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SWINE FEVER EPICENTRE ELIMINATION

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ABSTRACT

The study paper deals with actual problem of biological hazard elimination in setting of Fire rescue brigade Žilina on Slovakia. The first part describes basic disinfection procedures for intervention in the contaminated area. The second part describes the specifics and the negative effects of swine fever. The third part deals with tactics of elimination swine fever with Fire rescue brigade Žilina.

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INTRODUCTION

The biological risk exposure of a human or other living organism to the action of biological agents such as bacteria, viruses, fungi, yeasts and molds. Biological agents mean microorganisms including genetically modified organisms, cell cultures and human endoparasites, which can cause infections, allergies or poisoning. Risk of contamination by microorganisms is that the micro-organism to the human or other living organism will not appear immediately, but only after the incubation period.

Etiologic agent of infection (the causative agent or the infectious agent or biological agent) is any cellular or non disease-causing (pathogenic) mi-

cro-organism (bacteria, viruses, rickets, mold and fungi) and its products (toxins) that are capable of causing mass infection or poisoning person or animal. The very ability of a microorganism to survive outside the host body can take several years. Some of the microorganisms cause disease in humans or an animal (e.g., Rabies, toxoplasmosis, tuberculosis, tetanus, plague, salmonellosis, brucellosis, tularemia, anthrax, psoriasis).

Infectious disease condition with the presence of the agent of the disease in the body of a human or animal. Causative agent of the disease adapts to the environment in which it is located is able to multiply there and disturb the body's own tissue – the host.

The incubation period is the time that elapses from the microorganism intrusion into the human body or an animal after the first symptoms of the disease.

Outbreak is a place of survival agent of the disease, together with its surroundings, which can spread the infection. Focus continues as long as the agent of the disease it perish, and before the expiration of the maximum incubation period of last resort contact with the material of biological origin.

Space is s strict isolation or quarantine the person or animal suspected of being infected due to contact with a source of infection or due to stay in the focus of infection for a period bounded by the length of the incubation period of the disease. It's a geographical area determined by hygienist with an outbreak of disease.

Protection of members of rescue services intervening before the material of biological origin during liquidation work in the contaminated area lies in the use of funds Breathing designed to protect the airway and full-coverage protection body surface. Pathogenic microorganisms can penetrate into the body affecting members as follows:

- alimentary (touch) – infection can be entered in the gastrointestinal tract dirty hands,
- aerosol – infection can be entered in the respiratory tract as a droplet infectious agent,
- transmissive – the bite of an infected insect bites or infected animal,
- eye or mucous membranes of the nasal mucosa,
- through damaged skin.

To destroy contaminants of biological origin or minimize the use of pathogenic effects of disinfection and sterilization procedures.

Disinfection is a type of decontamination, which includes a set of methods and procedures applied specifically to kill pathogenic organisms on objects and locations from which you can transfer them to a living organism – infection.

Sterilization is usually carried out on the use of (contaminated) medical supplies to be permanently deprived of any microorganisms. Sterilization as such do not perform on humans and other living organisms.

Disinfection operations should be carried out in the prescribed manner, so as to effectively suppress all forms of microorganism survival and has stopped its transmission, while ensuring permanent supervision and control of decontamination area to prevent indirect spread of the pathogen outside of this area.

1. BASIC DISINFECTION PROCEDURES FOR INTERVENTION IN THE CONTAMINATED AREA

Disinfection of the complexity of the process of cleaning of contaminated surfaces is divided into:

- single or multiple,
- dry or wet,
- temporary (partial) or permanent (full).

Disinfection is performed by applying the disinfectant solution of the active compound to the contaminated surface to inactivate or kill the micro-organism. In some cases it is necessary surface to be disinfected, first get rid of coarse dirt and mechanical cleaning (suction, scraping, dusting, air cooling, wiping, sweeping, washing, ventilation, etc.).

In order to enhance the health and safety of members of intervening components against the possible consequences of infection in contact with the material of biological origin, it is necessary immediately after the activities in contaminated environments to carry out disinfection of contaminated surfaces used chemical protective clothing. The aim of disinfection is to reduce the threats affecting not only members but also others who work with special riot fire equipment. Disinfection performed in the area after the intervention of any activity, generally in close proximity to the border marked by the occurrence of material of biological origin.

