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Filling the loophole in the chain of evidence – the experimental reconstruction of the scene of crime

Abstract

Ropes courses should be designed, performed and used in accordance with the applicable standards and normative acts. The causes of accidents in ropes courses are irregularities and deficiencies which, directly or indirectly, contribute to the occurrence of such an accident. The owner (employer) of a ropes course is obliged to notify a district labour inspector and a prosecutor of a lethal, serious or collective accident at work, as well as any other accident evoking such effects (Journal of Laws of 1974, No. 24, item 141). Law enforcement agencies inspect objects and places and may undertake an experiment with the participation of an expert witness who has specialist knowledge in norms and regulations, mountaineering techniques and safety management. The aim of this article was to emphasize the role and significance of experiments in the evidentiary procedure. The article shows the advantages of experiments, which often supplement inspections, allow for an efficient verification of gathered evidence, fill the gaps and give grounds for understanding the course of an event by conducting an experiment or reconstructing the course of the event or its fragments (Hanausek, 2005). The information obtained through the experiment constitutes the means of proof.

The experimental reconstruction may be implemented as part of the court proceedings or investigations, provided that this is purposeful for verifying the circumstances which are essential for the case (Ref. No. III KO 69/02, Lex No. 8030).

Key words: ropes courses, machines, standards, experimental reconstruction of the scene of crime, visual inspection.

Uzupełnienie luki w łańcuchu dowodów – eksperyment procesowy

Streszczenie

W parkach linowych tory linowe powinny być projektowane, wykonywane i użytkowane zgodnie z obowiązującymi normami i aktami normatywnymi. Przyczyną wypadków na torach linowych są wszelkie nieprawidłowości i braki, które bezpośrednio lub pośrednio przyczyniły się do powstania wypadku. Właściciel (pracodawca) parku linowego ma obowiązek zawiadomić okręgowego inspektora pracy i prokuratora o śmiertelnym, ciężkim lub zbiorowym wypadku przy pracy, a także o każdym innym wywołującym takie skutki (Dz.U. z 1974 r., Nr 24, poz. 141). Organy ścigania przeprowadzają oględziny rzeczy i miejsca oraz mogą przeprowadzić eksperyment procesowy, w którym może uczestniczyć biegły posiadający wiedzę specjalistyczną w zakresie norm i regulacji, technik wysokościowo-alpinistycznych i zarządzania bezpieczeństwem. Celem artykułu było uwypuklenie roli i znaczenia eksperymentu w procesie dowodowym. Ostatecznie wskazano walory eksperymentu, który stanowi w wielu przypadkach uzupełnienie oględzin, pozwala na efektywną weryfikację zgromadzonych dowodów, uzupełnia braki, a także daje podstawy do poznania mechanizmu przebiegu zdarzenia na drodze doświadczenia albo odtworzenia przebiegu zdarzenia lub jego fragmentów (Hanausek, 2005). Uzyskane za pomocą eksperymentu informacje stanowią środek dowodowy.

Eksperyment procesowy można przeprowadzić w postępowaniu sądowym bądź przygotowawczym, o ile jest to celowe dla sprawdzenia okoliczności mających istotne znaczenie dla sprawy (sygn. III KO 69/02, Lex nr 8030).

Słowa kluczowe: tory linowe, maszyny, normy, eksperyment procesowy, oględziny.

1. Introduction

According to a prominent ergonomist, Tytyk (2017):

> The ability to accurately identify a hazard is of immense significance for a reliable assessment of working conditions, hazardous situations and for determining the level of occupational risk as well as, consequently, for planning and engaging in actions aimed at improving safety, hygiene (understood as health-care) and ergonomics of the performed work. Expansive theoretical knowledge from a specific field of technology and practical experience concerning progress of work and working conditions at given stations are necessary for proper implementation of this task.

In ropes courses assembly, disassembly and exploitation of machines and other technical devices as well as installations utilized during work, including their operation, should proceed consistently with requirements of Occupational Safety and Health and ergonomics. The location and manner of installation and operation of a machine should take into consideration minimization of occupational risk (JoL 2002, No. 91, item 811). Ropes courses should meet requirements of PN-EN 15567-1 and PN-EN 15567-2 standards (Polish Committee for Standardization).

