1/2017

Newsletter

Joint Chemical, Biological, Radiological and Nuclear Defence Centre of Excellence

Content

As keen (and as old) as mustard: From Ypres to Iraq, 100 years of mustard use

When Live Agent Training passes regional and cultural borders

COE Course overview in 2017

NATO CBRN Collective Training continued in 2016

2016 Future Forces Forum report

Development of the comprehensive database

What is Colonel Jiří Gajdoš doing

The JCBRN Defence COE Enhancement project

Senior Enlisted Advisor thoughts - Non-Commissioned Officer (NCO) Advanced Leadership Course in a Multinational Enviroment

Dear Reader,

It is my great pleasure to introduce first edition of the COE Newsletter in the year of 2017 and I feel really honoured to do it as the new director of the Joint Chemical, Biological, Radiological and Nuclear Defence Centre of Excellence (J CBRN Def COE) being appointed on 1 February 2017.

As of today, we are facing evolving threats from both state and non-state actors that includes range of complex challenges, including hybrid warfare, terrorism, cyber-attacks and wide range of events involving weapons of mass destruction (WMD) and chemical, biological, radiological, and nuclear (CBRN) threats.

The full extent of the potential threat cannot be predicted because CBRN threats can evolve in non-linear ways, and can be affected by a number of outside factors, including meteorological conditions, economy (Toxic Industrial Threats), flow of goods and people, etc. Such uncertainty can make it difficult to determine the nature or origin of such a threat, and complicate responses efforts when detailed information is not yet available.

Effective responses to CBRN events often require the initiation of a response before the origin or full extent of the event is understood, which requires familiarity with various aspects of diverse scenarios that can only be achieved through advanced consideration. Advance planning together with the access to timely, accurate and relevant information is a critical component of any CBRN response, heavily supported by the diverse, multipurpose capabilities necessary to provide the operational flexibility for a wide range of future CBRN response efforts.

I am convinced that the J CBRN Def COE fits to the purpose and is able to cope with current and future security challenges because it has flexibly reacted and implemented new requirements in its structure. This strengthened its position as an integral part of NATO CBRN Defence community and proved its strategic vision towards the future. As of today, the J CBRN Def COE supports NATO, Allies and Partners in three main areas:

- **Transformation** – *Doctrines, Standards, Concepts Development and Experimentation, Defence Planning, Capability Development*
- **Education and Training** – *NATO CBRN Department Head, Education, Individual Training, Exercises, Evaluation*
- **Operations support** – *CBRN Reach Back, Information Management, Modelling and Simulation, Operations Planning*

However, the main question is what else we can/should do in order to react to the future security challenges as well as meeting new NATO requirements. There are several factors to be considered:

- *New NATO Defence Planning cycle*
- *CJ-CBRND-TF CONOPS review*
- *Support to the JCBRND CDG*
- *Support to the CBRN Capability Area Facilitator*
- *WMD Disablement capability implementation*
- *Integration of technology and innovation*
- *Further integration with Civil Emergency Planning*
- *Cooperation with European Union*

As a result, following steps in response to those factors to be considered and developed in a long term strategy.

1. *Institutional document hierarchy revision to synchronize a series of the COE documents, which will enable to more effectively align current requirements and future initiatives with strategic objectives and available resources.*
2. *COE structure revision to better reflect ongoing and future requirements.*
3. *R&D Institutions – innovation & technology integration as an engine of future capability development.*
4. *Closer integration with Civil Emergency Planning in order to better reflect challenges related to the interagency environment.*

Those steps all together with an additional planning will ensure further development of the J CBRN Def COE and its readiness to reflect any future security challenges related to CBRN Defence. With that, I would like to introduce the new J CBRN Def COE Newsletter. This addition deals with the COE's recent and ongoing activities in support of wider CBRN Defence community.

The first part of the Newsletter focuses on primary CBRN Defence effort - chemical weapons and on its "oldest" representative mustard. Although the warfare agents have seemed to be the history the real situation is far different and despite the Chemical Warfare Convention such weapons have been used all over the world.

The second part of the Newsletter is closely related to the dedicated Education & Training program and deals with both the internal COE's educational activities and with the COE's support to the major NATO exercises and challenges related to the CBRN Defence training objectives and evaluation.

The third part is dedicated to the CBRN Defence document hierarchy and presents the status and current development of the "Comprehensive CBRN Defence Database". In addition, the summary of the Future Forces Forum – the conference to which the COE significantly contributed – is presented.

The final part of the Newsletter highlights the COE developments (this time focused on the last COE Enhancement Project) and outlines the way ahead on the near future and long term projects.

In conclusion, the COE has made a great progress since it was internationally recognized as an International Military Organization and I would like to highlight the role of my predecessor Colonel Jiri Gajdos whose personal effort was the major and most powerful engine to make the centre what it is today. What I am going to do (not as alone but together with all COE members) is just to start where he finished and keep the J CBRN Def COE where it is today - at the top of organizations that support NATO and NATO Nations.

Colonel Vratislav Osvald
JCBRN Defence COE
Director

2016 FUTURE FORCES FORUM

International Platform for Trends and Technologies in Defence and Security
2016 Future Forces took place in Prague/ CZE from 17th to 21st October 2016. Some figures first: 7,652 Participants from 59 countries attended the forum. Among them were five Ministers of Defence, three Chiefs of Defence and thirteen Ambassadors, as well as more than twenty Defence Attachés. In addition, about 35 International organisations (EUMS, EDA, NATO HQ, etc.) and 24 universities were represented. About 240 speakers from 24 countries, eleven International Organizations, and 21 universities contributed to the forum's success. The forum comprised twenty specialized events at one place (exhibition, congress, three conferences, thirteen workshops, and two round-tables).
Embedded into the forum were also CBRN defence related events: the World CBRN & Medical Congress chaired by Brigadier General Z. BUBENÍK, and a CBRN Workshop chaired by Colonel V. OSVALD. Additionally, a NATO CBRN Medical Working Group (CBRN MED WG) meeting took place which was chaired by Colonel Prof. Dr. F. DORANDEAU.
The objectives of conference exhibition could be summarized as contributing to the development and the harmonization of CBRN defence capabilities; fostering the development of specific capabilities to support impeding the trafficking of WMD, related substances and their means of delivery; supporting interaction between the CBRN Defence community of interest and other sectors such as logistics, health care, missile defence, intelligence, research and development, education & training; and last but not less important enhancing civil - military cooperation in CBRN defence.
Many presentations may influence the future on preventing the proliferation of weapons of mass destruction (WMD) and the defence against CBRN threats. Mr Wolfgang RUDISCHHAUSER, Director/ NATO's WMD Non-Proliferation Centre (WMC), briefed on the future development of NATO's WMD Non-Proliferation and CBRN Defence Policy. Further developing the NATO's policy will impact NATO's CBRN Defence concept and subsequent doctrines. Strategic Communication, Outreach and International Coordination are supposed to getting more relevance in the future. LtCol (rtd.) Jaroslav STRAKA, Organisation for the Prohibition of Chemical Weapons (OPCW), stated that all toxic chemicals have to be considered as "potential chemical warfare agents". New decontamination systems, like the ones presented by Colonel (rtd.) Wolfgang WIDDERS, KÄRCHER Futuretech, may lead to a customization for NDPP capability codes/statements.
Our Centre contributed to the forum in different ways. As already mentioned, Colonel OSVALD chaired CBRN Workshop. He was supported by Major V. GOLKOVA. Colonel A. MILTNER presented "Joint CBRN Defence Centre of Excellence: Preparedness through Partner Collaboration" to the public. JCBRND COE in close cooperation with the WMDC established an information desk operated by Major I. CHYLIKOVA, WO I. DVORACKOVA and WO M. DVORAK *<Picture 1>*. The desk was very well recognized and served as a kind of informal meeting point *<Picture 2>*. One observation, if not even lesson identified was that, JCBRND COE should provide an information desk to similar events to increase the visibility of the COE, as appropriate.
The 2018 Future Forces Forum will again take place in PRAGUE/CZE, from 17th to 21st October 2018.