Before carrying out disinfection, it is necessary first of all to ensure the safe area separate source of clean water (CAS CAS 25 or 32, respectively. ARS-12M) and prepare a disinfectant solution in a bucket, in court

or in a vehicle ARS-12M. Disinfectant solution is applied to the surface with a brush, sponge, cloth, shower or other suitable means (ARS-12M).

TABLE 1 DECONTAMINATION MEANS OF BIOLOGICAL AGENTS¹

Contaminant	Decontaminat agent		
Biologic agent	Name	Reccomeded concentration	Time of exposition (min.)
A,B,C	Divosan forte	0,1 – 0,5%	10 min.
A,B,C	Oxonia aktiv 150	0,1 – 0,3%	10 min.
A,B,C	Persteril	0,1 – 0,5%	10 min. till dry
A,B,C	Pedox PAA 50	0,1 – 0,5%	10 min. till dry
A,B,C	Pedox PAA 30	0,1 – 0,5%	10 min. till dry
A,B,C	Savo	5,0 – 25,0%	10 min.
A,B,C	Suprachlor	1%	10 min.
A,B,C	Chloramine B	2,0 až 5,0%	10 min. till dry
A	killing vegetative bacteria, yeast and some microscopic filamentous fungi		
B	inactivation		
C	killing bacterial spores		

Disinfection operations should be carried out in the prescribed manner, so as to effectively suppress all forms of microorganism survival and that it stopped its transmission, while ensuring permanent supervision and control of decontamination area to prevent indirect spread of the pathogen outside of this area. The intervening member who uses a gas-tight and pressure suits, can be considered pure because a contaminant is unable to break during use chemical protective clothing to its internal parts and thus contaminate the skin member.

The premises built decontamination work we perform disinfection:
 – member after his exit from the space or direct threat of the space in which it was carried out the evacuation of vulnerable persons collecting or securing material of biological origin,

¹ S. Kolomazník, *Likvidácia epidémie klasického moru oštipaných*, Záchranná brigáda HaZZ v Žiline, 2004, p. 56.

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- contaminated persons (surface of the skin, hair or clothing parts) after its evacuation from the space direct threat,
 - special intervention firefighting equipment or evacuated materials and resources discharged from the zone of direct threat.

Disinfection of solid and liquid material of biological origin in the form of waste or degradation products (faeces) is performed in the area of occurrence using a concentrated disinfectant and prepared solutions with a higher concentration of an active agent to be applied to the contaminated surface leave the long-term work with a view to the inactivation of micro-organisms.

Chemical disinfection of the surface of the compositions, the wet process is performed by coating, spraying, or washing in a disinfectant solution to the contaminated surface or by dipping and washing the used composition. The aim is to prevent or reduce the possibility of secondary contamination of personal material of biological origin in handling the means used outside the area of intervention.

When the action of the active chemical substance (reducing its reactivity) should be disinfected surface of the chemical protective garment multiply rinsed or washed clean with warm water. After completion of the disinfection can break the seal of a chemical suit and a member can withdraw from the so-called protective clothing. “Cleanroom” where the dress in emergency clothing.

Used equipment Breathing is necessary after the intervention and disinfect the inside of soaking in disinfectant solution (usually on the premises of the fire station – in the wet part of the enclosure Breathing).

Soaking chemical protective clothing used in the disinfectant solution results in a long-term open-ended to the active substance, and is designed to destroy pathogenic micro-organisms (bacteria, virus, fungus, yeast) including protective spores, where they could survive.

After thorough rinsing with pure water several times, we can wear mechanical scraping to dry the moisture of the net fabric and brought to dryness in a stream of clean air at a temperature of 40–50°C. After drying of clothes should be allowed to ventilate hang it up in the open air for at least 24 hours.

IMPLEMENTATION OF THE ONE-STEP DISINFECTION

One-step disinfection chemical protective clothing after the intervention in a contaminated environment should be carried out sequentially:

1. surface of the chemical protective garment material mechanically cleaned of biological origin rubbing (friction) with thick brush bristles, sponge, cloth, where appropriate chemical protective garment surface wetting,
2. the surface chemical protective clothing disinfectant solution applied with a brush or the cleaning equipment and rubbed him or rub into all folds and hidden areas (soles and boots),
3. the active substance is to be let work properly (generally 2–10 minutes, depending on the concentration of the active substance),
4. the end of the action of the active ingredient (the prescribed reaction time) poly garment washed with clean warm water, thereby causing dilution of the reaction material and the material of biological origin,
5. firefighter is transferred to the clean end of the decontamination area, which violates the tightness of clothing, undress and undresses the chemical protective clothing.

