Hazards in the workplace of a dangerous goods transport vehicle driver

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ABSTRACT:

The article analyses drivers’ working conditions and the hazards involved. Hazards were assigned significance based on their likelihood and potential consequences. The test results were expanded to include the proposed preventive measures.

Zagrożenia występujące na stanowisku pracy kierowcy pojazdu przewożącego materiały niebezpieczne

Słowa kluczowe: transport, materiały niebezpieczne, zagrożenia, kierowca

STRESZCZEŃIE:

W artykule przeanalizowano warunki pracy kierowcy oraz występujące zagrożenia. Zagrożeniom nada- no wagi dotyczące prawdopodobieństwa ich wystąpienia oraz potencjalnych skutków.
1. INTRODUCTION

Even during a period of forced slowdown, the economy generates significant transport needs related to moving different types of substances referred to as dangerous goods. Dangerous goods can be transported using various modes of transport: rail, air, road or sea [1]. However, completion of transport requires compliance with relevant provisions regulating loading, packaging, transport or conduct in hazardous situations. Such provisions are, depending on the type of transport, as follows: ADR for road transport, RID for rail transport, ICAO for air transport or IMDG for sea transport.

According to publicly available statistics maritime transport has the greatest share in the transport of hazardous goods. However, road transport of hazardous goods is associated with the largest number of individual transport vehicles and, like other modes of transport, exhibits an ongoing growing trend [1].

Along with the increasing number of hazardous goods transports on public roads, an increasing number of irregularities in the transport process is observed. According to data published by the Supreme Audit Office (pl. NIK), this trend persists despite the number of inspections decreasing [2].

2. RESEARCH

The research was conducted in a transport company located in Poland. The company has a fleet of 320 vehicles (tractors and trailers) and over 500 employees. The entire vehicle fleet is monitored by an appropriate GPS-based positioning system.

The research started with several dozen interviews with drivers engaged in the transport of hazardous goods in Poland. They mostly drove FL vehicles (ones used to transport, for example, liquids with a flash point not exceeding 60°C [3]).
The interview aimed to supplement information regarding the workplace hazards of a lorry driver transporting hazardous goods [4]. It was conducted with the goal of indicating hazard groups present at the workplace of a lorry driver specified [5]:
- factors that could cause accidents (e.g. vehicle repair, malfunctioning vehicle, speeding, the driver slipping, stumbling or falling, sharp or falling objects in the surroundings);
- physical factors (e.g. vibrations during driving, unfavourable weather conditions, insufficient road illumination, noise);
- chemical agents [e.g. fuel, vehicle fluids, exhaust fumes and other poisonous substances, dust and dirt, transported chemicals (if dangerous goods are transported)];
- ergonomic, psychosocial and work organisation factors (e.g. improper diet and bad eating habits, manual lifting and carrying of excessively heavy objects, excess physical effort, long driving time, work at night, exceeding working time, breaks too short or complete lack thereof, improper and forced body position, stress related to, for example, time pressure, excess duties imposed on the driver, drowsiness);
- biological factors (e.g. pathogens that may be present in the carried cargo).
A list of the hazards most frequently mentioned by drivers and hazards selected by the study’s authors is presented in Table 1.
The results were further processed in accordance with the recommendations of the RISC SCORE occupational risk assessment method [6]. Selected hazards were assigned rates and weights upon the assumption that the conditions for implementing the transport stages resulting from the relevant regulations are met [3].
- for effects “S” from 0 to 100,
- for exposure “E” from 0.5 to 10,
- for probability “P” from 0.1 to 10.
Finally, as per the RISC SCORE method of occupational risk assessment [6], the product of the adopted rates, which served as the basis for the classification of a given hazard (risk value), was calculated. The results were presented in Table 2. Based on data presented in Table 2, high-risk hazards can be noted, e.g. a traffic accident, explosion hazard or falling asleep when driving.

Aside from the risk of explosion or fire, the hazards were typical for the work of a driver transporting goods, not necessarily dangerous goods. A similar situation was observed in the group of medium-risk hazards – these were also typical for the workplace of a driver transporting goods (not necessarily dangerous goods).
3. CONCLUSIONS

1. Low-risk hazards dominate in the workplace of a lorry driver transporting dangerous goods.
2. High-risk hazards included those typical for drivers who transport safe goods, with the exception of the risk of explosion or fire, which was a hazard typical for the transport of dangerous goods.
3. A prerequisite for maintaining the presented hazard rates is compliance with the procedures stipulated in transport stage (loading, packing, etc.) instructions.

BIBLIOGRAPHY


