



A case of non-compliance with legal environmental requirements: Improper storage of lead-containing materials in Hunedoara County, Romania

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Abstract. The need for environmental protection is a topical issue that is increasingly present in public debate. The European Union is known for its strict rules in this area. Unfortunately, they are not always followed, and thus, the quality of the environment and the health of the population are affected. This study discusses a case of non-compliance with environmental requirements from Hunedoara County, Romania. Numerous irregularities are found regarding important quantities of hazardous materials with lead (Pb) content; they range from improper storage and illegal transport to the non-fulfilment of duties by public institutions; unfortunately, there are no signs that anything will change soon. This study should be valued as the first step towards a petition to the European authorities. It aims to raise awareness and highlight environmental issues related to illegal landfilling in Romania.

Key Words: environmental issues, Environmental Protection Agency, hazardous materials, National Environmental Guard.

Introduction. Nowadays, lead has become a rising present component in global commerce. Lead is a naturally occurring toxic metal found in the Earth's crust that can affect both human health and the environment. According to the World Health Organization (WHO) (World Health Organization 2019), "Its widespread use has resulted in extensive environmental contamination, human exposure, and significant public health problems in many parts of the world."

The main sources of environmental contamination include mining, smelting, manufacturing, and even recycling activities. The present study is based on an initiative to launch a petition to the European Parliament, elaborated by a group of students from the Faculty of Environmental Science and Engineering, Babes-Bolyai University, Cluj-Napoca, Romania. The team wanted to investigate if Romania did not take the required measures to prevent pollution related to improper storage of lead-containing materials in three settlements from Hunedoara County, Romania: Hunedoara municipality, Șoimuș locality, and Mintia locality (Vețel commune).

In the present case, non-compliance with Article 58 of 2010/75/UE Industrial Emissions Directive of European Parliament and European Council (the integrated prevention and control of pollution) and with Article 4 of Directive 2000/60/CE of European Parliament and European Council for establishing a framework for community action in the field of water policy were alleged. Practically, the authors want to warn that soil contamination with metals is one of the major risks to environmental and human health (Huang et al 2020, Vithanage et al 2019).

The frame of debate. The problem of hazardous waste from Hunedoara started in July 2014. The National Environmental Guard, in the Address no. 1644/HD/2014, communicated to the Hunedoara National Environment Agency that the company SC ROMBAT SA-REBAT Copșa Mică handed over oxidized lead slag as hazardous waste (approximately 2400 tons) to CTC IRON POWER STEEL SRL Oțelu Roșu. The Oțelu Roșu company subsequently performed the transport of hazardous waste to SC MINPROD 2005 SRL Șoimuș, to recover it. Following the procedures performed by the Șoimuș company, the hazardous waste received the status of raw material, and it was transported to MINECO HD SRL Hunedoara company.

Subsequently, AUTO TRADING CORPORATION INC SRL Hunedoara "took over the lead concentrate, in amount of about 2200 tons from MINECO HD SRL Hunedoara to transport it to Mechanical Hall Three, belonging to SC CASITO Impex SRL Hunedoara, where SC LEINAD MARKETING SRL Teiliuc intervened on a quantity of the lead concentrate; namely it passed it through a sorting/washing station (with the declared purpose to enriching the lead concentration)", according to Address no. 1644/HD/2014. Furthermore, AUTO TRADING CORPORATION INC SRL Hunedoara, "transported approximately 700 tons of material on a site located in Hunedoara, more precisely 49 Carpathian Street, rented by ICSH SA – an insolvent company [...], regarding the rest of the material, part of it was stored in the so-called Mechanical Hall Three, while the quantity washed [...] was stored between the Mechanical Hall Three and the dam on the left bank of Cerna River", according to Address no. 1644/HD/2014.

Following the verifications performed by the competent authority for inspection and control, "four contraventional sanctions for non-compliance with the provisions of the environmental legislation" were applied, according to the description of the National Environmental Guard in Address no. 1644/HD/2014.