Author: LtCol Bernd Allert(DEU-AR)

Picture 1

Picture 2

FUTURE FORCES FORUM
International Platform for Trends & Technologies in Defence & Security
www.future-forces-forum.org

WHEN LIVE AGENT TRAINING EXPERIENCE CROSSES REGIONAL AND CULTURAL BORDERS

Whether or not you are a specialist in the area of chemical, biological, radiological and nuclear defence, sooner or later, you realize the effects of CBRN substances are not restricted by geographical or cultural boundaries. As a result, effective CBRN Defence has relied upon the cooperation of an international community of experts for several decades. The CBRN First Responders Live Agent Training Course, in support of the Science for Peace and Security programme of NATO, is a good example of international cooperative CBRN Defence.

In 2016 the Joint Chemical, Biological, Radiological and Nuclear Defence Centre of Excellence was asked by NATO to organize Chemical Live Agent Training for CBRN Defence specialists from the Alliance's Partner countries of the Mediterranean Dialogue. The JCBRN Def COE invited experts from the Organisation on the Prohibition of Chemical Weapons (OPCW), 31st CBRN Defence Regiment of the Czech Armed Forces and the Military Research Institute Brno to form the core of an internationally recognized training team. The task of delivering a useful and understandable training package to both military and civilian defence personnel was challenging, but successful nonetheless.

The course of instruction included well-established a CBRN Defence theory, which was applied during a practical exercise. The intensive five-day training module provided course participants a better understanding of (1) physical protection measures against chemical agents; (2) agent detection; (3) decontamination; (4) essentials on organisation of such type of training.

Students developed their skills to perform specialised CBRN Defence tasks and proved their ability to operate in an extraordinarily challenging environment. Additionally, students gained confidence in their ability to organize specialised CBRN training aligned with international security standards and requirements. Students highlighted the unique benefits gained by participating in the practical exercise, particularly given their positions in their nation's homeland security forces. Their feedback justified the efforts of the JCBRN Defence COE to establish the course and validated our project end state. Course participants also appreciated broad knowledge and experience of OPCW speakers and external instructors, namely their enthusiasm to share best practices and improve performed techniques and procedures.

This course confirmed an application of NATO System Approach to Training (Global Programming) as an effective tool for building the common and specialized proficiency in CBRN Defence. Live Agent training, initially developed for needs of the Alliance worked also well for the Partners and confirmed NATO SPS Program as invaluable tool in support of Global Security.

Author: LTC Karel Vydra (CZE-A)

NATO CBRN COLLECTIVE TRAINING CONTINUED IN 2016

The Joint Chemical, Biological, Radiological and Nuclear Defence Centre of Excellence (JCBRN Def COE) was appointed as the Department Head (DH) for NATO WMD/CBRN Defence Education and Training (E&T). The JCBRN Def COE assumed the responsibility as the Officer Directing Exercise (ODE) for the CBRN expertise of major NATO exercises. In the collective training curriculum there have been respective exercises listed in the Military Training and Exercises Program (MTEP) identified as the opportunity for meeting collective CBRN training requirements. Tremendous progress has been achieved at several joint NATO exercises, particularly during the planning and execution phases due to the participation of JCBRN Def COE representatives.

Trident Juncture (TRJE16), Stavanger (NOR)

TRJE16 was an Allied Command Transformation (ACT) sponsored Command Post Exercise (CPX) conducted to plan and conduct NRF (NATO Response Force) Article 5 Major Joint Operation. It was a multi-level training event exercising Joint Force Command Naples (JFCNP) together with NRF 2017 Component Commands. The exercise was a venue for JFCNP to demonstrate C2 (Command and Control) over NRF 17 from its static location. The exercise was scheduled to be conducted 24 OCT - 2 NOV 16 at a number of different locations in Europe. Prior to the exercise execution phase, the Joint Warfare Centre (JWC) conducted the EXCON (Exercise Control) training, scheduled to take place 19 - 23 OCT 16 in Stavanger, Norway and all EXCON members were required to attend this training event. Training Exercise Education Department (TEED) supported that specific exercise in two areas of concern such as EXCON and Training Team (TT).

The JCBRN Defence COE representative was in the prestigious position of the Initial Command Element (ICE) Evaluation Team Leader. This was requested by SHAPE J7 Evaluation Branch due to current unavailability of adequate SMEs on the SHAPE J7 staff. Joint Force Command Naples DCOS Plans, located in at JWC Stavanger, served as the ICE lead. The evaluation period was predominantly focused on the ICE and its ability to function as the initial theater C2 capability, despite its minimum suite of capabilities.

Two representatives from TEED took part in MEL/MIL (Main Event List / Main Incident List) Strategy WS (Workshop), MEL/MIL Incident Development WS and MEL/MIL Scripting WS at JWC prior to the exercise was triggered. The main aim was to design appropriate CBRN related scenarios and incidents to practice Training Audience (TA). During the exercise execution one TEED representative was acting as a CBRN MEL/MIL coordinator to facilitate the communication between Response Cell (RC) and TA. As the Combined Joint Chemical Biological Radiological and Nuclear Defence Task Force (CJ-CBRND-TF) in NRF 2017 rotation, the 31st CBRN Regiment (CZE) formed the CBRN RC.

For the Phase III – execution, the Joint Warfare Center also created a multinational and multidisciplinary Training Team, consisting of Subject Matter Experts, in order to support the Training Audience in achieving their exercise goals. The main task of the Training Team members is to provide expertise advice to

Continue page 13

AS KEEN (AND AS OLD) AS MUSTARD: FROM YPRES TO IRAQ, 100 YEARS OF MUSTARD USE.

