (TMF) for the gold mining industry as a whole. Academician

N.A. Shilo emphasized the prospects of TMF as a source of secondary resources and an important element in ensuring the sustainable development of the mining industry [3]. In his opinion, TMF represent significant potential for replenishing the deficit of natural minerals and reducing the environmental impact of traditional mining. N.A. Shilo believed that the rational use of TMF can contribute not only to economic growth, but also to improving the environmental situation by recycling waste and reducing the burden on natural resources. The academician emphasizes the need to develop scientific research and technological innovations in this area, which will optimize the processes of resource extraction and processing, as well as increase the economic efficiency of projects related to TMF [3].

The main changes introduced by Law 598-FZ concern the inclusion of the right to use such natural resources without tenders

and auctions in the regulation of legal norms in the Law of the Russian Federation "On Subsoil". However, the right to use such subsoil is granted for only one year, which creates many legal and practical problems.

Chairman of the Union of Prospectors of Russia V.I. Tarakanovsky, on behalf of the gold mining community, expresses serious criticism of the current legislation on technogenic mineral formations (TMF) in the country. He emphasizes that the lack of a clear legal framework and legal definition of TMF creates a host of problems for the mining industry. Tarakanovsky notes that the current regulations do not provide clarity in matters of licensing, exploitation and processing of technogenic resources, which, in turn, complicates investment and development of this segment of the economy [4].

In his opinion, current laws do not promote the rational use of man-made mineral formations and create barriers to their effective management. The one-year limit on the use of man-made mineral formations without competitions or auctions is particularly problematic, as it makes resource reproduction projects economically inexpedient. Tarakanovsky speaks of the need to revise legislation and introduce new approaches that will allow for more efficient use of man-made resources, as well as promote the development of environmentally friendly technologies for their processing and rehabilitation of man-made territories. He calls for the development of a comprehensive strategy that would take into account the specifics and potential of man-made mineral formations in Russia, would contribute to improving the investment climate and ensure sustainable development of the industry.

Based on the Above Argumentation, Three Combined Problematic Points Can be Identified:

1. Lack of a legal definition of a man-made mineral formation: One of the key problems in implementing the new legislation is the lack of a legally clear definition of a man-made mineral formation [5,6]. This leads to legal ambiguities and complicates the regulation of the extraction procedure.
2. Limited term of use of technogenic mineral formations: Establishing a limited term (one year) for the use of technogenic mineral formations without auctions and tenders creates uncertainty and the risk of insufficient investment by companies, which may negatively affect the efficiency of gold extraction and processing [4-6]. In particular, our specialists have encountered this. Financial Director of the association "Gold of Yakutia" S.V. Polozhevets noted the increase in investment risks in the development of technogenic mineral formations in the northern gold-bearing regions of the Republic of Sakha (Yakutia), where, due to the peculiarities of climatic conditions, the extraction of placer gold from technogenic mineral formations is extremely difficult within a 12- month period.
3. Environmental and social risks: Intensive gold mining from man-made mineral formations may lead to environmental consequences, including pollution of water bodies and soil, and deterioration of the quality of life of the local population [3,7]. Strict environmental control and public discussion of mining projects are required.
4. Problems with the capitalization of mining enterprises and the consideration of man-made mineral raw materials as an asset that increases the investment attractiveness of the company [8].

I. Analysis of Problems and Possible Solutions

To solve these problems, it is necessary:

• Develop a Clear and Operational Definition of a Man-Made Mineral Formation that Will Simplify Law Enforcement

It is necessary to involve experts from the field of jurisprudence and geology to create a universal model of definition and classification. We are convinced that in this situation it is necessary to be guided by the scientific concept proposed by Professor of Perm University V.A. Naumov. The term "technogenic mineral formations" (TMF) as applied to waste dumps of solid mineral deposits is more preferable than the term technogenic formations. It includes not only technogenic formations - products of changes in the material composition of natural formations, but also correlates them with their main content - the mineral component. Modern interpretations and use of the term "technogenic mineral formation" have an established character and its use is reflected in many publications concerning technogenic waste dumps as products of natural deposits development.

TMF is a fundamentally new result of the interaction of the natural environment and human technical activity, it is a part and manifestation of a new geological process associated with human activity. TMO is formed from natural mineral objects as a result of processing of the material composition of sediments and rocks, leading to minor changes in the petrographic, mineral and chemical composition of natural deposits. In essence, more than 90- 99% of the TMO composition do not undergo changes in material composition and, accordingly, can be considered as modified natural mineral formations in the process of enrichment and processing of the primary substance.