As Wojsznis (2018) claims: "the basic source of data regarding a human being in the process of work is the ergonomics prognosis. The collected data concern qualities of a human and biological aftereffects of his work as well as parameters of machines/devices and parameters of material work environment".

When considering an H-TO system (human-technical object) treated as a whole we analyze mutual relations, dependencies and influence between a human and a technical object. The degree of harmfulness of an H-TO relationship (dangerous, harmful, onerous, standard) is defined by the class of ergonomic state (Blaszczok, 2018).

According to Tytyk (2011):

> each system operates within a specified environment. In relation to the basic human-technical object system factors are customarily divided into: material parameters of environment (mechanical oscillation, noise, microclimate, lighting, harmful radiation, harmful substances, air pollution) and technical-organizational factors (derived from the adopted construction, technological and organizational solutions).

The most often hazards are caused by factors related to technology and organization of work. Hazards change along with progress of organization and technology (Tytyk, 2017). In ropes courses hazards can be divided into following groups:

- mechanical hazards;
- electrical hazards;
- thermal hazards;
- chronobiological hazards;
- environmental hazards;
- social hazards;
- mental hazards.

The irregularities related to operation of ropes courses present the threat of injuries understood as damage to human bodily tissues or organs as a result of influence of an external factor (Wojsznis, 2018).

Accidents frequently result in severe injuries to users' bodies, including injuries incurred by the employees employed to operate ropes courses. When an employee suffers an accident the employer appoints an accident investigation team which immediately after becoming notified of an accident engages in actions incl. inspecting the accident site, technical condition of machines and other technical devices, condition of protection devices and investigates the conditions in which work is being performed as well as other circumstances which could affect occurrence of an accident (JoL 2009, No. 105, item 870).

In case of an accident resulting in severe body injuries, a collective accident or a lethal accident the employer is obliged to immediately notify law enforcement authorities which will perform an inspection. Chapter 23 of Code of Criminal Procedure defines the regulations for performing supporting activities consisting of inspecting objects and locations as well as performing a procedural experiment (experimental reconstruction) during criminal procedure (II AKa 489/14. JoL 1997, No. 89, item 555).

The procedural experiment (experimental reconstruction) is an action performed by judicial bodies. A specialist or an expert witness who possesses specialist knowledge (special information) may be summoned to participate in such tasks (JoL 1997, No. 89, item 555). An expert witness is a person in possession of knowledge, skills and experience inaccessible to the general public. An expert witness is appointed by a judicial body to give an opinion on circumstances crucial for determining resolution of a case (Wilk, 2019).

Consulting an expert witness possessing knowledge regarding operation of machines, ergonomics, the binding standards for designing and constructing ropes courses is of particular importance for inspection and performing a procedural experiment (experimental reconstruction). Knowledge of the design and exploitation requirements, which constitute basis for release of a ropes course into service and a guarantee of its safe operation, are crucial.

2. Use of machinery in ropes courses

Exploitation of machines, installations and technical devices is one of the primary sources of hazards in ropes courses. Counteracting these hazards consist of, among other factors, respecting ergonomics requirements ensuring safety of exploitation.

The construction design and rules of use have to be adapted to capabilities of persons using ropes courses. Taking into consideration ergonomics guidelines at the design stage and during exploitation enables reducing threat and difficulties related to using the course. Limiting physical and psychological stresses is immensely important.

In the Regulation of the Minister of Economy, Labour and Social Welfare of 30th of September 2004 altering the regulation regarding minimum requirements concerning Occupational Safety and Health within the scope of operating machinery by employees during work it has been stated that: "1) in §1 pt. 1 is worded as follows: 1) "a machine" – is to be understood as all machines and other technical devices, tools and installations utilized during work as well as any equipment for performing temporary work at heights, in particular ladders and scaffolding".

Machines are to be installed, located and operated in a manner which:

- minimizes threat to safety and health of employees;
- ensures safe supply or bleeding/removal of all utilized or generated energy or materials (JoL 2002, No. 191, item 1596).

