

THE DIVERS CONTRIBUTION IN ORDER TO PREVENT, PROTECT AND RESEARCH RADIOACTIVE POLLUTION

Simona RUS¹, Mihai DIACONU²

Rezumat: Studierea, aplicarea și dezvoltarea măsurilor de prevenire a poluării radioactive, asupra mediului înconjurător oferă soluții reale și de durată care consolidează viitorul. În acest context se înscrie contribuția Centrului de Scafandri în prevenirea poluării radioactive, prin prestarea de servicii de înaltă calitate de către personalul său autorizat pe timpul efectuării probelor de presiune la anvelopele reactoarelor nucleare 1 și 2 de la Cernavodă. Asigurarea asistenței tehnice și a primului ajutor în caz de accidente de scufundare, tratamentul pentru accidentele de decompresie asigurat în Laboratorul Hiperbar etc. sunt câteva din activitățile prestate. În final se prezintă contribuția Centrului la gestionarea, prevenirea și combaterea actelor cu caracter terorist (prin controlul periodic și la cerere al structurilor și infrastructurilor subacvatice în vederea asigurării securității și stabilității zonei. În ansamblul ei lucrarea evidențiază modul în care activități care inițial au fost dezvoltate pentru cerințele specifice apărării pot satisface exigențe apărute în viața civilă.

Abstract: Using their human, technological and scientific resources, the armed forces in general and Diving Centre in this case, play already an important role in supporting the development and natural environment, but results could be even greater and obvious if military and civilian requirements would be aligned, valorizing the qualified resources belonging to the military. Issues of generally defending and protecting the environment and specifically the human being are an important feature for all military structures around the world.

Keywords: Diving Centre, divers, reactors envelopes, pressures tests, radioactive pollution, terrorism actions etc.

1. Introduction

Applying and developing constructive environment protection measures offers real and long lasting solutions that consolidate our future.

In this context, Diving Centre performed to C.N.E. Cernavoda, high quality services with authorised personal in order to keep in good shape, the systems that are involved in safety and protection.

Diving Centre is also involved with its subordinate forces in offensive as well defensive actions, in this way performing entire range of specific mission with mine clearance and combat divers in Romanian Navy area.

¹ Ph.D. Eng. Main Scientific Researcher II, Diving Centre, Constanta, Romania;

² Ph.D. (ABD) Cpt. Cdor. Eng. Main Scientific Researcher III, member in NATO Underwater Diving Working Group, Diving Centre, Constanta, Romania.

2. Achievements

During pressure tests performed over years at the nuclear reactors from Cernavodă, the divers provided:

- pressures tests at number one and number two reactors envelopes (tests performed at a pressure of 128 kPa) in order to evaluate the loss rate;
- solving previous problems of the sealing system of reactor envelope and tracks of electrical cables, pipes etc;
- providing safety procedures from the diving technology point of view of the Cernavoda nuclear reactor radioactive protection specialised personnel, after their entering the working area through the small transfer gate;
- technical assistance and first aid in case of diving accidents, using the bi-place chamber (fitted with medication transfer sass) provided on site;
- supervising the enforcement of legal procedures concerning training, organising and wok protection in diving activities.
- in case of a collective decompression accident, Diving Centre had the responsibility to provide necessary treatment of personnel with problems during decompression, in the Hyperbaric Laboratory.

All these activities, even though developed for specific military requirements, may satisfy the saving and protecting needs of ecosystems.

The rehabilitation of ecological balance is a complex and long process and in case of severe ecological disasters, such as in this case preventing radioactive pollution, even impossible.

In this millennium the rate between defense and environment is characterized by thigh cooperation.

During peace time, military interfere in a positive way for conserving and protecting the environment, by providing:

- studies and research;
- recovery, rehabilitation and prevention of environment degradation;
- effective involvement of military personnel in removing ecological disasters.

Generaly, the armed forces can participate in nuclear protection activities, performing studies and tests in radioactive contaminated areas, providing useful contribution in protecting against ionized radiations, ensuring decontamination, helping in collecting the radioactive waste and can bring help in areas as diagnosing toxic materials, electromagnetic compatibility, prevention and control of environment pollution, sea coastal protection, territorial planning, cartography, meteorological forecasts, and so on.