Therefore, they cannot be identified as production waste, but should be considered as partially modified and displaced natural mineral formations that have not exhausted their mineral potential and can be successfully used for economic activities, as evidenced by the foreign experience of Canada, Italy and Kazakhstan [5,9]. At the same time, the removal of TMO to the surface in the zone of intense impact of factors (water, air, biota, etc.) leads to their intensive hypergene transformation of mineral and chemical composition, including the primary properties of the mineral substance and the characteristics of the environment.

During the transformation of the TMO substance, the release and dispersion of particles of useful components (for example, nano- and microparticles of gold) occurs, their transfer to a colloidal state, as well as enlargement, control of micro- and macroparticles, additives to nuggets (experimentally proven based on the Aldan placers) [5].

• Extension of the Terms of Use of Man-Made Mineral Formations as Licensed Subsoil Use Objects in Order to

Stimulate Investment and Implement Long-Term Mining Projects.

This will allow companies to plan their resources more efficiently and increase production volumes. Extending the terms of use of technogenic mineral formations (TMF) is an important step towards stimulating investment and implementing long-term projects for the extraction and processing of resources formed as a result of mining activities. In conditions where traditional sources of minerals are depleted and interest in secondary resources such as TMF is growing, the issue of extending the terms of their use is becoming especially relevant. One of the main problems faced by companies engaged in the extraction of TMF is the limitation on the licensing terms, often set for one year. This creates significant difficulties for the planning and implementation of long-term projects, since short-term terms do not allow investors to ensure sufficient financial returns. To successfully implement such projects, it is necessary to attract significant capital investments, which requires confidence in the long-term stability of operating conditions. Extending the terms of use of TMF can contribute to the creation of a more predictable and stable legislative field, which, in turn, will attract investment in this area. Long-term licenses will allow companies to develop strategic plans for mining and processing aimed at long-term and sustainable exploitation of resources, as well as the implementation of safety and environmental rehabilitation projects. In addition, increasing the terms of use of TMO will allow mining companies to plan their operations more efficiently, and for many enterprises, extend their life.

This can help improve processing methods, introduce new technologies and implement environmentally friendly approaches to the use of man-made resources, including taking into account the integrated processing of associated components, not limited to gold. Specialized scientific research of gold-bearing phases aimed at studying favorable management conditions contribute to the property of the environment for "aggregation of gold particles" in man-made sediments, it is preferable to justify and give preference to promising subsoil areas for such "gold cultivation". From an environmental point of view, this will also provide an opportunity to carry out high-quality restoration of affected areas and biosystems, and minimize the negative impact on the environment. As a result, extending the terms of use of man-made mineral formations may become a key factor for activating investments in the sector, increasing the attractiveness of projects will contribute to the sustainable socio- economic development of territories and the development of the industry as a whole [1,5,8,10]

• Formation of Environmental Norms and Standards for Gold Mining From Man-Made Mineral Formations.

Involving the public in the decision-making process through public hearings and consultative groups will help balance the interests of business and local residents [11].

II. Future Directions of Development

In terms of future directions, the following priorities can be identified:

• Conducting comprehensive research aimed at assessing and reassessment of the resources of technogenic mineral formations (taking into account their complex deep processing with cost-effective extraction of all available associated components) and their impact on the environment [5].

• Study of favorable conditions for managing environmental properties for “enlargement of gold particles” in technogenic sediments [5]

• Development of strategies for ecoremediation and restoration of areas affected by mining [3].

• Creation of information databases on man-made mineral formations, which will significantly improve both legal regulation and access to information for interested parties [10].

It is also Worthwhile to Doctrinally Consolidate:

1. TMO are not production waste, but partially altered and displaced natural mineral formations, the natural mineral potential of which has not been fully utilized, potential economic objects that have consumer value [5].
2. Determination of the consumer value of TMO and the direction of their further use is the task and responsibility of business entities processing natural mineral formations. Potential directions for the use of TMO should be implemented at the stage of geological exploration of the subsoil and reflected in projects for the development and use of man-made mineral formations. The main way of implementation is the development of processing technology, technical conditions, composition management, creation of new characteristics of mineral formations and directions for their further use.
3. Enterprises selling materials from technogenic mineral formations, after a special assessment of technogenic mineral resources, must have tax and other preferences when conducting business activities [8].

Thus, the legal regulation of the extraction of placer gold from technogenic mineral formations in Russia requires a comprehensive analysis and revision to take into account modern challenges and ensure sustainable development of the sector.