In October of the same year, the analysis bulletins, and the conclusions of the accredited laboratory WESSLING Romania SRL were received for the resulting material from the washing-sorting process; these analyses were requested by Minprod 2005 SRL following the measures imposed by the National Environmental Guard commissioners.

The results of laboratory tests showed that "the material contains lead, and it can be considered dangerous" (Address no. 2583/13.10.2014 of the National Environmental Guard to Environmental Protection Agency, Hunedoara). In addition, AUTO TRADING CORPORATION INC SRL was sanctioned for "road transport of dangerous commodities, without holding an environmental permit", and because "it did not properly manage the lead-containing materials, creating a potential risk of soil and water pollution", according to Address no. 2583/13.10.2014. Moreover, in February 2018, WESSLING Romania SRL laboratory performed analyses for lead content in the waste stored from Șoimuș, that revealed "a quantity of 122.000 mg Pb/Kg of material" (Test report no. 1801005/1/14.02.2018).

Regarding the illegal landfills located on the ICSH site, they "were capitalised by export to China in 2015". However, the unauthorized landfills in Șoimuș and Vețel, respectively, the landfill in Hunedoara, have not been cleaned so far, according to the answer of the Environmental Protection Agency, Hunedoara to the Request for Environmental Information no. 9865/24.12.2020. At the same time, the Environmental Protection Agency Hunedoara claims that "it has no information that the National Environmental Guard has started fulfilling its legal attributions nor that it has taken the necessary measures to eliminate the lead-containing materials".

According to the Environmental Protection Agency, Hunedoara Address no. 5508/03.07.2020 to the National Environmental Guard commissioner, the situation at Șoimuș site is the following: "there are 61 big-bags of lead-containing material illegally stored, illegally returned from the Port of Constanța since December 2017, with the permission of National Environmental Guard". The material was brought with "three semi-trailer tractors", and the National Environmental Guard is accused of "paying public

funds for a poorly prepared test report [...] because the material classified as waste is not coded with the specific six-digit code, which shows its dangerous nature". Moreover, it is mentioned that "on June 06, 2018, the Şoimuş site was removed from the SEVESO inventory, but the 61 big-bags with lead-containing material on the site were not claimed by anyone".

The request addressed to the National Environmental Guard and the Environmental Protection Agency Hunedoara no. 3800/04.05.2018 shows that SC Phoenix Management Industries SRL requested the approval to take over "the entire quantity of lead concentrate owned by AUTO TRANDING SRL (approximately 600-800 tons) which is stored inside the Arcelor Mittal Mechanical Hall, Hunedoara, and the entire amount of lead concentrate owned by CONTINMARSERV SRL (approximately 800 tons) in Mintia". According to Article 6 of Law no. 211/2011 on waste regime (applied by the Environmental Protection Agency Hunedoara in offering the answer) "the waste state has ceased due to its processing and the lead-containing material is part of the category of aggregates"; consequently, it can be "used for export by the owner, without obtaining the regulatory acts". Also, in the Address no. 4754 to the National Environmental Guard commissioner, the Environmental Protection Agency Hunedoara suggests that the National Environmental Guard response to the request from 2018 "contains requests without legal basis, because the termination of waste statute is not determined by laboratory analyses, but in accordance with Article 6 of Law no. 211/2011 on waste regime, by fulfilling the specific criteria listed in Article 6, paragraph 1, and processing the waste through at least one operation provided for in Annex 3 of Law 211/2011, chosen by the business owner, and it is not within the competence of any institution to impose a certain operation".

In Hunedoara, two illegal waste deposits were discovered in the Porta Zgurii industrial zone (Figure 1). The first one is on the Cerna riverbank where SC DEVA STEEL CORPORATION carries out its activities, and the second one is near the working area of IRON AND STEELWORKS Hunedoara (SC ICSH SA).

