

Health and occupational risks analysis in custom border offices

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ABSTRACT

In line with National and European regulations, containing recommendations on the application of legal safety and health requirements for work and for the use of work equipment, the risk analysis has been conducted for two different positions in custom border offices, such as: the custom officer, acting in the non-destructive control department and the customs laboratory (lab physician, biologist, chemical engineer, biochemist). This article aims to present the risk analysis performed using the national method for assessing the risks of accidents and occupational diseases of workers, in order to facilitate the fulfilment of obligations of employers in the prevention of risks at work. The results are compared with those obtained using questionnaires method, based on Delphi approach. Finally, recommendations are addressed to all interested parties, such as: employers and workers in operational processes. A brief action plan for custom border offices is drafted.

Keywords: Risk Analysis, Work Safety Recommendations, Methods, Action Proposals

INTRODUCTION

The fundamental role of risk assessment is specified in the European Union Framework Directive, 89/391 / EEC, transposed into national law on safety and health at work (Ayrault, 2005; Guidelines, 2003; Gowland, R, 2006; Official Gazette of Romania, 2006). Employers have a general responsibility to ensure the health and safety of workers in all aspects of work (Official Gazette of Romania, 2006). The assessment of occupational risks is an essential stage of their prevention, because based on the results recorded in this stage it is decided whether or not it is necessary to eliminate / reduce any risks.

The General Directorate of Customs operates within the National Agency for Fiscal Administration, it coordinates and guides at the territorial level 8 Regional Customs Directorates, within which are organized 89 border customs offices and inland customs offices. More than 60% of the current activities of the customs authority (customs and fiscal supervision, customs control or authorization and movement of excisable products) indirectly result in the collection of duties, and those of customs supervision and control carried out mainly at border customs offices aim to achieve an adequate level of security and safety for the EU's external border.

Approximately 2400 customs workers contribute to the fulfillment of specific tasks, based on existing good practices at European and international level in the field of customs and taxation, using an integrated customs information system, vehicles, means of non-destructive control or surveillance located at the border, teams canines for the detection of drugs, tobacco products and cash and a customs laboratory.

THE RISK ASSESSMENT OF OCCUPATIONAL HEALTH AND SAFETY

The method developed aims to quantitatively determine the level of risk / safety for a job, sector, section or enterprise, based on systemic analysis and assessment of the risks of occupational injury and illness (Guidelines, 2003; ASRO, 2005; ARAMIS, 2013). The completion consists of the filling in a centralizing document (the Work Evaluation Sheet), which includes the level of global risk at work. The job description thus prepared is the basis for substantiating the program for the prevention of accidents at work and occupational diseases for the workplace, sector, department or company analyzed.

METHODOLOGY

The principle of the method is to identify all risk factors in the analyzed system (workplace) based on pre-established checklists and quantify the level of the risk based on the

combination of severity and frequency of the maximum foreseeable consequence. The method comprises the following mandatory steps: 1. defining the system to be analyzed (workplace); 2. identification of risk factors in the system; 3. assessment of the risks of occupational injury and illness; 4. prioritizing risks and setting prevention priorities; 5. proposing prevention measures.

Working tools, in a system, necessary for the evaluation of work safety, described above, are made using the following: 1. risk factor identification list; 2. list of possible consequences of the action of risk factors on the human body; 3. scale of severity and probability of consequences; 4. risk assessment grid; 5. scale for rating risk levels and security levels, respectively; 6. job description - summary document; 7. proposed action sheet.

The structure and content of these tools are presented below.

1. Risk factor identification list - is a form that includes, in an easily identifiable and compressed form, the main categories of risk factors for occupational injury and illness, collected and sorted according to the criterion of the generating element within the work system (executor, workload, means of production and working environment).
2. The list of possible consequences of the action of risk factors on the human body is a helpful tool in applying the scale of severity of consequences. It includes the categories of injuries and injuries to the integrity and health of the human body, the possible location of the consequences in relation to the anatomical-functional structure of the body and the minimum severity (negligible consequences, minor injuries) - maximum (death) of the consequence.
3. The rating scale of the severity and probability of the consequences of the action of risk factors on the human body is a grid for classifying the consequences in severity classes and probability classes of their occurrence.

ASSESSMENT TOOL

A centralised form developed to identify necessary prevention measures to be applied, resulting from the evaluation of the workplace in terms of work safety may be summarised in the job evaluation sheet for the custom staff (table 1). The methodology may be applied irrespective of the field of activity by identifying the specific risks per work system components, then assessing the severity, the probability of occurrence and the risk level.