2. Conclusion

This area remains at the intersection of economics, mining, geology, law and ecology, which requires a comprehensive approach and integration of various points of view and expertise. Of course, further changes to the legislation should be aimed at creating a balanced system that promotes both business benefits and the protection of the interests of society and the environment. We propose that the heads of mining and processing enterprises, scientists, and public organizations work together to develop a reasoned proposal for amendments to the Federal Legislation with the participation of Deputy and member of the Committee on Legislation and State Building of the State Duma of the Federal Assembly of the Russian Federation A.E. Glazkova, Professor of the Department of Prospecting and Exploration of Minerals of Perm University and head of the research group, Doctor of Geological and Mineral Sciences V.A. Naumov, Chairman of the Council of the Union of Prospectors of Russia V.I. Tarakanovsky, Chairman

of the Union of Gold Miners of Yakutia M.L. Bruk, Executive Director of the Association of Miners of Russia and member of the Bureau of the Supreme Mining Council A.Yu. Nikitin and other interested parties.

References

1. Ignatiev DA Legal regime for waste management formed during the use of subsoil // Gaps in Russian legislation. Legal journal. - M., 2020. ISSN: 2072-3164 (In Russ.)
2. Annual technical report of the AZDK "Gold of Yakutia" group of companies. (In Russ.)
3. Shilo N.A. Fundamentals of the doctrine of placers // Publishing house Nauka - M., 1985. UDC: 553.068.5. 400 p. Shilo NA Fundamentals of the doctrine of placers // Publishing house Nauka - M., 1985. UDC: 553.068.5. 400 p. (In Russ.)
4. Tarakanovsky VI Resolution of the Council of the Union of Prospectors of Russia under Federal Law 598 of 2024 // Gold and Technology - 2024. URL: [https://zolteh.ru/news/opublikovan_otchetnyy_doklad_soyuza_starateley_rossii/].
5. Naumov VA, Lunev BS, Naumova OB Technogenic deposits – reserve of mineral base of Russia // Bulletin of Perm University. Geology – Perm, 2011. (In Russ.)
6. Sidorkin AI, Sidorkina NA Man-made deposits in the Russian Federation: problems of legislative regulation and judicial practice // Agrarian and land law - M., 2016. (In Russ.)
7. Rossman GI, Pikaleva VS, Koroleva NL The problem of ecological and economic assessment of the impact on public health when drawing up T30 conditions and developing mineral deposit projects. Exploration and Protection of Subsoil. 2016;(11):52-58. (In Russ.)
8. Chernyakov VE Prospects for growth and restoration of placer gold mining at the Kularskoye deposit of the AZDK "Gold of Yakutia" // Subsoil Use XXI No. 5-6 (105) - M., 2024. P. 115-118. ISSN : 1998-4685 .
9. Naumov VA, Fiorucci A., Goldyrev VV, Bryukhov VN, Fetisov VV Scientific foundations of managing geological processes in technogenic-mineral formations // International Research Journal No. 9 (75) - 2018. ISSN: 2303-9868 . (In Russ.)
10. Lobov N.M., Lebedeva O., Marinina O.A., Vasiliev Yu.N., Medvedev V.A., Nevskaya M.A., Nikolaychuk L.A., Dmitrieva D.M., Sinkov L.S., Lebedeva O.Yu. Current issues of development of the mineral resource complex of Russia: state of markets, energy security, rational subsoil use, legal framework, risk assessment methods, management systems. Selected articles: Mining information and analytical bulletin (scientific and technical journal). - 2015. - No. 2 (special issue 8). 80 p. - M .: Publishing house "Gornaya kniga". ISSN: 0236-1493 . Lobov N.M., Lebedeva O., Marinina O.A., Vasiliev Yu.N., Medvedev V.A., Nevskaya M.A., Nikolaychuk L.A., Dmitrieva D.M., Sinkov L.S., Lebedeva O.Yu. Current issues of development of the mineral resource complex of Russia: state of markets, energy security, rational subsoil use, legal framework, risk assessment methods, management systems. Selected articles: Mining information and analytical bulletin (scientific and technical journal). – 2015. – No. 2 (special issue 8). 80 p. - M.: Publishing house "Gornaya book". ISSN: 0236-1493 . (In Russ.)
11. Komarova SG, Ivanova Yu.N. Regulatory basis of other standardization // Advances in chemistry and chemical technology, Vol. 29, 2015, No. 2 — M., 2015. UDC: 006. – P. (In Russ.)