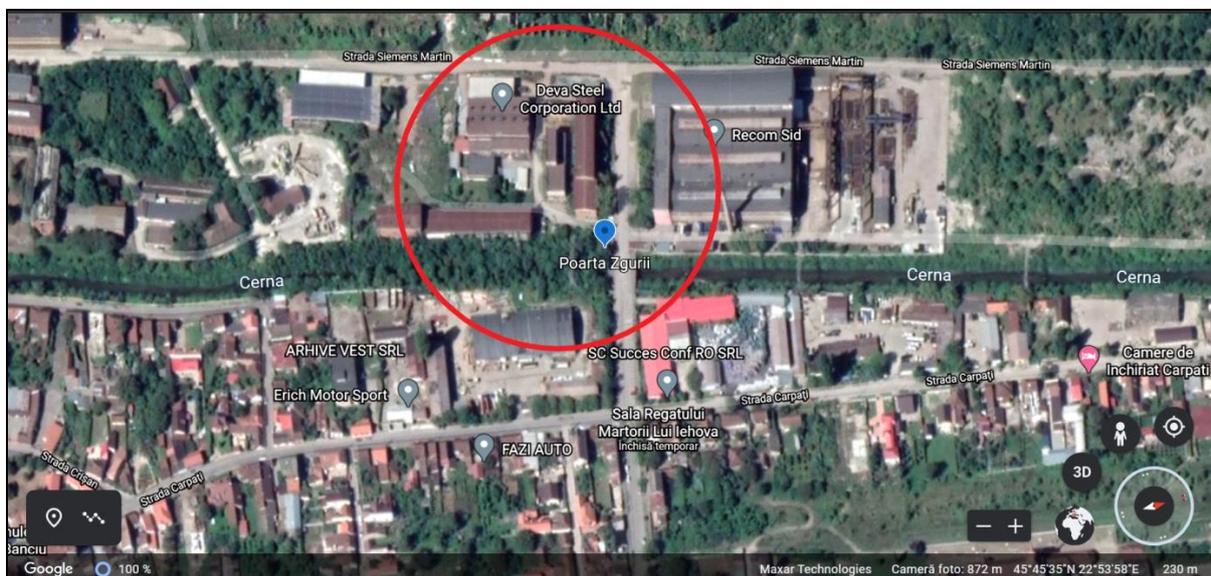


Figure 1. Satellite image of the industrial area in Poarta Zgurii, Hunedoara County (source: Google Maps <https://www.google.com/maps/@45.759068,22.8970683,240m/data=!3m1!1e3>).

In Şoimuş (Figure 2) (a village located at 20 km from Hunedoara), hazardous lead waste was found illegally stored inside the MINPROD 2005 working land. According to the records of the Prosecutor's Office of the Constanţa Court of Appeal, in File 437/P/2018, the owner of the material and the site, MINPROD 2005 SRL (in bankruptcy), capitalized the entire amount of lead-containing material.