Since its first use in 1917, mustard gas has never disappeared from battlefields or arsenals. Mustard is quite an old CWA, but it is still an efficient and terrible weapon. The archives are full of unexpected details on this agent, which can give us a deeper understanding of the history of this agent. An historical approach could also give CBRN experts some unexpected insights about the military use of mustard.

BORN IN 1822.

The exact date on which the first sulfur mustard was synthesized is not clear, but the first record of it may have been by written Despretz in 1822, despite the fact that he did not mention any of its irritating properties when he described the reaction of sulfur dichloride and ethylene. Similarly in 1854, another French chemist, Riche, repeated the procedure, but he did not describe any adverse physiological properties.

An 1860 report by Neimann describes a delayed-effect vesicant oil which was a product of the reaction between ethylene and a mixture of sulfur chlorides. He repeated his experiment and recorded blister-forming properties. At about the same time, Guthrie published the results of his work in a similar area, describing another variant compound which was also produced from sulfur chloride reacting with ethylene. He described the odour as "pungent" and similar to "oil of mustard." Guthrie noted the destruction of the epidermis when the thin skin between the fingers and around the eyes was exposed to the "vapour" of this compound. He also observed that blisters were formed when the liquid was allowed to remain on the skin.

Finally, in 1886, a process to produce significant quantities of pure sulfur mustard was described by Meyer using sodium sulfide, ethylene chlorohydrin, and hydrochloric gas. He published a paper that year describing a synthesis that produced substantial quantities. The purity of this compound was much higher than anything previously produced and the adverse health effects following exposure were much more severe. In 1913, the English chemist Clarke replaced the phosphorus trichloride in Meyer's formulation with hydrochloric acid: he was hospitalized with burns for two months after one of his flasks broke.

There are many ways to obtain mustard gas but I do not intend to list them all here. However it is possible to list, even if not comprehensively, the various names given to mustard gas over the years. Originally named "Ypérite" after the Belgian town where it was first used in July 1917, other names or codenames are as listed below.

- Germany: Lost[1], s-Lost, Kampfstoff Lost, Senfgas, Gelbkreuz , Zëhlost (thickened mustard), G/b with additional letters B, C, D, E, L or O for different winter mustard, summer mustard or arsine mixtures.
- France: ypérite, gaz moutarde, produit N°20, Y, Yp, Yc, Yt, 1012.
- Great Britain: BB, HS (stands for Hun-Stuff), Levinstein mustard, mustard gas, syrup (for Runcol HT) or Pyro (for HD), HL (a blend of distilled mustard HD and Lewisite L), HQ (a blend of distilled mustard HD and sesquimustard Q.
- USA: H.S., G.34, M.O., H, HD.
- Russia: 5, P-5, R-5, VIR (thickened mustard).
- Japan: ki 1 (yellow number 1).
- Italy: Iperita.

[1] Derived from the names Lommel and Steinkopf, who developed a process for mass production of the gas for war use at the German company Bayer AG.

WW1: A TERRIFIC SURPRISE.

Mustard was considered as a potential weapon by the French chemical services in 1916 but it was rejected owing to its low toxicity and the difficult of synthesizing it. From the end of 1915 to 1916, despite the use of new agents on the battlefield (lachrymators, phosgene and chloropicrin), protective measures succeeded in limiting chemical casualties. To defeat these protective measures, German scientists sought a delayed action agent and proposed the use of mustard. According to Fritz Haber, the vesicant effect was not intended to be the primary outcome and the success of mustard attacks on the battlefield seems to have been a genuine surprise.

In such a war of attrition, the ability to wound instead of kill had definite tactical and strategic value. The complexity of the treatment required for mustard injuries involved a new level of aid and medical care. Mustard was not a real killer, but was nevertheless able to permanently reduce enemy manning levels. Owing to its characteristics of persistence dispersion in droplet form, mustard gas deployment meant that exposed soldiers had to be decontaminated. The first measures were very basic: soap and water. By 1918, however, portable shower units with specially trained medics appeared equipped with the first oil-skin protective suits and gloves and some preventive ointment.

Mustard gas was a real problem because after it was released it settled in an area, thereby contaminating it. The vesicant also frequently caused unexpected secondary contamination of soldiers and horses in areas unaffected by the actual attacks. Mustard was widely used by both sides in 1918, especially during the final German offensives. In total during WW1, Germany produced 7.659 tonnes of mustard gas and France 1.967 tonnes.

HELL IN THE PRODUCTION PLANTS.

The production of mustard gas was quite complex and involved the use of dangerous material. The final product was, of course, highly dangerous in itself with the workers exposed to significant risks from both vapour and liquid leaks.

Working in the mustard gas plants, especially during WW1, was compared to working in hell. Despite some efforts to reduce the risk to workers, the technical challenges of producing mustard gas meant that little progress was made. The German process (ie thiodiglycol way) was safer than the Guthrie process used by the Allies, but safe production required not simply "the tiled construction and plumbing construction of a municipal washhouse, the ventilation system of an up-to-date coal mine, and the nursing facilities of a quiet sector of the front" but modern, purpose built infrastructure.

Some of the most dangerous jobs included cleaning the pipes, which inevitably became blocked during production, repairing pumps and filling drums to prepare them for transporting various toxic and corrosive liquids. These industrial conditions produced the same injuries in civilians as they did in soldiers, understandably leading to high rates of absenteeism. Undoubtedly, however, the most dangerous job, regardless of location, involved filling artillery gas shells. This produced even more injuries than normal chemical production, and German workers suffered as much as their British, French, and American counterparts. In some cases, almost 100 % of the works suffered from mustard burns.

BETWEEN THE WARS: TO IMPROVE MUSTARD (AND USE IT!).

According to some sources, mustard was widely use during the interwar period:

- By Spain against the Rifian resistance in Morocco during 1921–1926 war.
- By Italy in Ethiopia in 1935 war.
- By Japan in China from 1931.

Many countries developed an array of delivery systems for mustard gas including artillery shells, mortar rounds, rockets, free fall bombs and even land mines. Weaponization was not, however, so easy, especially in terms of producing efficient dispersion or vaporization. High-altitude mustard spraying (around 4000 m) was developed by the RAF as late as 1938-1939. The persistence of mustard was also improved, using natural or artificial rubbers, resins and even by trying to develop 'dirty dust' using natural earth such as kieselguhr.
Much research was carried out, especially during the interwar period, in an attempt to find more active mustard-like blister agents. Agents such as brome mustard and oxygen mustard were tested, but the most efficient compound was nitrogen mustard. Nitrogen mustard gas was stockpiled by several nations during the Second World War, but it was never used in combat. As with all types of mustard gas, nitrogen mustards are powerful and persistent blister agents[2] .

WW2 CHEMICAL WARFARE: THE WAR THAT (ALMOST) NEVER WAS.

