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AN IMPLEMENTATION OF THE HACCP SYSTEM IN MILITARY UNITS IN 2004

Hazard analysis and Critical Control Points (HACCP) was originally developed in the early days of the American space program of manned flights in order to ensure the microbiological safety of food for astronauts. The system was developed (in the 60s) by the Pillsbury Company cooperating with NASA and the US Army Research Laboratory in Matic. Then the Pillsbury company applied HACCP to their food products and introduced the system for the food industry. Polish striving for integration with the European Union requires a lot of adjustment measures, including the dissemination of the principles of GMP (Good Manufacturing Practice in Food) and the implementation of HACCP in food processing. Food safety system applies to the entities producing, storing and distributing food². The obligation was introduced by the Act of May 11, 2001 on health conditions of food and nutrition (Journal of Laws No. 63, item 634) and the Act of 30 October 2003 amending the Act on health conditions of food and nutrition, and some other acts. All entrepreneurs who deal with food production are obliged to implement the conditions.

Requirements for the smooth implementation of the HACCP system have been presented on an example of the 21st Brigade of Riflemen (21 BSP) military unit, which started the implementation of rules based on the "Framework for the preparation and implementation of the HACCP system in canteens and military bars" issued on 22 April 2004 by Land Forces Logistics. According to the above mentioned principles, the basic stages of the system in most military units was completed on 31 December 2005. Specialized external companies participated in the implementation process.

Keywords: food safety, HACCP system

1. INTRODUCTION

Quality has been of interest since the year dot. Already during the major projects of ancient Egypt, the construction of temples, palaces and tombs, the level of quality of work performed by workers processing stones was checked. In modern times, works in small handicraft workshops were initially carried out under the supervision of an owner. An increase in the size of the workshop made a shift of control from the owner to the master. Such organization of control lasted until the outbreak of the First World War.

As the methods and forms of production developed, the master was not able to oversee planning, technical, organizational, personnel, training, financial and commercial, managerial and control operations. As a result, an inspector-checker authorized for a quality control - sorting good from defective products was employed. This phase, which developed in the interwar period, was called the inspection quality control.

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² Council Directive 93/43 / EEC of 14 June 1993 on the hygiene of foodstuffs.

It the food market more and more new food products appear. To be safe for the consumer, they need to comply with the conditions laid down by the food law. "Food law" means legal, administrative and executive regulations governing the general matter of food, and particularly its safety³. According to the Council Regulation (EC) No. 178/2002 the food law applies to "all stages of production, processing and distribution of food and feed produced or used to feed livestock" and it prevents the adulteration of food and consumers from being misled⁴. The term food law is understood as international standards, including the European Community law and the rules of national law of the Member States of the European Union, whose principal purpose is to ensure food security and comprehensive protection of the consumer. This law includes both normative acts of a general nature relating to each type of food, as well as those containing specific standards for the processing of animal products⁵.

In order to standardize the international food law and to facilitate the movement of goods between the countries of the Codex Alimentarius was has been developed. The Codex is a collection of international food standards and provisions designed primarily to protect consumer health⁶. It plays a significant role in the management of food quality worldwide. During its development any objections on the part of Member States, relevant international organizations and scientific circles were taken into account. It contains quality guidelines for the processed and semi- processed food. It contains a list of pesticides approved for use and maximum limits of their concentration for the respective types of food. It regulates issues related to food hygiene. It includes recommendations for microbiological contamination and chemical contaminants (including pesticides), the principles of food labeling, food additives, methods of analysis and sampling for analysis. The Codex Alimentarius is composed of three parts⁷:

1. Part A - Standards of a general nature and other indications and chapters (marking and declarations, pesticide residues and contaminants, food additives).
2. Part B - standards for food products grouped by type of raw material output (processed fruit, vegetables and edible mushrooms, sugar, processed meat, poultry products, bouillons and broths, fish and fishery products containing cocoa and chocolate, frozen fruit and vegetables, fruit juices, concentrated fruit juices and fruit nectars, edible fats and oils, milk products, cereals, pulses and derived products, vegetable protein, food for special dietary uses, including for infants and children, different standards for other products).
3. Part C - regional standards for the countries of Africa and Europe.

³ For more see: M. Taczanowski, *Prawo żywnościowe*, Warszawa 2016.

⁴ B. Jackiewicz, *Poradnik opracowania zasad Dobrej Praktyki Produkcyjnej (GMP) i Dobrej Praktyki Higienicznej (GHP) z przykładowo wypełnioną dokumentacją*, Gdańsk 2013, pp. 6-8.