IMPLEMENTATION OF THE MULTI-STAGE DISINFECTION

Procedure for two-stage or multi-stage disinfection of the surface of the chemical protective garment is similar to the one-step disinfection, but the application of the disinfectant solution to the surface of the chemical protective garments, and rinsing with water is carried out several times in succession.

2. SWINE FEVER – CONDITIONS AND NEGATIVE EFFECTS

The first swine fever epizootic occurred in 1833 in the US, Ohio. In 1937, the recorded incidence of plague in South Carolina and in 1938 in Georgia. In 1845 epizootic plague was reported in ten US states, in the period 1846–1855 was reported 93 epizootic diseases in thirteen US states. The spread of infection swine fever extends the in England and the Scandinavian countries, and there forward throughout Europe. Some of the opinions of experts say that the situation has developed in exactly the opposite, that is, the swine fever was after the primary occurrence in Europe introduced to the USA².

The originator of swine fever has long been considered the germ sui-pestifer bacterium (*Salmonella cholerae-suis*). Only after evidence of viral etiology in 1903 research sea to benefit from a science-based knowledge to its purposeful control and combat. In the 21st century, the swine fever

² F. Volná et al., *Dezinfekcia a sterilizácia – teória a prax*, Vrana Žilina 1999, p. 89.

spread worldwide. The degree of infestation, however, in different continents different. Affected are those countries with intensive pig. During the 2nd World War in Europe it was widespread in the last thirty years is limited, and in some states, having been completely destroyed. Despite the constant threat they are without sea: Finland, Denmark, Sweden, Iceland, Ireland, Norway and England. In the other countries of Western Europe are areas of endemic plague, which are kept under control. Stronger infested as Italy, Spain, Portugal a Greece. Due to the specific prophylaxis of the countries of Central and Eastern Europe, virtually no sea. In Canada he was recorded last occurrence of plague in 1964 and in the US since 1972 swine fever appeared only sporadically. In Africa, the most contaminated countries. In Asia, the degree of infestation of each regional considerably different. Particularly hard hit are Vietnam, the Philippines and India. In the past, heavily infested Australia is only in rare flare sea completely disease-free.

Currently in Slovakia it does not foresee the occurrence of swine fever in clinical form, for which we owe a systematic implementation of specific prophylaxis and application veterinary measures.

2.1. CAUSES OF THE INFECTION (EPIZOOTOLOGY)

Swine fever is one of the few viral infections in which the natural occurrence confined to a single species. The source of infection are always pigs present in the incubation stage, clinically sick or infected inapparentne, they secreted secretions, slaughter products, and meat products. Morbidity sea is very high: 80–100% mortality: 60–70%. The infection is transmitted and spread in the population of the contaminated animal husbandry mainly horizontal, direct virus transmission from animal to animal or indirectly infected feed and materials. The infested farms with atypical, inapparent how the sea has a big role in vertical transmission of infection to sow suckling piglets. Infected pigs can infect healthy animals during the incubation period, because in the excreta, mainly urine virus may be present as early as 24 hours after infection. In feverish conditions the virus in addition to urine found in secretions of the eyes, nose and trachea. The infection is transmitted by blood and excretion from the body openings sick animals. Faeces, if not bloody, are less infectious because the virus due to rotting quickly perish. Infection is easily expanded emergency slaughter pigs, in particular the meat of animals slaughtered in the incubation stage, because the authorities will not find out

changes suggestive that it is a plague. Pigs infected with the virus do not exclude natural way for longer than 26–30 days.

Swine fever virus are grouped less resistant viruses. The assessment of resistance of the virus in infectious materials from infected animals to be distinguished from the virus bound to the cells and tissues, such as blood, organs, meat and meat products, and free virus secreted secretions. The virus is bound to the cells is considerably more resistant than free virus. It plays an important role if the virus is found in wet or dry environments. The dried virus is much more durable e.g. dry, eye discharge remains infectious 15 days, dried blood up to several years.

Of particular importance for the spread of swine fever have animals with atypical course of the disease. They include chronically diseased pigs called. *zakrpatence* that long harbor the virus in the blood, in the lymph system and internal organs. These animals secrete the virus permanently secretions. The urine of these animals may be infectious even after 200 days of being infected.