Although all armies were fairly well prepared and well trained to conduct chemical warfare and despite some predictions, the outbreak of WW2 did not see the immediate and widespread use of chemical weapons. In 1939, chemical stockpiles primarily consisted of mustard gas and phosgene. Throughout the war, stockpiles were increased, producing impressive final totals: 40,719 tonnes in the UK, 77,400 in the USSR, 87,000 in the USA, 3610 in Japan and 27,597 in Germany.
Against all expectations, chemical warfare did not break out on the Western or Eastern Fronts, yet some incidents suggest that another chemical nightmare was actually never far away.
On September 8, 1939, Polish troops were defending a bridge near the village of Jasno. As German engineers attempted to clear the bridge a charge detonated and 14 German soldiers were affected by mustard gas, two of them fatally. The subsequent German High Command investigation deemed it to be an isolated incident. It appeared that the Polish troops had used training land mines containing small amounts of mustard or mustard drum to reinforce their bridge barricade. In June 1940, the French commander of Army Group 3 proposed the use mustard to halt the German offensive and in the same month, the British Chief of the Imperial General Staff produced a memorandum entitled "The Use of Gas in Home Defence": for both countries, the use of mustard was an option to stop a German invasion.
Later in the war, large amounts of mustard gas and other chemical weapons were stockpiled by the Allied armies just behind their frontlines, to be used for retaliation in the event of an Axis gas attack.
During the German air raid on Bari (Italy) in December 1943, a US supply ship, laden with 2,000 mustard gas aerial bombs, was destroyed. Over 600 Allied personnel were exposed to mustard and of those, some 60 died as a result. An unknown number of Italian civilians also perished. The presence of this ship was so secret that, at first, Germany was suspected to have launched a chemical attack. Allied commanders suppressed the whole story for fear the Germans might resort to chemical weapons in response and the entire incident was suppressed until the 60s.
In July 1944, during the V1 offensive, Winston Churchill asked to his staff to be ready " to drench Germany with poison gas" and in 1945, use of CW was a part of the US planning for the invasion of the Japanese mainland.

[2]Lewisite, which is not a mustard-like compound, might have replaced mustard gas had the war continued into the winter of 1919, was considered as a "superior" weapon that caused instantaneous blistering, was lethal in minute quantities and was relatively difficult to detect, but its chemical structure allowed rapid hydrolysis and reduced its persistence.

HUMAN GUINEA PIGS.

Some countries carried out three basic types of experiments with human subjects. Patch (or drop) tests were the most common. These were used to assess the efficiency of protective or decontamination ointments, treatments for blister agents, effects of multiple exposures on sensitivity and the effects of physical exercise on the severity of chemical burns. Single drops of liquid mustard agents were commonly used on trainees in basic training to cause single blisters in order to impress on them the toxicity of these agents and the need for an immediate response. Chamber tests of various types were conducted to test the effectiveness of protective clothing which had been impregnated with chemicals to retard vapor penetration. Finally, field tests involved mustard contamination of large or small areas of land. Human subjects were used in field tests to test protective clothing, to monitor the effects of the agents on animals in the test sites and to take measurements of agent concentrations in soil and water samples. It is, of course, impossible to overlook the horrible the non-medical experiments carried out by the Axis countries.

AFTER WW2: ELIMINATION OF LARGE STOCKPILES.

The Allies used several methods to remove mustard agent from circulation: underwater disposal, burial and burning. The first, and apparently the most commonly used, occurred immediately after World War 2 between 1946 and 1948. The stockpiles which were disposed of during this period were either of low quality or surplus to requirement following the end of the war.
During the same period, top secret operations were conducted involving the underwater disposal of huge amounts of chemical munitions. The large-scale underwater disposal of captured German chemical munitions allowed the Allied powers to dispose of their own weapons under the guise of captured munitions. In 1946, 2,800 tons of mustard gas were dumped into the sea southeast of Halifax. A large British stockpile of old mustard agent that had been made and stored since World War I was destroyed in 1958. France may have dumped some mustard drums in the Bay of Biscay in 1965. On the eve of its defeat, Japan abandoned large numbers of chemical weapons all over China.
The consequences of dumping mustard at sea in the Baltic Sea and the Pacific and Atlantic Oceans has quite probably caused environmental harm over the years althought the continued likelihood of this will have been reduced by the passage of time and the natural dilution of any leaked substances.

COLD WAR: IN THE SHADOW OF NERVE GASES.

Despite the development of more effective nerves gases, mustard remains a viable chemical warfare agent. Thickened mustard or mustard mixed with lewisite seemed to be part of Cold War stockpiles. Mustard was allegedly used by Egypt against North Yemen during 1963–1967 civil war.

MIDDLE-EAST: THE DEW OF THE EAST.

The Middle-East has seen perhaps the greatest use of sulfur mustard since the 30s:

- By Iraq against the Iranians during 1983–1988 war.
- Although not used during the 1991 Gulf

War, large abandoned stockpiles of sulfur mustard munitions and bulk agent were destroyed after its conclusion.

- By Islamic State of Iraq and the Levant forces since 2012.

OLD CWA.

Abandoned stockpiles of agents are frequently discovered on land or in the sea and farmers, workers, EOD personnel, fishermen and even ammunition collectors have suffered blister injuries. Some of these events can be directly linked to the WW1 chemical warfare activity but others are the result of WW2 storage or post-WW2 disposal operations. While the Baltic Sea or the WW1 frontlines in Belgium and France are well known for the discovery of such chemical artifacts, mustard is also unearthed in more unexected places: former firing ranges or trial fields in the USA, old bombs storage sites in Australia and, of course, in China with there are large abandoned Japanese depots. Mustard, especially in chemical shells, still haunts the not only the memories of old soldiers, but also the fields of battle.

MUSTARD AS CARE: THE DEVELOPMENT OF THE FIRST CHEMOTHERAPY DRUG.

Mustard gas is not only a symbol of death and desolation: as early as 1919 it was known that mustard agent was a suppressor of hematopoiesis. During WW2, the American Office of Scientific Research and Development (OSRD) funded the Biology and Chemistry Departments at Yale University for the conduct research on other applications for chemical warfare agents. Investigations were conducted on nitrogen mustard as a therapy for Hodgkin's lymphoma and other types of lymphoma and leukemia. The first trials on human patients in December 1942 lead, after additional research, to the use of HN2 as the first cancer chemotherapy drug.

SOME PERMANENT TECHNICAL CHALLENGES.

Mustard gas has always presented technical challenges for detection, protection, decontamination and destruction. As a result, field detection is quicker and easier, bleach has been replaced by non-aggressive solutions and current CBRN suits are more comfortable than the old oil-skin or rubber clothes. Medical treatment have also been improved and the recent successful use of the Field Deployable Hydrolysis System (FDHS) to destroy Syrian mustard has demonstrated a safe and efficient way to convert chemical warfare material into compounds which are unusable as weapons.

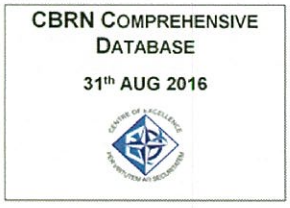
CONCLUSION.