Following their installation at the workstation, other station or in a different location machines should be subjected to a preliminary inspection. The inspection is being performed by entities operating on the basis of separate regulations or by persons authorized by the employer and possessing appropriate qualification (JoL 2002, No. 191).

The machines exposed to influence resulting in deterioration of their technical condition should be subjected to periodical inspection and special inspection in the case of risk of decreasing operational safety of the machine resulting from: modifications, natural phenomena, prolonged period of interruption in work of a machine, dangerous damage to the machine or accidents at work (JoL 2002, No. 191, item 1596). Results of the inspection are recorded and stored to be at the disposal of the interested bodies, particularly work conditions inspection and supervisory bodies, for a period of 5 years since the conclusion of the inspection, unless other provisions stipulate otherwise (JoL 2002, No. 191, item 1596).

Machines and other technical requirements should meet the Occupational Safety and Health requirements defined in other, separate regulations, for the entire period of operation. Assembly, disassembly and exploitation of machines, including operation of machines, should proceed consistently with Occupational Safety and Health requirements and ergonomics requirements which take into consideration the instructions included in the Operation and Maintenance Manual. Location and manner of installation of machines should take into consideration minimization of occupational risk (JoL 2002, No. 91, item 811).

3. Standards for designing ropes courses

Designing and erecting ropes courses should be consistent with the binding standards, particularly with the EN 15567-1 standard. Attention must be drawn to weight and height of the users when designing a ropes course. The design for a ropes course should limit the impact force for a person weighing below 40 kg to 300 daN and to 600 daN for a person weighing more than 40 kg. Movable parts should be designed in a manner which limits the risk of sustaining injuries. Sharp elements or elements with sharp edges cannot be located within user's reach. The structure of a ropes course and the selected equipment cannot pose a threat during ordinary use. The available area cannot include any hazardous

objects other than the obstacles. A special safety equipment protecting a user from colliding with an object must be installed in the vicinity of an obstacle. A distinct division must be displayed in the systems incorporating safeguards (safety measures, elements of the course). Elements of the course should be constructed in a manner which does not interfere with evacuation of users (Szczecina, 2017).

The PN-EN 15567 standard consists of two parts:

1) Part I designated PN-EN 15567-1 (https://wiedza.pkn.pl/wyszukiwarka-norm) defines requirements concerning construction and safety:
   - PN-EN 15567-1+A1:2020-07 – English version. Title: Sports and leisure equipment – Ropes Courses – Construction and Safety Requirements. Introduces: EN 15567-1:2015+A1:2020 [IDT]. Date of publishing: 22-07-2020.
   - PN-EN 15567-1:2015-08 – English version. Title: Sports and leisure equipment – Ropes Courses – Part 1: Construction and Safety Requirements. Introduces: EN 15567-1:2015 [IDT]. The standard was withdrawn and replaced by PN-EN 15567-1+A1:2020-07 – English version. Date of publishing: 10-08-2015. Date of withdrawal: 22-07-2020
   - PN-EN 15567-1:2008 – English version. Title: Sports and leisure equipment – Ropes Courses – Part 1: Safety requirements and study methodology. Introduces: EN 15567-1:2007 [IDT]. The standard was withdrawn and replaced with PN-EN 15567-1:2015-08 – English version. Date of publishing: 06-03-2008. Date of withdrawal: 10-08-2015.
2) Part II designated PN-EN 15567-2 (https://wiedza.pkn.pl/wyszukiwarka-norm), concerning operating and maintenance requirements:
   - PN-EN 15567-2:2015-08 – English version. Title: Sports and Leisure Equipment – Ropes Courses – Part 2: Exploitation Requirements. Introduces: EN 15567-2:2015 [IDT]. Replaces PN-EN 15567-2:2008 – English version. Date of publishing:10-08-2015.
   - PN-EN 15567-2:2008 – English version. Title: Sports and Leisure Equipment – Ropes Courses – Part 2: Exploitation Requirements. Introduces: EN 15567-2:2007 [IDT]. The standard was withdrawn and replaced by PN-EN 15567-2:2015-08 – English version. Date of publishing: 06-03-2008. Date of withdrawal: 10-08-2015 (Polish Committee for Standardization)

Applying Polish Standards (PS) is voluntary. Polish Standards can be invoked in legal regulations after being published in Polish language (JoL 2002, No. 169, item 1386).

