Current status of tailings in Kazakhstan and the possibility of using the United Nations Framework Classification of Resources and Reserves in Assessing

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TECHNOGENIC RESOURCES IN KAZAKHSTAN

Solid mineral formations (TMT)

accumulations of waste from mining, mining and energy industries, containing useful components and (or) minerals (Article 13 of the Code on Subsoil and Subsoil Use of the Republic of Kazakhstan)

The classification of technogenic deposits is based on a number of features, the most important of which is the process of their formation.

Type of technogenic mineral formations	Congestion places
substandard (poor) ore	industrial sites at mining enterprises
tailings, sludge enrichment	**Concentrator tailings**
slag, clinker and cake of metallurgical production	Sludge and slag storages at metallurgical enterprises
ash and ash and slag energy	slag storage facilities of energy complexes

STATE MANAGEMENT SYSTEM OF TECHNOGENEOUS RESOURCES IN KAZAKHSTAN

 "THE RULES OF CONDUCTING THE UNITED CADASTRE OF THE STATE FUND OF THE SUBSOIL" **was approved by the order of the Minister No. 393 of May 25, 2018.**

PASSPORT "O" TECHNOGENIC MINERAL EDUCATIONS

For each solid and solid waste facility
Passport "O" is drawn up

CONTENT OF PASSPORT "O"

1. Mining storage conditions

2. Organization that stockpiled TMO (subsoil user, mine, factory, factory, artel)

3. Organization-subsoil user (on whose balance sheet put TMW)

4. Administrative position

5. Distance to the nearest highways

6. Object of accounting (Type of solid and solid wastes, Name of the object, Raw materials, conditions of formation, length (km), Storage period (beginning - end)

7. Object parameters

8. Petrographic and lithological composition of the host and overburden rocks of the field's feedstock

9. Granulometric composition and physico-mechanical properties of TMT

10. Mineral composition

11. Chemical composition

12. Hydrogeological conditions of storage of solid wastes

13. The degree of knowledge of TMT

14. Environmental characteristics

15. Ecological impact of solid waste on the environment

16. Actual use of the accounting object

17. Prospects for integrated use

- These data are the basis for the initial forecast cadastral valuation of TMW

- The fundamental possibility of industrial use of technogenic mineral raw materials is determined.

- Such an assessment shows the economic and social viability of the development projects of solid and solid wastes, the state of markets and uncertainties.

- According to the Committee for Geology and Subsoil Use for 2018, 1,406 objects with a total mass of 47.6 billion tons are located on the territory of the Republic of Kazakhstan.

- 258 - state property
- 744 - owned by subsoil users
- 404 objects in the form of a separation balance sheet (until May 30, 1992 and continues from this date).

- From the specified number of TMW objects
- the number of tailings of enrichment plants of non-ferrous, ferrous metallurgy and gold beneficiation is more than 70.
- At the same time, some of them are on conservation (reclaimed), but there are
- operated from the middle of the last century until now.

- The industrial significance of the tailings waste content depends on their material composition and storage duration.

- Waste current output and consolidated waste - ancient (old) and active (replenished) should be highlighted.

- The enrichment waste of the current output retains the primary physical and mechanical properties and chemical composition. They can go through additional stages of combined enrichment, bypassing all other stages (storage and others).

- Qualitative, quantitative, mining and technical and economic parameters of a significant part of the current and active (replenished) waste are known, which allows us to assess their suitability for industrial development.

- Consolidated ancient waste of enrichment is characterized by a change in primary physical and mechanical properties and chemical composition, as a rule, littered with household waste and scrap metal.
- In addition, during storage they underwent hypergenic effects, which lead to a significant change in the technological properties of both ore and non-metallic minerals of these wastes.

- Therefore, these wastes, if they are promising for industrial use, almost always require additional geological studies.

- In Kazakhstan, until now, focused, systematic research and evaluation of economic, social, environmental problems in mining areas with subsequent classification of waste
- ore dressing was not carried out.

- Basically, these are scattered dissertational works.

- Accordingly, the proposed UNFC-2009 system, in which the amounts of anthropogenic resources (mineral enrichment waste stored in tailings) will be classified based on the economic and social feasibility of a project to develop such a man-made deposit and its geological exploration, in Kazakhstan can provide an impetus for solving problems of further management of similar objects.

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- Further cooperation on the development of draft technical specifications for the application of the UNFC to anthropogenic resources in the Republic of Kazakhstan may develop taking into account the available data of the State inventory of solid and solid wastes, with the involvement of their main producers - subsoil users, who, to a greater extent, are the owners of these resources according to the Code on Subsoil and Subsoil Use.

- Taking into account the types of industrial waste, as well as the time of their generation (and types of source ores), waste can be classified in a wide range, from E1, F1, G1,2, for example, for tailings for processing oxidized gold-bearing ores of the modern period, when the amount of useful component and technology for the extraction of gold and neutralization of residual reagents from the complete utilization of secondary waste, and up to E3, F3, G3,4 for stale slags of metallurgical industries with an uncertain technology for the recovery of useful components, with obvious harmful effects on the environment and the inability to determine the distribution of the components of the array shlakootvala without conducting its investigation.

- In such a situation, it is obvious that it is the application of the UNFC that can contribute to a more precise classification of production wastes, taking into account the technical and technological capabilities of their disposal, or secondary use, the degree of negative impact on the environment, and the development of a monitoring system for their status.