Throughout its history, mustard gas has been an efficient CWA, quite easy to produce and to use. As a persistent and vesicant agent, it has forced armies to develop full protective gear, to enhance detection and to improve decontamination. Following WW1, mustard gas was nicknamed "King of Battle Gases" because it eventually caused more chemical casualties than all the other agents combined. Testimonies on mustard's use are a never ending story with many lessons for CBRN defense to learn. Above the tactical effects, it is sobering to consider that, since WW1, mustard has been used on several occasions, but usually against people unable to protect themselves or to retaliate...

Author: COL Olivier LION (FRA)

CBRN COMPREHENSIVE DATABASE

Standardization is one of NATO's tools to achieve interoperability. Therefore, among others Allied Joint Publications (AJP), Standardization Agreements (STANAG) and Recommendations (STANREC) have been and will be developed, also in the domain of CBRN defence.



Picture 1: Comprehensive Database

Ensuring the harmonization of NATO standardization documents is one of the most important and permanent tasks for each NATO working group and panel. Within the CBRN domain the Doctrine and Terminology Panel (DTP) of the Joint CBRN Defence Capability Development Group (JCBRND-CDG) is the only body responsible for harmonizing CBRN and CBRN-related content within NATO standardization documents. This task is reflected in the terms of reference and is also included in each panel meeting schedule.

The entire activities are divided into four subtasks:

1. to ensure the standardization of CBRN terminology throughout NATO documents;
2. to review the NATO Level 1 general and CBRN defence policy and concepts;
3. to monitor the content of CBRN defence standardization documents in order to identify gaps and to achieve their harmonization;
4. to monitor the content of standardization documents related to the CBRN defence in order to achieve harmonization within the document architecture.

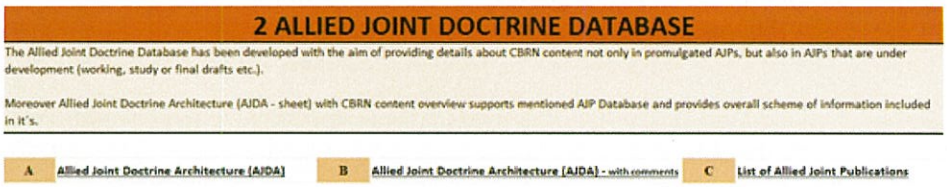
Already 2012 the development of the CBRN comprehensive database was initiated. The first important fact was identified right at the beginning of this process: Without a main and wide-raging database the harmonization of CBRN Defence standards cannot be achieved properly.

The first version of the CBRN Comprehensive Database was produced using Microsoft Word as an at that time appropriate tool (Picture 1). Eventually, it has to be stated, this was already a real big step forward. The most difficult tasks to identify, collect and merge all CBRN related documents has been fulfilled. Nowadays, the CBRN database consists of four parts and can be considered as a supportive publication in which all of the CBRN contents can be easily obtained.

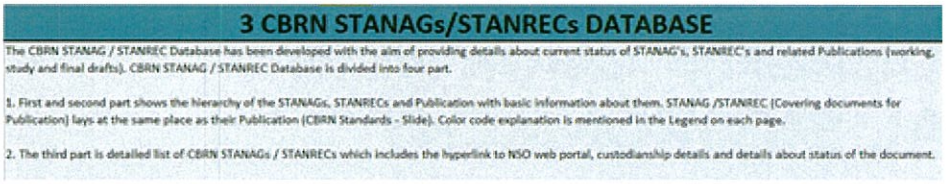
The first part is dedicated to High level CBRN related documents (e.g. CP(DEF), IS, IMS, MC, IMSM, Bi-SC etc.) which were published within NATO HQ or by other bodies.

The second part of this database is assigned to Allied Joint Publications (AJPs) (Picture 2). To facilitate the CBRN content harmonization within the AJPs, the Allied Joint Doctrine (AJP) Architecture Matrix (Picture 3) has been developed with the aim to provide a very detailed overview on CBRN contents, not only in promulgated AJP, but also in AJP that are under development (working, study and final drafts).

The third part of this database (Picture 4) summarizes the current status of existing and new versions of CBRN STANAG/ STANREC. In addition, schemes of the Allied Tactical Publications and Allied Engineering Publications covered by CBRN STANAG/STANREC have been added (Picture 5).



Picture 2: Allied Joint Doctrine Database



Picture 4: CBRN STANAGs/ STANRECs Database

Picture 3: Allied Joint Doctrine Architecture

Picture 5: CBRN Standards Hierarchy

The last part covers the STANAGs and STANRECs which are not under the JCBRND CDG umbrella but comprises some CBRN contents e.g. STANAG 2358 - First Aid and Hygiene Training in a CBRN or TIH environment. It is helpful for monitoring these documents and provides synchronization of these documents within other CBRN publications.

Maintaining the database is an on-going process. To be continuously informed, there is a need for permanent update of all included data.

During 2016 it was decided that the MS Word format was not suitable to maintain the database anymore. Therefore, nowadays the CBRN comprehensive database is provided in MS Excel format.

The new format contains the same chapters as the previous one, but in a much more user friendly way. Cross references and shortcuts for easier orientation have been added into the Excel workbook. Conditional formatting has been used according to the status of STANAG or publication which will make the process of updating much easier. As in the previous version the database contains web links to NSO (NATO Standardization Office) web pages where relevant documents can be found.

The comprehensive database is a very useful and supportive tool not only for harmonization of the CBRN contents in standardization documents, but for all who need to find the proper CBRN STANAG, STANREC or other documents contained CBRN content.

CBRN comprehensive database will be updated twice a year. The current version can be downloaded from NSO web portal from (JCBRND-CDG) Doctrine and Terminology Panel Documents section. However, all potential custodians of NATO standardization documents have to be educated on the database and how to use it, e.g. to avoid referring within their documents to Standardization Agreements which are no longer existing.

Author: CPT Robert HROMADA (SVK-AR)

WHAT IS COLONEL JIŘI GAJDOŠ DOING?

Continue from page 12

A Steering Committee (SC) established by the PN, supported by a permanent multinational Cluster Support Cell (CSC), will guide the Cluster <pic 2>. The CSC is now to establish in Bruchsal/DEU. Colonel Gajdoš is its first director. Germany will provide two staff officers and one NCO, whilst The Netherlands will put some additional burden on their liaison officer to the BwCBRNDCmd.

Pic 3

As of now AUSTRIA, BELGIUM, BULGARIA, CZECH REPUBLIK, GERMANY, HUNGARY, ITALY, LATVIA, THE NETHERLANDS, POLAND, ROMANIA and SLOVAKIA declared their willingness to participate at the FNC Cluster CBRN Protection. LUXEMBOURG is currently considering to joining the cluster. Other nations are interested to follow. As of now, up to 21 (!) nations contributed to the concept development, as well as the Joint CBRN Defence Centre of Excellence (JCBRND COE). In fact, the CSC waits for concrete contributions of the participating nations.