2.2. PATHOGENESIS OF INFECTIOUS DISEASE

Swine fever virus is very infectious. The body gets over the top portion of the digestive system, food and water, or by expiration, by inhalation of infectious aerosols. Infection may also enter the body through the mucous membranes of the conjunctiva or genital organs. Infections of the lower paths digestion apparatus is unlikely because the virus is administered directly into the stomach does not cause disease.

Primary viral replication occurs in almonds from which penetrates into the regional lymph nodes and one to the other lymphoid organs. It is penetrating the blood for 16–24 hours, to start the second phase of the pathogenic process. The content of virus in the blood rises quickly. Blood of the virus gets to the other lymphoid organs, thymus, spleen, pancreas, liver, lung, intestine, muscle, gland, and bone marrow³. The virus was first multiplies in lymphoid tissue, later in epithelial cells. Hyaline degeneration occurs and often complete closure of the blood vessels. The virus is often the primary author of hemoradického pneumonia. The colon causes changes that were previously wrongly considered the effect of salmonella infection cholarae suis. The cause of death is a general circulatory failure and cardiac inflammatory changes of nerve system, in the central or sec-

³ J. Vrtiak et al., *Špeciálna epizootológia 2*, Bratislava 1986, p. 33.

ondary inflammatory processes of the respiratory and digestive organs, which are caused by bacterial infections.

The incubation period lasts depending on the virulence of the virus with virulence 3–6 days and up to 20 days at a weakly virulent strains. Mortality is also highly dependent on the virulence of infectious virus, condition and age of the animals, as well as the degree of premorenosti pigs.

2.3. PROFYLAXIS

Specific methods of prophylaxis based on the fact that pigs have overcome the infection, create immunity that protects them for life against subsequent infection with virulent virus. SUMMARY specific protection from infection is based on the presence of antibodies, and the presence of cells sensitized virus, swine fever virus (cellular immunity).

Cell-mediated immune response specifically started in pigs challenged after the formation of serum antibodies and observed over a short period, whereas serum antibodies persist throughout their economic use.⁴ The formation and persistence of active immunity to infection of pigs is based therefore on the presence of specific antibodies. Standardly, swine fever is economically severe infection that is not treated and sick and suspect animals in the outbreak or even beyond must be killed.

2.4. DEZINFECTION

As disinfecting agents are suitable strong alkalis – 2% caustic soda solution containing 3–5% lime milk inactivated virus in the blood two hours, the urine in 15 minutes, the walls and floors in one hour. Also effective is the chloride of lime in a ratio of 1: 5 and 1:20. Disinfection is also applicable solution of 6% kresilik water.

Secure achieve viral inactivation by heat. In the practice of the suitable temperature: disinfection of clothes and the packaging material 75 DEG C/hour and 30 minutes boiling. Meat and meat products the meat from infected and activated by boiling at 100°C for at least ten minutes.

3. PROPOSAL OF DISPOSAL PROCEDURES BY OUTBREAK SWINE FEVER BY RESCUE BRIGADE HAZZ ZILINA

Slovakia stipulates the procedure for disease control Act. 39/2007 Z.z. on veterinary care, as amended. According to this law, the competent veteri-

⁴ J. Záhradnický, *Mikrobiológia a epidemiológia*, Martin Osveta 1991, p. 112.

nary authority of the occurrence of infection, suspected of the occurrence or the risk of spread of disease obligation to order protective and control measures. In its decision must state:

- date, location and extent of infection,
- outbreak.
- protection zone,
- surveillance zone.

The focus of infection is ordered:

- trap a utility pig and assigned table “extremely dangerous infections of animals – not permitted”,
- immediately killing an entire farm in a manner that avoids any risk of spread of classical swine fever,
- disposal of animals slaughtered under official supervision (supervision),
- all the material (waste, feed, manure, tools, etc.) Cleaned, disinfected effectively and harmlessly removed,
- after the removal of pigs entire area cleaned and effectively disinfected,
- at least 30 days after cleansing and disinfection can be started with a gradual placement of sentinel piglets. In this “biological experiments” have weaned freedom of movement for the individual objects. The specified dates are made testing for antibodies to classical swine fever. If after the second examination after 42 days stay in the area, the results are negative, it may be declared as defeated.

