

## Waste storage in the rock mass in view of POLAND'S and EU legal regulations

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### *Legislative regulation of waste storage in the rock mass in Poland and EU*

Landfilling of liquid wastes in the rock mass through its injection to the absorptive strata through adapted drilling wells is environmentally safe and economically profitable as compared to the presently applied utilization methods. This, however, requires concessions which are granted by the respective minister.

The basic Polish legal regulations eligible for landfilling of waste in the rock mass are presented in the paper, i.e. Geological and Mining Law and Environmental Law. The respective EU acts are also discussed.

**Key words:** liquid waste in the rock mass, legal regulations

### Polish legal regulations

The underground landfilling of wastes in the rock mass is subjected the three basic legal acts: The Environmental Law, the Geological and Mining Law and the Economic Activity Law.

**The Environmental Law** (Official Journal no. 62, item 627) of 27 April 2001, with amendments, generally describes conditions of protecting all elements of the environment and conditions of using natural resources when undertaking any investment, including landfilling of waste in the rock mass. It also obliges the economic subjects applying for a concession for landfilling of waste in the rock mass to prepare a report on the impact of specific elements or the environment and principles of monitoring of such a landfill.

**The Geological and Mining Law** (Official Journal no. 27, item 96) of 4 February 1994, with amendments, particularly those in the act of 22 April 2005 (Official Journal no. 90, item 758), specifies principles and conditions of performing geological and mining works targetted at landfilling of waste in the rock mass, principles of the protection of minerals, groundwaters and other elements of the environment (art. 1, par. 1-3). This law also applies to the economic activity lying in landfilling of waste in the rock mass (art. 2).

The economic activity lying in the landfilling of waste in the rock mass is also subjected to the act of 2 July 2004 about the freedom of economic activity (Official Journal no. 173, item 1807 and Official Journal no.281, item 2777). According to the art. 46, par. 1, point 1 of this act, a concession is required for this kind of economic activity. In the case of economic activity lying in the landfilling of waste in the rock mass, an attention should be paid to the priority role of the country, especially its social aspect related with the environmental protection. Granting concessions is conditioned by establishing the warranty for paying possible damages related with the concessioned activity.

### Environmental Law for landfilling of waste in the rock mass

The Environmental Law in Poland is a basic legal act defining principles of the environmental protection and conditions of the use of environmental resources, a sustained development including. It is stated in the art. 4, par. 2 that all activities making a broader use of the environment should be concessioned. The range and conditions of such an activity are specified in the licence. Such concessions are issued by relevant environmental authorities. Moreover, in line with the art. 6, the subject undertaking an industrial activity, which may be environmentally hazardous, is obliged to prevent such an impact and cover the cost of removing consequences of possible contaminations (art. 7). According to the art. 12, par. 1, the proprietor of the installment is obliged to apply the reference methodics, if defined, for the landfilling of waste in the rock mass, underground workings including.

In compliance with the art. 46, the decision about the planned undertaking which can have a considerable environmental impact, and so landfilling of waste in the rock mass, requires an evaluation of the impact. The evaluation should include an assessment of the direct and the indirect influence of the planned investment on specific elements of the environment and also a comparison of the proposed solution with the best World's methods and technologies.

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The environmental assessment is made by an organ of the relevant administration. In the case of waste landfilling this is the Minister of Environmental Protection.

According to the art. 73, par. 4, especially hazardous companies should be localized at a safe distance from residences, public utility objects and housing estates.

The section devoted to the protection of natural resources imposes an obligation of using solutions which would eliminate or minimize the possibility of degrading specific elements of the environment at the stage of planning and implementing the investment. Detailed solutions should be realized in congruence with the regulations of the Minister of Environmental Protection and Minister of Health, where are specified the admissible levels of emission of some substances, admissible frequencies exceeding these values and periods for which the results of measurements can be averaged.

### **Geological and Mining Law for landfilling of waste in the rock mass**

Another legal act of a special importance for the realization of undertakings lying in the landfilling of waste in the rock mass is the law of 4 February 1994 – Geological and Mining Law with amendments, particularly in the act of 22 April 2005 (Official Journal no. 90, item 758). This act develops and normalizes legal regulations from the Environmental Law by establishing supervision tools. Thanks to them, the natural resources can be used rationally, and the geological, mining and works of landfilling in the rock mass can be performed safely. It should be emphasized that all administration decisions concerning the geological and mining works which are connected with the landfilling in the rock mass should follow the Environmental Law, otherwise they are out of force.