To summarize, among all the FNC clusters the one on CBRN Protection is seen as the most developed one and as a kind of lighthouse project.

Finally yet importantly, in order to demonstrate that as of now the BwCBRNDCmd feels responsible to protect Colonel Gajdoš, Colonel Neumann handed over the latest model of the German CBRN protective mask <pic 3>.

Author: LtCol Bernd Allert (DEU-AR)

Senior Enlisted Advisor Thoughts

Dear Readers,
In this edition of the COE Newsletter, I have focused my efforts on MSG Dirk MÜLLER's approach to his professional career development in attendance of the Non-Commissioned Officer Advanced Leadership Course in a Multinational Environment hosted by Swiss Armed Forces in Lucerne, Switzerland.

NON- COMMISSIONED OFFICER (NCO) ADVANCED LEADERSHIP COURSE IN A MULTINATIONAL ENVIRONMENT

The 12 day NCO Advanced Leadership Course conforms to the proposed NATO/ PfP Standards for Senior Non-Commissioned officers (SNCOs) at OR 8/9 level. The course's central theme is the development of leadership skills for SNCOs, focusing on the international environment. It is intended to enhance the cultural awareness of its participants in order to prepare them to work and lead in a multinational, joint environment. The course, hosted by the Swiss Armed Forces' College, takes place twice a year in January and December. On this occasion there were 44 students from 24 nations.
From my point of view you are presented with three major challenges which you must complete if you want to get the best out of the course. Firstly you have to do some pre-study and pass on-line exams, not only to earn a certificate, but also to prepare for several topics of the course. You have to refresh your knowledge concerning the history and structure of NATO and you also get an overview of issues such as Cultural Diversity and Human Trafficking.
The second task is to be an active participant throughout the course and not just to go through the motions attending classes. The NCO Advanced Leadership Course is also a good opportunity to share thoughts and experiences and to learn from participants from many different nations. During some presentations and team building activities I learned a lot about myself e.g. why do I act as I do or how can I interact better with superiors or subordinates. For example, I had not heard about DISC Profiling before (DISC is a behavior assessment tool based on the DISC theory of psychologist William Moulton Marston, which centers on four different behavioral traits: dominance, inducement, submission, and compliance), but I think it will help me a lot in my future military life as an NCO.
I would say the third, and perhaps most important task, is to challenge yourself to improve your military and personal skills by using your experiences from the course.
To sum up, the NCO Advanced Leadership Course is an excellent addition on to your national NCO training to prepare you to become a Command Sergeant Major and to be a good leader and role model for Junior NCOs. I took a lot of useful tools away with me and I will try to use them in my role as a NCO not only in a multinational environment but for national business as well.

Authors: CWO Ivan HLADIK (CZE)
MSG Dirk MÜLLER (DEU)

JOINT CBRN DEFENCE CENTRE OF EXCELLENCE COURSES OVERVIEW - 2017

Dates	Days	Course Name	Seats	Security Level / Tuition Fee
07 – 08 March	2	**CBRN-Analysis Super User – Refresher Course**	12	NU / free
This course introduces experienced CBRN-Analysis program users to the latest CBRN-Analysis program release and provides knowledge about new and improved program functions. The course enables the students to perform as local or national Super User Contact with sufficient knowledge to assist less experience operators and to act as adviser for establishing CBRN-Analysis communication, making exercises. **ETOC Code: WMD-MD-31246 /ePRIME: ACT.576**.				
24 – 28 April	5	**Introduction to the CBRN Training Curriculum Course**	18	NU / free
The mission of the course is to familiarize the participants with the International CBRN Training Curriculum, provide the participants with the knowledge and understanding required for implementation the CBRN Training Curriculum within their own nations and ultimately enhance interoperability among first responders in an international response to CBRN events. **ETOC Code: WMD-MD-21769 / ePRIME: ACT.575.**				
09 – 12 May	4	**I-MED Course**	40	NU / free
The increasing use of radiological materials in many industries and commercial applications creates a greater potential for radiation-related injuries. Treating radiation injuries alone, especially when combined with non-radiation injuries in a patient that may be contaminated, poses unique challenges to health care providers. The course consists of a combination of classroom lectures, demonstrations and exercises that reinforce the course lessons. The course is designed to teach attendees how to respond to medical emergencies involving radiation exposure, contamination, and how to improve the treatment and care of the injured. **ETOC Code: WMD-MD-21767.**				
09 – 12 May	4	**I-RAPTER – Basic Course**	30	NU / free
Aim is to provide, radiation protection specialists, first responders, law enforcement, and emergency managers with practical information to effectively respond to radiological incidents and accidents. The course provides instruction through briefings, equipment demonstrations and filed exercises employing a wide variety of radiation detection instrumentation, radiation sources, and personal protective equipment. **ETOC Code: WMD-CD-21765.**				
29 May – 02 June	5	**CBRN Units Evaluators Course**	18	NU / 100EUR
The target is to prepare evaluators responsible for evaluation of CBRN Defence units for NATO Reaction Force Combined Joint Chemical Biological, Radiological and Nuclear Defense Task Force (NRF CJ CBRN D TF) to achieve common standard on field of CBRN certification. **ETOC Code: WMD-MD-41244 / ePRIME Reference: ACT.572.**				
18 – 22 September	5	**CBRN Warning and Reporting Specialists Course**	18	NU/NATO, PfP / 100 EUR
The object is to train students to be qualified in warning, reporting and hazard prediction of the CBRN incidents and strengthen the foundation for integrity, good governance and management within members of the CBRN Warning and Reporting Centre by sharing experiences, challenges, and CBRN Warning and Reporting exercises in order to enhance professionalism. **ETOC Code: WMD-MD-21245 / ePRIME: ACT.573.**				

Dates	Days	Course Name	Seats	Security Level / Tuition Fee
02 – 06 October	**5**	**Live Agent Training**	**20**	**NU / TBD**
The course is designed to provide students with knowledge, skills and abilities to work confidently in protective clothing in a toxic environment containing chemical agents, toxic industrial chemicals, and radiological or nuclear materials. Through the training, students will gain practical experience in the use of personal protective equipment, will understand and be able to apply safe work practices and will have an appreciation of the equipment and methods for detection and decontamination. **ETOC Code: WMD-CD-31883.**				
16 – 19 October	**4**	**International Radiological Consequence Management Course**	**25**	**NU / free**
The aim is to provide assessment specialists, emergency response personnel and emergency managers with the tools and techniques to develop and execute plans for responding to complex issues related to the release of radiological materials. Established strategies will be presented that cover the elements required to respond to such events. Additionally, interaction and coordination between those response elements will be explored. **ETOC Code: WMD-CD-31768.**				
06 – 09 November	**4**	**I-RAPTER Advanced Course**	**30**	**NU / free**
The course builds on the basic I-RATER course by providing responders, law enforcement officers, radiation protection specialists, port and customs officials, and emergency managers with advanced techniques for radiological search and identification. **ETOC Code: WMD-CD-31766**				
27 November – 01 December	**5**	**Consequence Management after CBRN Incident**	**40**	**NU / 100 EUR**
The aim is to introduce and describe EU, NATO Consequence Management concept, organization, systems and procedures including Cooperation and Partnership initiatives in Consequence Management to EU, NATO and Partner Nation officers and their civilian equivalents. **ETOC Code: WMD-CD-41764 / ePRIME: ACT.574.**				

For detailed courses information visit

http://www.jcbrncoe.cz/tp/

and learn "How to Enroll into a Course".