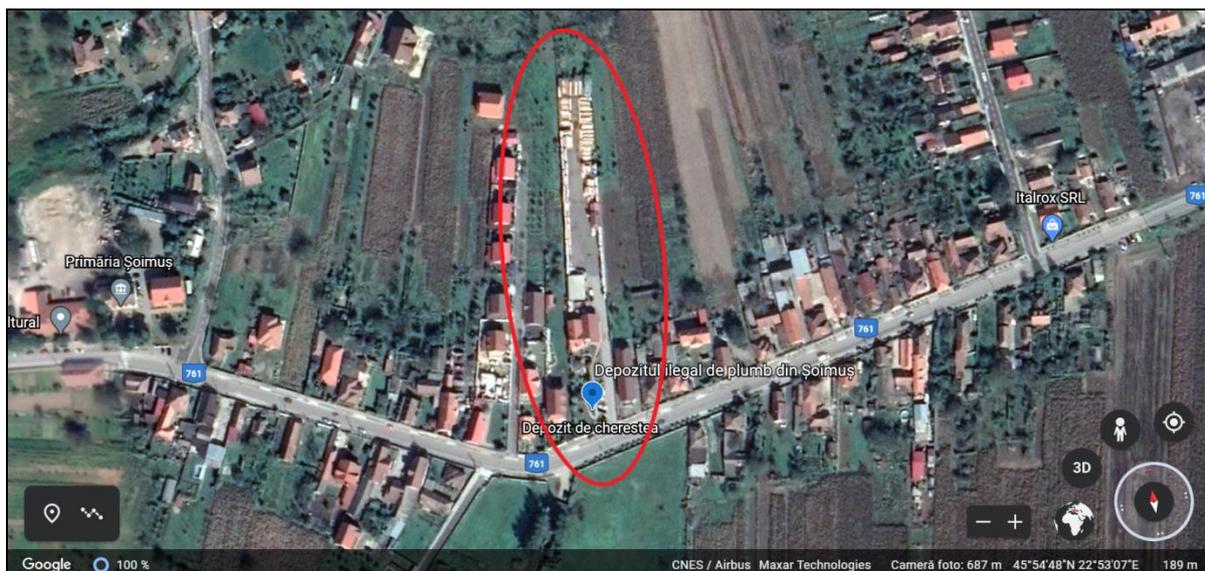


Figure 2. Satellite image of the working area of Minprod 2005 (source: Google Maps <https://www.google.com/maps/@45.9147521,22.8841366,479m/data=!3m1!1e3>).

In Mintia (a village situated at 10 km from Soimus), the illegal lead waste was discovered on the former Vețel mining grounds (Figure 3), located on the Mureș riverbank.

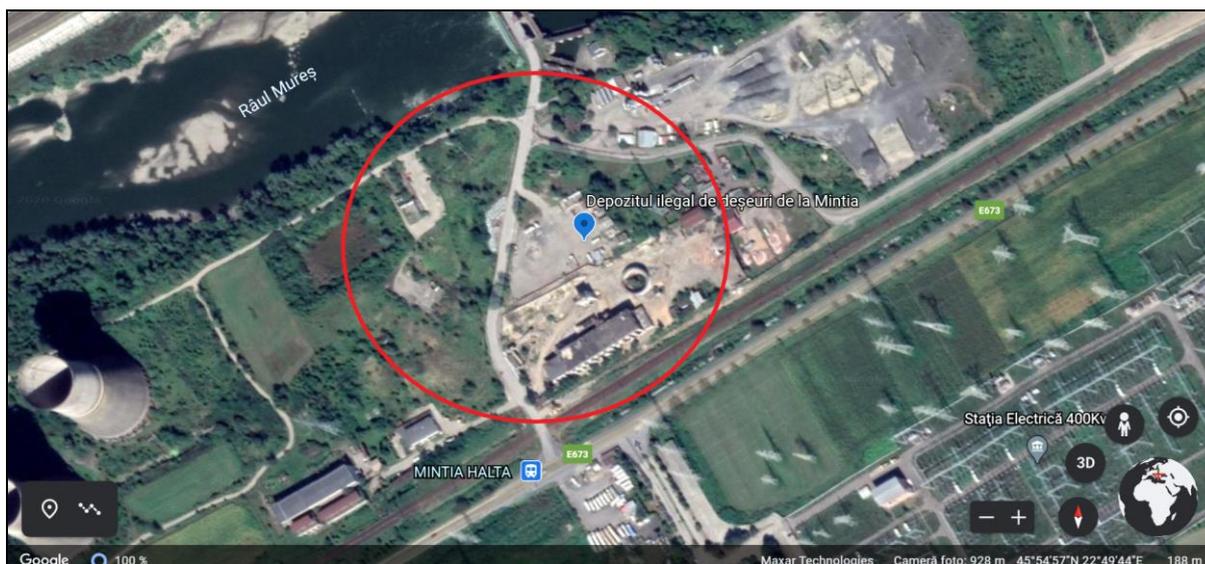


Figure 3. Satellite image of the Vețel, the former mining land in the Mintia village (source: Google Maps <https://www.google.com/maps/@45.9177005,22.8254983,479m/data=!3m1!1e3>).