Regarding the issue of voluntariness of adhering to a standard the Polish Committee for Standardization expressed the view which indicates that invoking a Polish Standard in a legal act does not change the voluntariness of adhering to a standard provided that a legislator consciously and willingly wishes to alter this status – an action which is possible through making a clear indication in provisions of a separate act.

In accordance with ruling of the Warsaw Appeal Court (VI A Ca 1386/13):

> standards are documents adopted through consensus and approved by an appropriate organizational unit; standards define regulations, guidelines and character of common and repeated application; standards refer to various forms of activity and aim for establishing an optimal degree of order within a specific scope. Standards are based on both the achievements of science and technology as well as on practical experience. The European Standards are commonly available standards which comprise accepted technical regulations adopted by an appropriate regional standardization office whereas the company standards are standards utilized by businesses operating within a given branch of industry. In the international standardization system as well as in the majority of regional and national systems application of standards is voluntary; standards do not possess the character of a source of law or an act of a commonly binding law and are not included in the constitutional catalogue of sources of law listed in art. 87 of the Constitution of the Republic of Poland. However, when a given standard is incorporated into the binding legal provisions the entities which are bound by such provisions are obliged to adhere to this standard.

Standards are established in order to:

- rationalize services through application of accepted technical regulations and organizational solutions;
- ensure protection of life, health and occupational safety;
- improve functionality, compatibility and interchangeability of goods, processes and services and regulate their diversity;
- ensure quality and reliance of processes and services (VI ACa 1386/13).

It is important for an expert witness to consider during the procedural experiment (experimental reconstruction) the provisions of the standards in accordance to which ropes courses were designed and released for use. Designing ropes courses on the basis of achievements of science, technology and practical experience attests to taking actions aimed at improving safety of users. The state presented in the documentation should be verified and compared with the actual state.

Lack of reference to standards in a design for a ropes course should also lead to presenting a question: "On the basis of what knowledge and by whom the courses were designed and released for use?". In accordance with what regulations the daily, periodic and special inspections are being performed? What regulations are binding before the course is put into operation, during operation and after conclusion of operation? What rules based on what regulations are binding for users of ropes courses?

4. Conclusions

The procedural experiment (experimental reconstruction) performed on the basis of art. 211 of Code of Criminal Procedure is a procedural step (JoL 1997, No. 89, item 555) which may be performed during preparatory proceedings or court proceedings provided that it is done deliberately for the purpose of investigating circumstances crucial for the case (III KO 69/2002). A procedural experiment is a support activity performed by a judicial body and it is not possible for an expert witness to perform this action in place of a judicial body (IV KK 209/06).

The justification of a ruling issued by a Regional Court in Lublin (XI Ka 128/19) explains that:

> participation of an expert witness in a procedural experiment (experimental reconstruction) does not result from an act of law; however, presence of an expert witness is indispensable when specialized knowledge (special information) is required. At such time ensuring participation of an expert witness in proceedings appears to be necessary (ruling of the Supreme Court, 7.05.1997, IV KKN 23/97, OSNKW 1997/9–10, item 79).

The goal of the experiment is to verify whether it was even possible for an event to take place. The essence of an experiment consists of arranging an artificial, controlled event.

Preparations for performing a procedural experiment (experimental reconstruction) cover: clearly formulating the goal of the experiment, developing methodology, selecting place and time for performing the experiment, selecting and preparing objects, determining persons participating in the experiment, assigning roles to persons participating in the experiment and determining how the experiment shall be documented and recorded (Jachimowicz).

The experiment should be performed in conditions similar to the conditions at the time and place of the researched event. The results of the experiment can only provide the evidence of a theoretical possibility existing and are not the evidence for a factual deed (III KZ 183/73).

The goal of the paper was to emphasize the importance of a procedural experiment in the process of taking evidence which may also cover assembly and disassembly of machines as well as exploitation of machines, technical devices and installations utilized in ropes courses. An experiment in which technical and organizational factors as well as parameters of the material work environment have to be taken into consideration. The studies performed during the experiment with the goal of verifying collected evidence and supplementing inspection of the site of an accident.

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