The TEED team is looking forward to welcoming you in Vyskov.

Author: MAJ Veronika Golková (CZE-A)

WHAT IS COLONEL JIŘI GAJDOŠ DOING?

We all remember the entire JCBRND COE was deeply touched when, on 20th January 2017, Colonel Gajdoš not only handed over the Centre's flag but also the command to Colonel Vratislav Osvald. After all, Colonel Gajdoš had led the COE for more than four years. He did not quit the military. Nevertheless, what is he doing now? He was transferred to the German Armed Forces CBRN Defence Command (BwCBRNDCmd) in BRUCHSAL/DEU and is now responsible for the establishment of the "Cluster Support Cell (CSC)" of the Framework Nations Concept (FNC) Cluster on CBRN Protection. Colonel Henry Neumann, commander of the Bundeswehr CBRN Defence Command welcomed Colonel Gajdoš in the frame of muster on 3rd February, introduced him to the staff, and compared his tasks with those of a Chief Executive Officer (CEO) of a multinational consortium responsible only to the supervisory board ("Steering Committee"). *Pic 1*

Pic 1

What is the Framework Nations Concept (FNC)? NATO's Heads of States and Government endorsed the FNC during the NATO Wales Summit in September 2014. A FNC (Cluster) focuses on groups of nations coming together coordinated by a nation that is willing to provide a framework to develop their national capabilities in the medium to long term, to come together for collective training and exercise purposes, and to produce operational groupings. With the Political guidance 2015, NATO further articulates the strategic direction set in the 2010 Strategic Concept and the subsequent defence capabilities. The implementation of the FNC will contribute to providing the Alliance with coherent sets of forces and capabilities, particularly in Europe. Therefore, the FNC is linked to the Readiness Action Plan (RAP) with a focus on the enhanced NATO Response Force (NRF) and its Follow-on Forces Group, as well as larger formations of the Follow-on Forces and related capabilities.

The capabilities will be organized in clusters, led by a Framework Nation. One of these clusters is the cluster on CBRN Protection. Germany offered to provide the framework for the Cluster CBRN Protection. The Cluster CBRN Protection facilitates the development and the provision of specialized, sustainable and sufficient CBRN defence capabilities for NATO defence planning and operations. This Cluster intends to bridge the capability gap between defence planning and operations planning, and facilitates the provision of CBRN defence capabilities for both predictable and ad-hoc requirements. Participating Nations (PN) will support improving NATO's CBRN defence capabilities by coordinating and adapting national capabilities to NATO's current and future requirements.

In order to achieve its aim supporting NATO's CBRN Defence, the Cluster has to coordinate capability requirements of the PN, to optimize educating and training of CBRN specialists, to optimize and coordinate exercising in the area of CBRN Defence, and finally to provide trained, educated and harmonized CBRN Specialist Forces to NATO Article 5 Operations as well as to Non-Article 5 Operations. Within this context, the Cluster CBRN Protection will respect the PN sovereignty, act within the framework of NATO's Defence Planning Process (NDPP), and will not duplicate existing NATO bodies, but support them as appropriate.

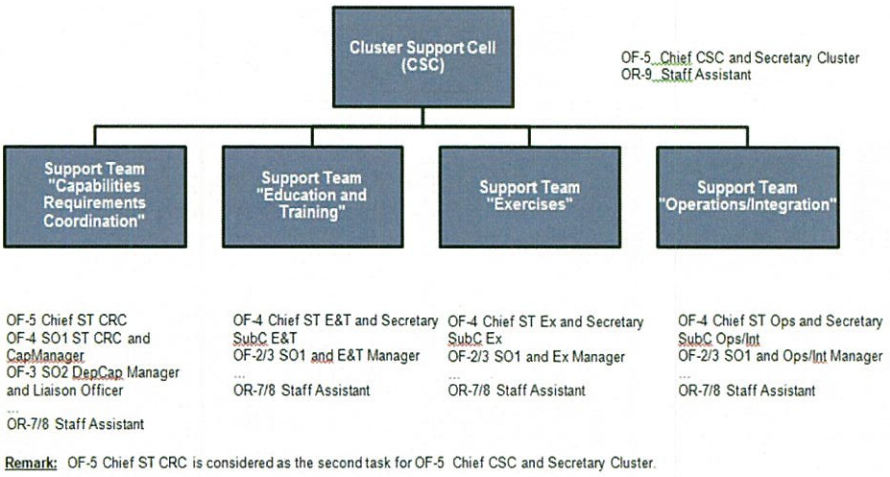
The Cluster CBRN Protection is subdivided into four main areas of work:

►Coordination of the capability requirements of the PN, based on the NATO Defence Planning Process, its capability targets, and the capability development assessment provided by the JCBRND-CDG.

►Education and training of CBRN specialists, thus improving interoperability, increasing the efficiency of existing education and training facilities, and enhancing and coordinating the efforts of training in national and NATO responsibility.

►National and multinational exercises in the area of CBRN Defence, in order to improve CBRN Defence support to operations in a multinational environment.

►Operations Integration in order to plan, and prepare the provision of trained, educated and harmonized CBRN Specialist Forces (and their enablers5) to NATO Article 5 Operations as well as to Non-Article 5 Operations.



Pic 2

The four main areas of work will be conducted within the Cluster itself and in three Sub-Clusters. Capability Requirement Coordination will be realised at the level of the Cluster itself. The Cluster is structured in three Levels; the Cluster itself, three Sub-Clusters, and four Hubs (within the Sub-Cluster Operations/ Integration). The Sub-Cluster Education and Training (E&T) will be led by CZE, Sub-Cluster Exercises by POL, and Sub-Cluster Operations/Integration by DEU.

The NATO Army Armaments Group (NAAG) Joint CBRN Defence Capability Development Group (JCBRND-CDG) facilitated five multinational workshops in order to develop a concept for the FNC Cluster on CBRN Protection.

Continue page 8

Continue from page 4
the Training Audience in their respective domains.
TRJE16 was fundamental exercise, where CBRN incidents were fully practised in accordance with Exercise Specification (EXSPEC) and Training Objectives (TOs). All incidents were cross functional to enable the evaluation of coordination among specific elements. Based on JCBRN Defence COE experience JTF HQ should keep Operational Control (OPCON) over CBRN Battalion (CBRN-BN) to accelerate the tempo of the operation.