According to the Environmental Protection Agency Hunedoara (Address no. 5508/03.07.2020 to the National Environmental Guard and the Minister of Environment, Waters and Forests) it is considered that “regardless of classification as waste or concentrate, lead-containing materials are hazardous and must be removed from the three sites”. It is also mentioned that “the storage of these materials is illegal [...] and there are the final decisions of national courts’ that oblige the competent authority for inspection and control, respectively, the National Environmental Guard not to delay the exercise of legal duties”.

As stated by the Environmental Protection Agency Hunedoara, in an official declaration in the document from December 2020, the current situation is as follows:

- At Poarta Zgurii “there are approximately 1000–3000 tons of illegally stored lead-containing materials deposits, since 2014”.

- At Soimuș, “there are 61 big bags of illegally stored lead-containing materials”.
- At Mintia locality, on Vețel former mining land, “there are approximately 400-500 tons of illegally stored lead-containing material on the unauthorized site since 2014”.

The legal context. According to Article 58 of Directive 2010/75/EU, entitled “Substitution of hazardous substances”, the volatile substances classified as carcinogenic, mutagenic, or toxic for reproduction in accordance with Regulation (EC) No 1234/2007. 1272/2008, are substituted, as far as possible, by less harmful substances or mixtures as soon as possible”.

Article 2 of Directive 2000/60/EC, point 29, clarifies the meaning of “Hazardous substances” as “substances or groups of substances that are toxic, persistent, and liable to bioaccumulate, and other substances or groups of substances which give rise to an equivalent level of concern.”

Furthermore, Article 4 of the same directive entitled Environmental Objectives, provides: “1. In implementing the program of measurement set out in the river basin management plan: (a) as regards surface waters [...] State Members shall take the necessary measures pursuant to Article 16 al. (1) and (8) to gradually reduce pollution by priority substances and to stop or phase out emissions, discharges, and loss of priority hazardous substances without prejudice to the corresponding international agreements referred to in Article 1 for the Parties concerned”.

Scientific literature. The petition also referred to the data in the scientific literature, arguing that the activities carried out in the study area had a negative impact on both the environment and human health. It was emphasised that heavy metal contamination associated with industrial activities is a global concern, posing potential health risks to local inhabitants; these activities are responsible for the release of heavy metals into soil, water, and air (Brady et al 2015; Cheng et al 2018). Scientific literature reports that about one in three children, “meaning almost 800 million children worldwide, have a concentration of lead in the blood of at least 5 micrograms per deciliter ($\mu\text{g}/\text{dL}$), which is also the level at which intervention should be taken” (Nicholas & Fuller 2020). Moreover, according to Obasi and Akudinobi (2020), “higher levels of lead produce permanent brain damage and kidney dysfunction. The content of lead compounds in environmental factors is an indicator of the degree of danger and is part of the top 10 dangerous chemicals”.

Conclusions. Currently, in the three localities of Hunedoara County, there are still significant quantities of illegally stored lead-containing materials. As lead material deposits represent a danger to human health and a potential risk for the environment, they must be immediately removed from the three sites of the county, as claimed by Environmental Protection Agency Hunedoara.

Moreover, the material belongs to other entities involved in the respective process, as there are already Romanian courts’ decisions that impose the National Environmental Guard “not to delay” the exercise of legal duties. Thus, it is up to us as citizens to continue to pay attention to this unresolved issue and to fight to reach an effective solution.

In conclusion, the study supports a future petition addressed to the European authorities, which aims to raise awareness and highlight environmental issues related to illegal landfilling in Romania.

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Conflicts of interest. The authors declare that there is no conflict of interest.

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