While population increases and natural resources shrink or become unavailable, we will understand the necessity of protecting and researching the great, yet unexplored resources potential of rivers, seas and oceans within Terra.

Considering the September eleven events, terrorist phenomenon could affect entire Euro-Atlantic area including Balkan and Black Sea area. NATO acknowledges

that littoral Black Sea zone has an increased importance not only for terrorist phenomenon controlling necessity but especially for its strategic position such a commercial link and compulsory transit zone across the Europe, Middle Orient and Central Asia.

For terrorism actions prevention and eradication, EOD and Special Operational Forces divers are involved in: harbor moorages and navigable channel defense, non destructive control, cleaning, maintenance and defense for sluice gate, nuclear plant (Cernavoda), barrages, underwater rivers, lakes and sea structures, Danube bridges structures, EOD actions regarding the mines fixed on the ships, buildings or found in shore proximity, harbors, ships, offshore oil rigs, oil pipelines and other targets defense against underwater diversions, data and information gathering, certain commercial links and compulsory transit zones blocking etc. All these activities need modern equipments, logistic and technologies.

Diving Centers is permanently preoccupied for diving activities development in accordance with actual standards.

As far as Romania is part of NATO and EU, generally speaking the modernization chance for Romanian divers has increased.

Through the transformation and modernization the targets are: military capabilities development, reducing time for taking a decision, putting in accordance with the world reality concerning the programming and budgetary processes, monitoring and evaluating methods development for endowment programs efficiency.

In addition, transformation in this field highlights the growing importance of research and development processes and of the efficiency in using commercial technologies from information and telecommunications area. Investment in research and development is a decisive factor for supporting this capability.

3. Generalities concerning preventing and administration of terrorist acts in order to ensure security and stability on zone

Form an international security environment point of view, characterized by an ever-growing complexity, the European Union, for the time being, doesn't seem to be under threat of classic conflicts, such as large scale armed attacks but, other types of threats emerge at the horizon, each being hard to predict and diffuse, which makes them, in a certain way, much harder to counteract in an environment where the boundaries between internal or external threats exist no more. The question, however, is what are the threats brought to world security and what the answer should be.

At present, bombings with improvised explosive devices are the main terrorist actions taken worldwide. These devices, placed in key points of different urban area objectives, planes or aboard ships have the purpose of inspiring a sentiment of terror, panic, lack of security amongst the civilians, in order to destabilize public order and ruffle the economy. The states and the zone that sustained an attack or those that are

prone to terrorist attacks are making ever-growing efforts to counteract this phenomenon, phenomenon that generate (through the loss of innocent lives) intensely publicized dramas.

A decade ago “national security” was synonymous with “defense”. Today however, for the majority of Euro-Atlantic states, security is measured first in non-military terms and the threats that lurk are of a non-military nature. These threats include: faulty government, corruption, organized crime, border insecurity, smuggling and illegal commerce (firearms, drugs, contraband, people), illegal migration, ethnic and religious conflict, mass-destruction weapons proliferation, natural resource diminishing (like water) and, of course, terrorism.

Terrorist attacks started a process of profound transformation of the security environment, generating consequences that influence the international community and implicit our country on a long term and in depth.

Taking into account the large number of fixed and mobile objectives that can become targets in maritime and fluvial isles in which the enemy could take action, the diver squads will intervene, if they are summoned or ordered to do so, at the structures or in the isles where enemy actions were traced or delicate problems at the submerged structures were spotted. For other objectives or isles of national interest, the systematic control actions may also include operations that require specific diver squads that are characterized by dexterity, discipline, discretion and professionalism.

Even though the search and detection of underwater (marine) mines procedures and methods used in these islands are the same, there are put to practical use through totally different diving technologies. The procedures and methods used, stand for a wide range of actions undertaken by specialized diver squads – continuously, under a unitary concept, in accordance with the importance of the objective in question. They can have even tactical – operative or even strategic importance.