3.1. THE INTERVENTION OF THE RESCUE BRIGADE RESCUE CORPS IN ZILINA WITH SWINE FEVER IN THE DISTRICT OF PRIEVIDZA IN 2003

In Slovakia, in past outbreaks of classical swine fever occurred primarily in wild feral. As from 2000, did not carry out preventive vaccination of domestic pigs, significantly increased the risk of transmission of infection from wild boar to domestic pigs, especially in places where they are flooded by wild boars. Such a situation occurred at the end of 2003 in the district of Prievidza. Despite the received quarantine measures were gradually spread infection of classical swine fever on farms in Nitrica Dolné Vestenice, Kostolná Ves, Opatovce nad Nitrou and in the trash.

Rescue Brigade Rescue Corps in Zilina was sent to carry out the final disinfection after fulfillment of other measures by the owners of individual farms. In consultation with representatives of Veterinary Services, it was decided to use for disinfection of floors, walls, frames and the exte-

rior of the pens sodium hydroxide solution, the other part (technological equipment for feeding and watering, wiring) of chloramine B because of the aggressiveness of the material smaller. Disinfectant solutions were prepared in four special decontamination vehicles PV3S ARS-12M.

First, it was necessary to warm the water to 80°C to prepare a sodium hydroxide solution at 60°C for the preparation of chloramine B are deliberately selected temperature at the upper limit of the prescribed standards due to the very low temperature air, and it was necessary to maintain the prescribed temperature (70- 80°C, respectively. 50-60°C) throughout the application disinfectant solution, which was on average about 90 minutes. After heating the water in the tanks of the vehicles was a formulated 3% sodium hydroxide solution and a 4% solution of chloramine B. The prepared solution was applied on the surface of nozzles, the sensitive electronic equipment fine spray and spreading brushes.

The fulfillment of the tasks was attended by members of the 3 daily services who were permanently present in the area of deployment. Provide training equipment and material, heating the water to a desired temperature before the arrival of the group, cleaning and maintenance of vehicles if daily work, filling the tank with water, the fueling and necessary repair of the equipment.

In the rescue group that was moving every day from the object Rescue Brigade Rescue Corps in Zilina, was 8 members Amendment. These members upon arrival at the facility preparing disinfectant solutions and carry out final disinfection applying these solutions. Due to the hazards used disinfectants on the human body have all the work done in the means of individual protection – in protective masks M-10 and in chemical protective clothing OPCH-70th.

Gradually was carried out disinfection 17 objects on individual farms. It was used 82 000 L of a 3% solution of sodium hydroxide at 80 and 55 000 of a 4% solution of chloramine B of 60°C. After disinfection were of particular objects collected swab samples and these were evaluated at an accredited testing laboratory of the State Veterinary and Food Institute in Dolny Kubin.

FIG. 1 OUTDOOR AND INDOOR PIG FARM SPACE DISINFECTION



Source: Michal Orinčák, 2004.

The action was realized in the period due to weather conditions put high demands on the organizational support of the event and the technique used. Given the very low air temperatures (up to -18°C) was necessary to ensure decontamination garaging cars after the day's work in areas where the temperature even at night did not fall below 0°C because the drainage aggregates is complicated and lengthy. This requirement was not possible to meet all farms. In such cases, the technology had to be after the end of the work, maintenance, refueling and filling with water transferred to replacement facilities in other municipalities and the next

morning again back on the job site. Low temperatures significantly prolong the time needed to heat the water.

FIG. 2 DISINFECTING THE INTERIOR OF THE PIG FARMS AND THE PREPARATION OF SOLUTIONS OF PV3S ARS-12M



Source: Michal Orinčák, 2004.

Daily output was limited:

- daylight time because of security reasons, it was not possible to illuminate objects inside,
- reduced length of stay affecting members of the isolation means of individual protection.

In carrying out disinfection of indoor air problems it caused a large amount of steam that arose when applying hot solutions and greatly restricts visibility. In outer space was the biggest problem snowy and icy surfaces. Prior to the disinfection has been necessary first to remove snow and ice mechanically and hot water, and then was coated disinfectant solution.

Due to the strict hygiene standards that all people briefed on the prohibition of leaving the premises without prior hygienic cleaning and disinfection. The means of individual protection and all výstrojné part number was prohibited to take outside objects and after the intervention were destroyed by burning in a boiler room. All work associated with the disease control is conducted in accordance with professional guidelines and under the supervision of the official veterinarian.