⁵ M. Taczanowski, *Definicje legalne prawa żywnościowego - przyczyny tworzenia i formy*, *Żywność. Nauka. Technologia. Jakość*, 2015/6(103), pp. 7-19.

⁶ I. Ozimek, K. Gutkowska, S. Żakowska-Biemans, *Postrzeżenie przez konsumentów zagrożeń związanych z żywnością*, *Żywność. Nauka. Technologia. Jakość*, 2005/4, pp. 100-111.

⁷ M. Wiśniewska, *Kodeks Żywnościowy (Codex Alimentarius) - wytyczne dobrej praktyki higienicznej* (English-Polish version), Gdańsk 1997.

According to the definition of the Codex Alimentarius food hygiene “includes the resources needed for the production, processing, storage and distribution of food designed to ensure a safe, healthy and intact product suitable for human consumption”⁸.

2. REQUIREMENTS OF EFFICIENT INTRODUCTION AND PERFORMANCE OF HACCP

Food service of supply units was obliged to improve continuously the quality of prepared meals, with particular regard to their health safety through comprehensive involvement of all employees. Employees of food service of a military unit should be competent and responsible for the implementation of activities related to the acquisition and storage of food supply and food production. An implementation of the strategy of a continuous increase in the level of quality through the identification, evaluation and monitoring of potential threats ensured the safety of food products⁹.

All activities in the area of production, storage and distribution of finished products had to be carried out with regard to the principles of Good Manufacturing Practice (GMP) and Good Hygiene Practice (GHP)¹⁰.

Employees of the food section needed to know and apply a policy of food safety, therefore, only the persons performing tasks in a competent manner, with appropriate education, skills, experience and continuous training and skills were employed to work in the catering military units¹¹.

Therefore, a caterer in the military unit had to declare compliance with the requirements of sanitary and quality requirements, according to Polish legislation, GMP/GHP rules and the Codex Alimentarius according to which the HACCP system operated on the basis of the following principles¹²:

- carrying out risk analyzes,
- determination of Critical Control Points (CCP)
- establishing critical limits for CCP,
- establishing procedures to monitor CCP,
- identifying corrective actions in the CCP,
- development of verification procedures system,
- maintenance of records and documentation procedures of the system.

⁸ <http://www.fao.org/fao-who-codexalimentarius/en/> (access on 14.12.2016).

⁹ E. Nowakowski, *Wymagania sanitarno-higieniczne w zakładach żywienia zbiorowego*, Rynek Instalacyjny 10/2008 <http://www.rynekinstalacyjny.pl/artukul/id3257,wymagania-sanitarno-higieniczne-w-zakladach-zywienia-zbiorowego?p=2> (access on 12.12.2016).

¹⁰ The Act of 11 May 2001 on health conditions of food and nutrition. (Journal of Laws No. 63 item 634) Act of 25 August 2006 on food safety and nutrition (Journal of Laws No. 171, item. 1225).

¹¹ Kitchen and canteen, food storage, food service office.

¹² *Zbiór wytycznych w zakresie wdrażania procedur opartych na zasadach HACCP oraz ułatwień we wdrażaniu zasad HACCP w niektórych przedsiębiorstwach sektora spożywczego*, Bruksela, 16 września 2005.

The start of work was preceded by an audit of facilities conditions and an assessment of the degree of implementation of the GMP and GHP principles. The verification showed full readiness to start implementing measures of the HACCP system¹³:

- the condition of sanitary-hygienic facilities was good,
- there were known deviations from the sanitary recommendations and the activities related with their improvement were planned,
- staff of food facilities was trained and aware of the rules of conduct with the food,
- the instructions, signboards and forms records system was largely developed and partially implemented,
- the objects were equipped with basic metrology equipment,
- the teams for an implementation of the HACCP system were called,
- the range of responsibilities for team members was defined.

The organizational structure of the teams responsible for the implementation of the HACCP system in the supply unit:

- commander,
- health and safety inspector,
- chief accountant,
- head of logistics (in charge of HACCP),
- head of health services,
- head of material section,
- head of food service,
- head of kitchen and military canteen,
- cooks,
- senior warehouseman,
- assistant of the warehouseman.

The supply unit was under of command of the head of logistics in consultation with the head of the health service and they were responsible for the implementation of the HACCP system. The main tasks carried out by a person in charge included.