Table 1. Workplace assessment sheet for the job custom officer

Table legend: **WSC** Work system component; **MPC** Maximum predictable consequence; **S** Severity; **PC** Probability class; **RL** Risk level; **TLI** Temporarily labour unavailability

Unit: National Customs Authority **Section:** Non-destructive control equipment Department

Workplace assessment sheet Job custom officer		Number of persons: 9 Duration of exposure: 8 hours/ day	Assessment team: G. N.		
Identified risk factors	Effective manifestation form of the risk factors	MPC	S	P C	R L
WSC	Production means				
Mechanical risk factors	F1: Free fall of incorrectly positioned materials - at customs working points	TLI 3-45 days	3	4	3
	F2: Design of bodies in case of electric arc or other defects in unverified installations in time	Death	7	2	4
	F3: Attaching, hitting, crushing limbs, when crossing access roads (doors)		2	4	2
	F4: Overturning materials and equipment placed in the stack - personal injury, providing supply activities	TLI 3-45 days	3	3	3
	F5: Hit by the means of transport when traveling on the route between the headquarters of the unit (working points) and between them and home, traffic accidents on the route;	Invalidity gr. III	5	2	4
	F6: Falling from heights, using stairs, platforms	Death	7	2	4
	F7: Direct contact of the epidermis with sharp, sharp surfaces (conductive ends, undamaged surfaces)	TLI 3-45 days	3	2	2
Electrical risk factors	F8: Electric shock by direct contact, in case of accidental contact of unprotected or accidentally energized current paths, work on installations under voltage in unfavourable atmospheric conditions, non-existence of protective covers	Death	7	1	3
	F9: Electric shock by indirect contact with accidental damage to the connections to the earthing installation of some electrical technical equipment	Death	7	1	3
Chemical risk factors	F10: Working with flammable substances, solvents etc.	TLI 3-45 days	3	2	2
Thermal risk factors	F11: High temperature of surfaces accidentally touched during inspections and repairs (defective distribution boxes)	TLI 3-45 days	3	2	2
	F12: Accidental direct contact with overheated surfaces when overpressure occurs in the network	TLI 3-45 days	3	3	3
	F13: Fires caused by short circuit in electrical installations with inadequate insulation	Invalidity gr. II	6	2	4

Workplace assessment sheet Job custom officer		Number of persons: 9 Duration of exposure: 8 hours/ day	Assessment team: G. N.		
Identified risk factors	Effective manifestation form of the risk factors	MPC	S	P C	R L
	F14: Direct contact with cold metal surfaces, in winter, while working outdoors	TLI 3-45 days	3	2	2
WSC	Work environment				
Physical risk factors	F15: Ambient and outdoor air temperature when moving between the unit's premises during periods of extreme temperatures	TLI 3-45 days	3	3	3
	F16: Air currents favoured by the working conditions outside or inside the building due to the operation of the air conditioning	TLI 3-45 days	3	2	2
	F17: Low level of lighting, especially in basement installations	TLI 3-45 days	3	2	2
	F18: Electromagnetic radiation created by the antennas of telecommunications operators mounted on buildings or at the transformation station	TLI 3-45 days	2	4	2
	F19: Natural disasters (earthquake, frost, storm, blizzard, lightning, heat wave)	Death	7	1	3
Chemical risk factors	F20: Toxic gases at the appearance of short circuit, electric arc due to melting conductors (PVC, resins, etc.)	TLI 45-180 days	6	1	3
WSC	Work load				
Physical stress	F21: Static effort, vicious working positions during work, prolonged orthostatic position	TLI 3-45 days	2	4	2
	F22: Dynamic effort, travel between the locations of the unit for scheduled or urgent interventions	TLI 3-45 days	2	4	2
Mental stress	F23: Short or extremely complex repetitive operations	TLI 3-45 days	2	4	2
	F24: Difficult decisions in a short time during urgent interventions	TLI 3-45 days	2	4	2
	F25: Increased demand for the visual analyser in conditions of increased attention and concentration	TLI 3-45 days	3	2	2
WSC	Performer				
Wrong action	F26: Switching-on the equipment without ensuring the electrical safety conditions, without checking the earthing	Death	7	1	3