3.2. PROCESS DESIGN ACTIVITIES RESCUE BRIGADE RESCUE CORPS IN ZILINA INDIVIDUAL STATIONS

Post no. 1 – Recommended action:

- secure and mark the only entrance and exit to the outbreak. Building and sign disinfection ford for engineering of no less than 1.5 times the circumference of the largest tire vehicles. The establishment of disinfectant mats for people to ensure the registration of persons and equipment. Acceptance build a counter for food supplies used only for food imports,
- close and guard the entrance to the outbreak, as well as the entire area outbreak and prevent uncontrolled entry and egress of persons outbreak. Access roads to be closed from the outside with the help of members of the PZ,
- time in respect of watering mats disinfection fords a 3% solution of chlorinated lime, chloramine or suprachlórom and every 2–4 hours,
- disinfect equipment 3–5% solution of chlorinated lime, chloramine or suprachlórom, allowed to act for 30 minutes and then rinsed,
- perform other necessary measures.

The proposed activity Rescue Brigade Rescue Corps in station no. 1:

- provide access to the center of infection,
- disinfect technique based on an outbreak,
- staff: 2–4 members to provide input to the outbreak (only if necessary) and 3–5 members performing work on disinfection techniques,
- Equipment: 2 x PV3S ARS-12M, WAP, Handy power sprayer STI-HL, disinfectant mats, use WAP, just in case the availability of source of water.

FIG. 3 CHEMICAL PV3S THE SPRAY TRUCK/ADR – 12 M IN THE DECONTAMINATION OF GROUND



Source: Michal Orinčák, 2011.

FIG. 4 DISINFECTION OF EQUIPMENT BASED ON THE OUTBREAK



Source: Michal Orinčák, 2011.

Post no. 2 (operation of the focus of infection) – Recommended actions:

- with the help of special equipment (PV3S ARS-12M) to perform work in the farmyard disinfection of premises and equipment, infrastructure, unpaved surfaces and slurry as well as mechanical engineering and farmyard cleaning equipment,
- disinfect the stable space and has 2–5% sodium hydroxide solution (NaOH), 4% chloramine B, 5% of bleach or suprachlór. Chloramine B is used as a disinfectant only while stocks last, because according to EU directives is the production ended in 2006. A replacement full disinfectant became Suprachlór,
- Persteril disinfected slurry of 0.3% formalin or 1% (by addition of 1 kg Lime chloride content of the 50 l), after mixing, allowed to act for 24 hours and then exported to field. Biotermicky disinfected manure composting. Disinfect the soil surface 4–5% sodium hydroxide solution in an amount of 10 l per 1 m² of area,
- perform other necessary measures.

The proposed activities of rescue brigades HaZZ at the station no. 2:

- disinfect the stable space special equipment PV3S ARS-12M by means of a nozzle, brush, the front bar, spray nozzle, and a large hand using a portable sprayer intended for the cleaning of the used material. For these works, it is necessary to use specially trained staff – engineer for

use 2 pieces of special disinfecting techniques PV3S ARS-12M for min. of 4 members. The ideal option is to use members of the chemical – environmental team, because it is necessary to mixing decontamination solutions. On the use of hand decontamination, portable sprayers can also be used HaZZ members of the respective district who synergistically involved in the liquidation outbreak.

– staff: 6 members

– equipment: 2 pieces PV3S ARS-12M, and 5 units of portable sprayers (Johan Enviro – mechanical, thin – engine).

FIG. 5 DISINFECTION OF STABLE FARMYARD AREAS WITH PV3S ARS-12M



Source: Michal Orinčák, 2004.

Post no. 3 (activity to disinfect people) – Recommended action:

- entering nursing staff and other persons necessarily entering the outbreak must be absolutely ensured through hygienic filter – disinfection of people, changing rooms, toilets, showers; ensure disinfection – chemical treatment of clothing, footwear or incineration.
- perform other necessary measures.

The proposed activity Rescue Brigade Rescue Corps in station no. 3:

- building sites for hygienic cleansing of persons. Hygienic cleansing of persons developing through three tents equipped with shower facilities with a small set of the bathing. The possibility of using decontamination showers for decontamination DEKONTA people. Chemical treatment of clothing and footwear in the ferry disinfectant,
- Staff: at least 3 members to ensure the hygienic filter who can also use PDP-2,
- Equipment: PV3S vehicle for the transport of the PDP-2, and a vehicle for the transport of water 815/CAS-32 or T-148/32 CAS (CAS useful as a water source).