Commander/ Leader:

- verification and approval of the development directions of the health safety of consumers,
- establishment and implementation of HACCP policies,
- provision of the necessary resources for maintaining and developing the HACCP system,
- determination of the competence and responsibility for employees.

Head of Logistics:

- ensuring the compliance of HACCP system with the Codex Alimentarius (1997),
- supervising the work of the HACCP team,
- supervising the preparation of documentation,
- informing commanders about the effectiveness of the HACCP system,
- cooperation and organization of training courses on the HACCP system.

Service and kitchen staff and the warehouse:

- implementation of HACCP policy,

¹³ http://www.label.pl/po/wdrozenie_haccp.html (access on 3.01.2017).

- the identification of training needs,
- the use of documents,
- the immediate withdrawal of obsolete documents,
- storage and disposal of records of the HACCP system,
- making records which allow a reference to a product, people, time steps.

Head of Health Service:

- identification of needs in reviewing and testing of medical personnel,
- storage and record-keeping of health personnel,
- constant supervision of the state sanitary-hygienic facilities of food with particular emphasis to the kitchen,
- permanent control of organoleptic prepared meals.

The detailed responsibilities for specific areas of action were included in the procedures, plans and instructions, and the responsibilities of individual employees of military units.

2.1. Supervision of staff work

Nutrition of soldiers includes the preparation of meals according to a set decade menu in conditions that ensure their health safety. The HACCP¹⁴ system which functioned in the kitchen and the canteen, and which was reflected by documents and forms filled in by the person responsible for the proper functioning of the object, helped maintain the health safety of prepared meals. Proceedings of staff has to be consistent with the assumptions of GMP/GHP and supporting documents. Each employee is responsible for monitoring and keeping records of the designated process or a production stage. The whole work and its documentation and archiving is supervised by the kitchen and canteen manger.

2.2. Supervision of the collection and storage of food products

Collection and storage of food products is the basis for the preparation of meals. Safety and taste of meals depend on acquisition of semi-finished products from suppliers that meet a number of requirements set out in the specifications of the tender. The 21st Brigade of Riflemen acquired the foodstuff in two ways, by receiving their own transport from the 7th District Materials Base¹⁵, or transportation from providers indicated by the same base. Each delivery must be accepted, evaluated and stored in accordance with individual parameters and a product delivery evaluation sheet. Products that do not meet

¹⁴ *Ramowe zasady przygotowania i wdrażania systemu HACCP w stołówkach i kasynach wojskowych*

z 22 kwietnia 2004 r. Logistyka Wojsk Lądowych, Warszawa 2004.

¹⁵ 7. District Materials Hub - JW 4824 (2004-2011) appointed by the order of the Commander of the

Silesian Military District No. PF-49 / Org. on 3 October 2002. Place of the command stationing

– Stawy near Dęblin. The command implemented logistical tasks for military units in the area of responsibility. In connection with the reorganization of structures of logistics in the Armed Forces it was decided to deform of District Material (11) and form, in their place Regional Logistics

Hubs (4). It was launched on 31 December 2011.

the requirements has to be described in the non-compliance protocol of delivery and rejected. The senior warehouse man is responsible for the proper acceptance of goods as well as storage, handling and archiving documentation.

2.3. Supervision of the preparation and serving meals

Preparation and serving meals is done according to a set a menu and the current recipe. Critical points in the preparation of meals relevant to food safety should be identified and should be supervised by selected employees. All stages of products processing are conducted in accordance with the principles of Good Manufacturing Practice. Critical values of all the steps should be monitored and continuously recorded, and any deviation from the accepted standards immediately reported to the head.

2.4. Industrial catering equipment

All activities related to maintenance of equipment should be recorded, stored and used for subsequent maintenance. Equipment failures should also be recorded. Repairs and maintenance, which cannot be done on their own, are performed by the Regional Commissary Production and Service Plant. All records of renovation and repair must be placed in evidence and cards of the equipment maintenance.

Maintenance of refrigeration and catering facilities should be done on their own (cleaning, lubrication, painting the external body).

Employees are responsible for proper functioning of devices and they report immediately any malfunctions and failures to the manager, who oversees their operation and repair and is responsible for the repair.

2.5. Hygienisation of kitchen and canteen

Hygienisation of the kitchen, technological rooms and the canteen is the basis of health safety of prepared and consumed food. Cleaning, washing and disinfection carried out according to a fixed program schedule and the applicable instructions to ensure the supervision of the maintenance of the required work environment serve this purpose. All the elements constituting the hygienization of proper maintenance of the sanitary and hygienic conditions are implemented and documented in accordance with the principles of Good Hygienic Practice. Supervision over the proper sanitary-hygienic condition and its documenting is of responsibility of all employees depending on the scope of their duties.