A regulation in the art. 1 of Geological and Mining Law determines the fundamental range of its validity, i.e. specifies the principles and conditions of mining, geological and landfilling conditions, the protection of minerals, groundwater and other elements of the environment in view of the performed works. The regulations in the art. 2 of the Environmental Law are also applicable to the economic activity lying in the landfilling of waste in the rock mass, except for opencasts.

According to the art. 6, point 15, the rock mass where the waste is stored and thus neutralized (except for opencasts) is also treated as an underground landfill.

Geological and Mining Law is also applicable for all hydrogeological and geological-engineering works targetted at determining possibilities of waste deposition in the rock mass as well as works related with an quantitative and qualitative environmental influence of the planned investment. This also applies to geological and mining works for checking the usability of geological structures for the landfilling purposes.

According to the Geological and Mining Law, art. 15, the concessions for the economic activity lying in the landfilling of waste in the rock mass are obligatory; in the art. 16, the principles of granting concessions for specific types of geological and mining works are presented.

The granting concessions for the activity spoken of in the art. 15, par. 1, point 3, and also all modifications, unless performed within Polish sea borders, should be approved by the relevant voivode, mayor or president of a city. The approval can be given on the basis of establishments in the local plan of spatial development. If not available, regulations about the development are applicable.

The granting concessions for the landfilling of waste in the rock mass cannot violate other regulations.

According to the law, concessions for the economic activity related with the landfilling of waste in the rock mass, including abandoned workings, are granted by the Minister of Environmental Protection.

The Geological and Mining Law does not restrict the list of entrepreneurs to physical persons, state unit or a company. General regulations about the economic activity are in force. At present, neither a law nor legal act restricts the right to perform mining or other such an activity spoken of in the Geological and Mining Law to the state and governmental organizations.

The concessions are regulated by the art. 17, stating that establishing a form and value of covering possible damages is obligatory. However, the notion of “particularly important interest of the country or society” has not been defined precisely. Therefore, the concession authority should specify the “particularly important interest of the country or society” and for what reasons special warranties have to be assumed. In practice, this is limited to the environmental protection in its broad sense, preventing a degradation and costs of remediation in the case of contaminations after the licensed activity is over.

The art. 18 and 21 of the Law also include requirements set before a concession for the open landfilling of waste in the rock mass. Apart from the data on the type, quantity and the properties of the landfilled waste, there should also be provided its characteristic, stability of chemical composition and the environmental impact on the environment and its elements.

According to the art. 25, additional conditions about the range of the mining area and region should be additionally specified in the concession.

Important issues concerning the expiration and cancellation of the concession are specified in the art. 28 and 29.

According to conditions defined in the concession, the entrepreneur is obliged to work out a plan of operation of the mine (art. 64. 1).

### **Economic Activity Law for landfilling of waste in the rock mass**

The third legal act relevant for landfilling of waste in the rock mass is an act of 2 July 2004 about the freedom of economic activity. According to the art. 46, par. 1, point 1, such an activity requires the concession. It may be granted by the relevant minister. Concessions are granted for a specified time, not shorter than 5 years and not longer than 50 years, unless the entrepreneur applies for a shorter period.

In the case of a greater number of entrepreneurs meeting the requirements for the concession and a guaranteeing the correct operation of the investment, then the institution granting the concession gathers bids and selects them on the basis of the declared funds. The authority granting a concession may refuse and change it, withdraw or limit its scope as compared to the one declared in the application. According to the art. 56 of this law, the concession can be rejected or limited in the following cases:

- When the entrepreneur does not meet conditions of economic activity under concession, defined in the law or other specific conditions given to the entrepreneurs,
- Owing to the safety of the country,
- Owing to the important interest of the society,
- If a concession was granted to another entrepreneur or entrepreneurs during the same procedure.

The relevant authority may also temporarily suspend the granting concessions, through a decision published in the Legal and Economic Monitor.

According to art. 57 of this Law, the relevant authority may check the economic activity for congruence of the performed activity with the concessioned one, and other conditions, i.e. safety of the country, and private goods.