FIG. 6 DECONTAMINE SHOWER DEKONTA



Source: Michal Orinčák, 2011.

FIG. 7 PLACE FOR HYGIENE OF STAFF



Source: Michal Orinčák, 2011.

- Post no. 4 (activity in established mrchovišti) – Recommended actions:**
- on the instructions of the responsible official veterinarian dispose of dead and slaughtered animals in an area infested area Economic Justice respectively. in the nearby area. Carcass disposal by burning or burial carried out, followed by spreading lime,
 - perform other necessary measures.

- The proposed activity Rescue Brigade Rescue Corps in station no. 4:**
- perform editing access roads to space burial of dead or killed animals,
 - carry out excavation and earthworks associated with the burial of animals because in the vicinity do not expect incineration of animal carcasses,
 - loading and transportation of dead or killed animals,
 - persons: 3 members – machinists and 3 members of the laborer in the handling of dead animals and for disinfection pits,
 - Technology: T-815 UDS 214 – versatile finishing machine CN 251 – wheel loader and T815/S – vehicle animal transport and materials.

FIG. 8 TRAINING OF SLAUGHTERED PIG MASS WASTE WITH KN 251 A T 815 UDS-214



Source: Michal Orinčák, 2011.

Post no. 5 (emergency accommodation and meals) – Recommended actions:

– manage emergency accommodation and meals for members.

The proposed activity Rescue Brigade Rescue Corps in station no. 5:

- provide accommodation own units in tents S-65 fully equipped – hygienic and warm linings, outdoor chairs, lighting, outdoor oven with a spark arrestor and flues,
- ensuring health care intervening members (medical tent),
- provide meals at the field kitchen POKA the economic dispenser where you can prepare meals 3 times a day for 50 to 150 people,

- persons: 2 employees – cooks and 2–3 staff – kitchen assistants,
- Equipment: 1 x PV3S POKA, 1 x PV3S – import food and tents S-65 for accommodation.

FIG. 9 REST PLACE



Source: Michal Orinčák, 2011

FIG. 10 HEALTH CARE PLACE



Source: Michal Orinčák, 2011

CONCLUSION

After the announcement of swine plague outbreak is identified and marked as protection zone – within a 2 km radius around the outbreak, where the disease broke out, the supervisory zone – within 5 km. Local veterinary authorities immediately ordered in different areas to take measures designed to prevent the spread of infection. Rescue Brigade Rescue Corps in Zilina in cooperation with the other components IRS provides and destroys outbreak, performs disinfection and monitoring meteorological conditions in supervisory (monitoring) zone. An important factor in setting up the decontamination work is to determine the direction of the prevailing wind by weather stations. Decontamination of work established such that the potential wind contaminate the clean part of the space. Monitoring weather conditions must run continuously in the case of a change in wind direction, the incident commander instructs to move the decontamination work. To ensure entry and exit from the protection zone into the surveillance zone, it is appropriate members of the Police Corps. The very existence of the disease process and its spread is influenced by three basic conditions that are linked together. The first condition is the presence of the source of infection, the second condition, carrying out transmission of the disease, and the third condition is the presence of the susceptible population. If either of these conditions is absent or disrupted, there can be no propagation process, or already resulting contagion process stops. This principle must be respected in developing new methodologies for disposal outbreaks. Fig 11 shows a proposed schematic design of the decontamination work on liquidation swine fever foci of infection with the use of forces and means of rescue brigades HaZZ in Zilina.

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18. Rozkaz č. 20/2007 prezidenta Hasičského a záchranného o vydaní Takticko-metodických postupov vykonávania zásahov.
19. Rozkaz č.47/2009 prezidenta Hasičského a záchranného zboru, ktorým sa mení rozkaz prezidenta Hasičského a záchranného zboru č. 20/2007 o vydaní Takticko- metodických postupov vykonávania zásahov.
20. Metodický list č. 104 MV SR – prezídia HaZZ Dekontaminácia príslušníkov zasahujúcich zložiek.
21. Metodický list č. 66 MV SR – prezídia HaZZ vykonávanie dekontaminácie pomocou vozidla PV3S/ARS 12-M.

22. Metodický list č. 106 MV SR – prezídia HaZZ zdolávanie požiarov v mimoriadnych podmienkach – nebezpečenstvo infekcie.

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