2.6. The location and the kitchen setting

The kitchen should be located on the premises of a military unit outside the areas adversely affecting ongoing processes related to the preparation and serving of meals. The kitchen must have available sources of energy, water supply and the sewage system.

On the perimeter of the kitchen area there should be a concrete strip of about 1 m width free from any vegetation.

The waste landfill should be planned in the way that it will not affect the activity of the kitchen. Garbage containers should be properly protected by covers and regularly exported. Plastics and paper, post-production waste and packaging should be stored separately in containers which are collected by an external company according to the agreement.

Cleaning works should be done every day after breakfast by the team designated to handle the kitchen. An appropriate level of cleanliness around the object kitchen and the canteen should be maintained.

Surfaces of all areas around the kitchen area of the building should be paved and drained to minimize the possibility of puddles. Access roads must meet the conditions for the safe and collision-free movement of vehicles on the unloading ramp.

Unloading – loading surfaces should be adapted to the activities carried out and protected against the effects of adverse weather conditions.

The term of conducting activities related to the adoption of raw materials and disposal of waste should comply with the requirement of not crossing traffic routes in the external space of the kitchen.

3. CONCLUSIONS

Generally it can be said that the conditions to implement the HACCP system in the objects of public nutrition of military units, as a system of conduct aimed at identifying threats to the health quality of food and the risk of their occurrence at all stages of the food production and distribution, were met.

The HACCP system in the Polish Armed Forces was given due weight. The implementation of HACCP system required in many cases upgrading kitchen and storage facilities, and retrofitting of their equipment in compliance with its requirements. Renovations of soldiers' canteens, as well as the introduction of the use of the new equipment were executed successfully.

However, it should be noted that the implementation of the HACCP system is a continuous process that requires a constant investment in property and financial facilities to improve the quality and safety of food and nutrition.

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WDRAŻANIE SYSTEMU HACCP W JEDNOSTKACH WOJSKOWYCH W 2004 r.

Analiza Zagrożeń i Krytycznych Punktów Kontroli (HACCP) został początkowo opracowany we wczesnym okresie amerykańskiego programu kosmicznych lotów załogowych w celu zapewnienia bezpieczeństwa mikrobiologicznego żywności dla astronautów. System został opracowany (w latach 60-tych) przez Pillsbury Company współpracującą z NASA i Laboratorium Badawczym armii USA w Natic. Następnie firma Pillsbury zastosowała HACCP do własnych produktów żywnościowych i wprowadził ten system do przemysłu spożywczego. Dążenie Polski do integracji z Unią Europejską wymaga wielu działań dostosowawczych, w tym również upowszechniania zasad GMP (Dobra Praktyka w Produkcji Żywności) i wdrażania systemu HACCP w przetwórstwie spożywczym. System bezpieczeństwa żywności dotyczy jednostek produkujących, magazynujących i dystrybuujących żywność¹⁶. Obowiązek został wprowadzonym przez przepisy ustawy z dnia 11 maja 2001 r. o warunkach zdrowotnych żywności i żywienia (Dz U. Nr 63 poz.634) a także ustawy z dnia 30 października 2003 r. o zmianie ustawy o warunkach zdrowotnych żywności i żywienia, oraz niektórych innych ustaw. Do wdrożenia są zobowiązani wszyscy przedsiębiorcy zajmujący się produkcją żywności i jej obrotem.

Wymogi sprawnego wdrożenia systemu HACCP zaprezentowano na przykładzie jednostek wojskowych 21. Brygady Strzelców Podhalańskich (21 BSP), które jego wdrażanie realizowały w oparciu o „Ramowe zasady przygotowania i wdrażania systemu HACCP

w stołówkach i kasynach wojskowych” wydane 22 kwietnia 2004 r. przez Logistykę Wojsk Lądowych. Zgodnie z wyżej wymienionymi zasadami, podstawowe etapy wdrażania tego systemu, w większości jednostek wojskowych, zakończono z dniem 31 grudnia 2005 r. Przy wprowadzaniu przedmiotowego systemu w jednostkach wojskowych uczestniczyły wyspecjalizowane firmy zewnętrzne.

¹⁶ Dyrektywa Rady 93/43/EWG z dnia 14 czerwca 1993 r. w sprawie higieny środków spożywczych.

Słowa kluczowe: bezpieczeństwo żywności, system HACCP.

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