Fig. 1. Diving Centre Constanta

For preventing and counteracting terrorist actions the following are realized:

- Divers training through specialized courses and missions within the main activities plan (special firing drills, boot camps placed in all geographical regions);
- Local area study within the responsibility range;
- Setting up databases that contain the terrorism phenomenon, terrorist groups and organizations, mode of operation, drawing of the objectives and an appropriate IT equipment (computer, printer, scanner, camera) as well as an information flux between the structures involved;

The complementing and coherence principle in cooperation must provide simultaneously:

- ❖ An equal statute and balanced relations throughout the activities;
- ❖ An integrated coherent conception over the problems of the matter in question and the measures taken or the one that needs to be;
- ❖ An adequate coordination of the efforts and proceedings made by all the parties involved.

National security, as part of the global security, put to use through a security policy adequately built at a national scale, on solid principles permanently correlated at a regional and global level, is the converging cumulative factor of national politic forces. She must ensure a normality state to which society aspires to – citizens, state communities – on the grounds of efforts that bear the full instauration of legality, conceiving of economical prosperity, social equilibrium and political stability.

Globalization has become an undeniable reality which carries on, under attentive eyes from all over the world from those who either embrace or reject it. Globalization and integration, with all of their differences, are two objective processes of the growing contemporary world, in ensemble. Due to them, on a long term, the faith of every nation, is or will be, tied to the faith of the others, fact that offers reciprocal chances and opportunities for economic and social progress and prosperity.

We live in an era of strategic insecurity. The situation is that more complicated as the globalization carries on, which means that nobody is out of the game. The need of self-protection and the perspective of new threats compel the North Atlantic Alliance states to work together for establishing and protecting the common values of democracy, security and freedom.

On a long term, the purpose of the security policy should have in view preventing and counteracting the dangers generated by the international environment as well as ensuring the internal security state, in its` ensemble, of personal security, the communities` security, energetic security, food industries` security, transports and infrastructure security, cultural security and environmental security.

Conclusions

This paper describe pressure tests performed over years at the Cernavoda nuclear reactors and how to keep safe and protect an important objectiv, such as Cernavoda nuclear plant, within the responsibility range, using periodically surveillance and “disinfection” through divers and their modular UAV (underwater autonomous vehicle) interventions.

The environment protection measures are like a boomerang, wich correctly and duly applied may providing a necessary and realistic option in the eternal confrontation between and correct exploitation of environment.

Issues of generally defending and protecting the environment and specifically the human being are an important feature for all military structures around the world.

The actual European structure offers Romania the opportunity to assume an extended part of the Union frontier, with the confidence that we have the energy, creativity and capacity to become a factor of stability and balance within final Danube River, Black Sea areas and Western Balkans, areas of maximum regional strategic importance.

We must acknowledge that, according to tendencies and evolutions of terrorism nowadays, some of the most relevant issues are:

- the close connection between terrorism and organized crime at international level;
- the link between illegal drugs smuggling, connections with money laundry, illegal weapons smuggling, illegal transportation of nuclear, chemical, biological and other lethal potential stuff;
- the necessity of a better coordination for all specialized forces efforts (that including military divers) with the purpose of consolidating forces reaction to this severe threat for national and international security.

REFERENCES

- [1] E. Vespremeanu, *Geografia Mării Negre*. Ed. Universității din București, București, 2004;
- [2] “*National strategy for preventing and counteracting terrorism*”, applied in the CSAT meeting on 05.04.2003;
- [3] “*Law regarding the passing through of the governments emergency decree for penalizing some terrosit acts and disturbing the peace*”, in MO 524/18.07.2002;
- [4] “*The concept of training battle divers*”, Institution Diving Centre, 2003;
- [5] “*Emergency decree for penalizing some terrorist acts and disturbing peace*”, in MO 691/31.10.2001;
- [6] “*Emergency decree for applying the CSONU resolution no. 1373 regarding the counteracting of international terrorism*”, in MO 769/03.12.2001.