Workplace assessment sheet Job custom officer		Number of persons: 9 Duration of exposure: 8 hours/ day	Assessment team: G. N.		
Identified risk factors	Effective manifestation form of the risk factors	MPC	S	P C	R L
	F27: Improper handling of equipment, measuring instruments for performing checks in electrical installations, clamps, cutting objects	TLI 45-180 days	4	3	4
	F28: The use of measuring instruments and unverified means of protection at the intervals provided in the regulations	Death	7	1	3
	F29: Interventions to electrical equipment (change of lighting fixtures) without de-energizing	Death	7	1	3
	F30: Coupling to voltage without checking the end of the intervention and prior notice	Death	7	1	3
	F31: Execution of operations (on its own initiative) not provided for in the workload and without having the necessary qualification level	TLI 45-180 days	6	1	3
	F32: Traveling or stationary outside the workload in the immediate vicinity of live installations	Death	7	1	3
	F33: Execution of operations by incorrect identification of the elements of the installation	Death	7	1	3
	F34: Accidental communications by erroneous data transmission or omission of the respective data transmission	Death	7	2	4
	F35: Lack of synchronization during teamwork	Death	7	1	3
	F36: Falling at the same level by imbalance, by slipping, by stumbling - when walking on foot in the premises or between work points	TLI 3-45 days	2	3	2
	F37: Falling from a height (eg from stairs) by walking empty, unbalanced, slipping	Death	7	1	3
	F38: Working under the influence of alcoholic beverages or drugs (sedatives, hallucinogens and narcotics) as well as in a state of advanced fatigue	Death	7	1	3
Omissions	F39: Failure to use personal protective equipment, personal work equipment or means of protection against electric shock by direct and / or indirect contact	Death	7	2	4

Workplace assessment sheet Job custom officer		Number of persons: 9 Duration of exposure: 8 hours/ day	Assessment team: G. N.		
Identified risk factors	Effective manifestation form of the risk factors	MPC	S	P	R
	F40: Omission in the execution of some operations provided in the work and safety instructions	Death	7	1	3
	F41: Omission in the transmission of data or information on the execution of operations	Death	7	1	3

For a visualized analysis, risk factors are graphically represented. A similar analysis is performed for the job custom laboratory including laboratory doctor, biologist, chemist, biochemist. The analysis consists of work evaluation sheet (similar to table 1) and then the graphical analysis. The highest risk level in this case resulted 5 corresponding to radiation risk due to devices screens.

Another possible method to proceed to the risk assessment is based on questionnaires applied to workers in the concerned jobs (ARAMIS, 2013). This approach is reported elsewhere (Nalbitoru, Severin, 2021). The overall results for the two different positions in the custom border offices are summarized in table 2.

Table 2. Workplace assessment sheet for the job custom officer

Category	Global level of risk questionnaire method	Global level of risk external assessment
Custom workers	3.1	3
Custom laboratory staff	3.18	3.15

CONCLUSIONS

The evaluation consists in identifying and prioritizing the existing risks, in order to implement appropriate mitigating actions. Based on the evaluation, in the case of risk exceeding the global level of 3, mitigation action should be implemented to eliminate or reduce occupational risk factors, such as:

- ✓ redesign of the activity: modification of the content of the activity, enrichment of tasks, alternation of different tasks, elimination of fractional and simplified activities;
- ✓ organizational measures: changing the way the activity is organized - greater autonomy, assigning responsibilities, increasing the autonomy of teams of workers in managing tasks and work pace;

- ✓ rational organization of working and rest time, work schedule that allows extra-professional activities; work space optimization: avoiding overloading the work space or, on the contrary, working in isolation;
- ✓ ergonomic measures and optimization of the work environment; control of occupational risks, optimization of environmental factors (microclimate, lighting, coloring etc.) and workplace arrangement etc.;
- ✓ appropriate information on the work (production) process, early information on any technological change and the introduction of new techniques and technologies;
- ✓ training workers, employees in making decisions on organizational measures, working methods; appropriate training and education: an education in the field of health, knowledge and recognition of risks, preventive measures.

As measures to improve the psychosocial environment would be: staff participation in decision making, appreciation and encouragement from superiors, support from colleagues and subordinates, job retention, prospects in professional promotion etc., all creating a sense of individual control over the social environment.

The major improvement concerning the occupational health and safety has been linked to the investment in new roboscanners, systems completely remote, operated by a single operator, completely eliminating the risk of professional and accidental irradiation ; the operator remotely controls all processes via wireless network from the mobile control center placed outside the exclusive.

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