The relevant authority may call the entrepreneur to making up for the damage in the specified time.

### **EU legal regulations**

One of the first legal acts about landfilling of waste in EU was the Directive of Council 75/442/EEC of 15 July 1975.

It is a package of EU regulations about the landfilling of waste to provide a high level of environmental protection. Generally, this Directive contains regulations referring to the waste removal and protection of health and environment against a negative impact of the waste, its transport, processing, storing and deposition.

This Directive was novelized by the Directive of Council 91/156/EEC of 18 March 1991. It imposes more severe conditions of the proper waste management, with emphasis on the registration and identification of waste. It adapts the methods to the present level of technical advancement in this respect. According to the art. 4 of this Directive, the waste should be stored in a way that does not create any hazard to the human health or environment. The Annex II A to the Directive includes 15 admissible methods of waste removal (D1 – D15), which can be encountered in practice, e.g.: D3 – the deep injection (e.g., the injection of waste to wells, salt diapirs or natural landfills, D12 – the permanent storing (e.g., disposal of containers in abandoned mine's workings).

The Council Directive 91/689/EEC of 12 December 1991 concerns the toxic waste. It discusses the problem of controlling the toxic waste management in EU countries. It provides a clear classification of toxic waste according to its character or activity, in the course of which it has been produced. On this basis, a list of toxic wastes is prepared.

The Directive also necessitates the registration and the identification of a wastes in each place where the waste is stored. It does not allow a mixing of the toxic waste with other hazardous waste or the non-toxic waste. The mixing is admissible only in places where the conditions of the art. 4 of this Directive 75/442/EEC, especially to improve safety conditions of the waste removal or recuperation. This operation can be performed only on the basis of the concession, spoken of in the art. 9, 10 and 11 of the Directive 75/442/EEC. The Directive 91/689/EEC was amended with the Council Directive 94/31/EC of 27 June 1994 owing to the difficulties with making a list of toxic wastes by EU countries in due time. There is a notation concerning the preparation of the list in a shortest possible time. In this way, the implementation of the Directive 91/689/EEC was postponed.

The newest legal acts regulating the waste landfilling in the EU countries are:

1. Council Directive 1999/31/EC of 26 April 1999 about the landfilling of waste (Official Journal WE L 182 of 16 July 1999, page 1 onwards),
2. Council Decision 2003/33/EC of 19 December 2002 about the criteria and procedures of admitting the waste to landfills, in reference to art. 16 and Annex II of Directive 1999/31/EC (Official Journal WE L 182 of 16 July 1999, page 1 onwards).

The Council Directive 99/31/EC of 26 April 1999 is about the surface and underground waste landfills. It should be stressed that some regulations of this Directive and Decision 2003/33/EC about underground landfills can be defined as a permanent place of the deposition of waste in the „deep geological indentation”, e.g. a salt or potassium mine.

The Council Decision 2003/33/EC of 19 December 2002 provides detailed criteria and procedures of admitting wastes to landfills in reference to art. 16 and Annex II of the Directive 1999/31/EC. The criteria of admitting a waste to landfills of neutral wastes, other than toxic and toxic, are distinguished. Additionally, the criteria for the underground storing are given. In the case of A to the above Council Decision, the conditions of the evaluation of safety conditions of waste admission to underground landfills are specified.

Storing of waste in the rock mass should also be in line with the Council Directive 96/61/EC of 24 September 1996 about the integrated protection against contaminations and the environmental protection gives a priority to integrated ways of the preventing contaminations. On one hand, it is a significant step towards a balance between the human activity and the social-economic development, and on the other hand, with the resources and regeneration qualities of the nature.

### Conclusions

Open landfilling of liquid waste in the rock mass through its injection to the absorptive horizons through specially adapted drilling wells is environmentally safe and economically profitable as compared to other presently applied methods of waste utilization. In compliance with the amendments to the Geological and Mining Law, the neutral waste can be disposed in the rock mass on the basis of a concession. Only the neutral and other than toxic and neutral waste from the exploration and recognition of minerals, exploitation and processing can be liberated from this obligation.

The Environmental Law necessitates writing a report about the impact on specific elements of the environment and the principles of monitoring in the landfill area.

The EU law about the waste management admits waste storing underground in abandoned workings (e.g., potassium and halite mines), and forbids open landfilling of waste in the rock mass.

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