Author: OF-3 Radek TOMAS (CZE-A), OF-4 Vladimir HON (CZE-A)

Clean Care (CC16), Tisá (CZE)
Over 200 attendees from 7 countries (BEL, CAN, CZE, DEU, FRA, UK, USA) participated in the NATO multinational exercise CC16 that was conducted at the military training area Tisá 19 - 23 SEP 16. This cross-disciplinary CBRN and Medical training event was aimed to improve NATO interoperability at a tactical level. The exercise methodology focused on the management of CBRN Casualties from the point of exposure through a Role 2 Medical Treatment Facility.
The Director of the JCBRN Defence COE assumed the role of the Officer Directing Exercise, provided the Exercise Director and together with the NATO CBRN Medical Training Liaison Team and 31st CBRN Regiment undertook significant duties in Exercise Control (EXCON).
From the start of the exercise, the relationship and shared responsibilities of the NATO CBRN and Medical communities were reinforced. Whether originating from a geopolitical adversary or a terrorist cell, the threat will continue to draw these two communities together in response to CBRN and toxic industrial hazards. For such reasons the Clean Care 2016 was run as a Non-Article 5 Crisis Response Operation within a NATO approved scenario which addressed an allied action in the area with a complex CBRN and Epidemiological risk. By doing this, the CBRN and Medical experts could validate common procedures for CBRN casualties management and improve its interoperability. In addition CC16, which was reiterated after five years, will serve as a pre-requisite in training of forces for the major NATO strategic exercises such as the Trident serial of exercises.

Author: OF-5 Jaroslav BOREK (CZE-AF)

Toxic Trip (TOTP16), Antalya (TUR)
TOTP16 is NATO Chemical, Biological, Radiological and Nuclear (CBRN) Defence in Air Operations Exercise, designed to improve interoperability amongst NATO, Partnership for Peace (PfP), Mediterranean Dialogue (MD) nations and NATO Partners across the Globe through multinational exercise scenarios, demonstrations and information exchange.

NATO CBRN COLLECTIVE TRAINING CONTINUED IN 2016

TOTP exercises are organized annually by NATO CBRN Defence Capability Development Group / Training and Exercise Panel / Working Team 3 (Air Force). The TOTP16 exercise was held at Antalya Air Force Base, Turkey, 15 – 22 OCT 2016. There were 385 participants from 11 NATO countries, 4 partner countries and 1 NATO organization - Joint CBRN Defence Centre of Excellence.
JCBRN Defence COE participated with two members as Lessons Identified (LI) / Lessons Learned (LL) Team leaders. The team of more than 20 participants from different nations, services and organizations has generated more than 100 observations that will be used by participants during their training sessions in preparation for real missions.
As a result of the LL team effort, the most significant observations and LIs with external impact or operational importance became a part of After Action Report. The Report will be introduced and discussed within Training and Exercise Panel Meeting for its acceptance. Having been commented and approved, the Report will be incorporated in JCBRN Defence COE LL database as well as in NATO LL Portal / CBRN Community Of Interest section to be available for all stakeholders dealing with CBRN matters or exercise planers.

Author: OF-2 Gorazd STERGAR (SVN-A)
Photos: Air Force, TUR

Brave Beduin (BB16), Skive (DNK)
BB16 is the biggest and the most important annual NATO-conducted exercise in Warning and Reporting of Chemical, Biological, Radiological and Nuclear System (W&R). The whole exercise is organized at the Engineer Regiment barracks in Skive, Denmark. The main goal of this exercise is to improve and to train CBRN W&R Centres within NATO countries in W&R procedures in accordance with ATP-45 doctrine.
Exercise BB16 was held in Denmark within 24 - 28 APR 2016. The exercise was attended by approximately 350 persons from 17 different NATO and PfP (Partners for Peace) countries. The most of involved countries took this exercise as an opportunity to discuss all aspects and to provide comments related to CBRN Analysis software (software used during the exercise for CBRN incident evaluation and prediction).
Every year JCBRN Defence COE plays a significant role in the preparation and the execution of this exercise. Two Training Exercise Education Department (TEED) representatives were involved in both the preparatory phase and the execution of the exercise. They were assigned for the positions of exercise directing staff.
COE representatives contributed significantly during the first period of the exercise where their expertise led to the development of exercise MEL/MIL (Main Event List / Main Incident List) packages in the Exercise Planning Section (PLAN). PLAN was responsible for preparation of all necessary inputs not only for training audience but also for incident controllers. It was purely visible that PLAN was core element of successful exercise conduction. The second part of exercise, COE representatives got the great opportunity to be the part of the exercise Reach Back Section (RBS). Based on requirements of training audience during exercise, RBS provided various scientific data such as radiological readings necessary for reconnaissance simulation or even concentration of chemicals in specific locations.
Lessons Learned collected during this exercise are credible material for analytical purposes to compare and evaluate the attitudes of different nations related to implementation of ATP-45 doctrine. In addition, such exercise creates training space for JCBRN D COE members to retain broad knowledge in W&R system used within NATO countries.

Author: WO Marek NEMEC (CZE-A)
Photos: Engineer Regiment barracks, DNK

THE JCBRN DEFENCE COE ENHANCEMENT PROJECT IS COMPLETE!

From 26 June 2016, when construction workers first broke ground in the in the grassy field immediately adjacent to the COE Headquarters building, through October 2016 when construction was completed, COE members daily observed the progress of the long-awaited and much anticipated Enhancement Project. But what actions were taken, which preceded this significant event that transformed the face of the COE and greatly improved accessibility to our facilities?
The JCBRN Defence COE Enhancement Project initially started as an excellent idea to ensure improved working conditions for COE members and visitors alike. The most important reason for the Enhancement project was to create an external image and environment worthy of and appropriate to the status, stature and high achievements to which this center and its sponsoring nations aspire The Steering Committee's project approval in of October 2015 was the first step. Next, project documentation occurred from November 2015 to April 2016.

Building permits were approved by the local Vyskov City Governmental Office in May 2016, followed by contract bidding, which was eventually awarded to the IMOS Company and signed on 21 June 2016, thanks in large part to our Sponsoring Nations.

Construction work took almost 4 moths. During this time more than 10 workshops was organized within the presence of COE Project Managers (LTC MYLAN, LTC MENŠÍK and other SD members), IMOS Company Managers and Military Immovable Infrastructure Office Managers. The JCBRN Defence COE Enhancement was finalized by 14 October 2016.
This project itself aligns the JCBRN Defence COE with the standards of professional appearance and external functionality of other NATO organizations. It also identifies the COE as a distinct and unique multinational organization on this installation and, indeed, in the Czech Republic.
The parking lot allows parking for 80 personal cars, to which access is controlled by an electronic gate and observed and operated by a 24 hour Security Guard. Personnel access into the COE facilities is enhanced by an exclusive COE access system, also controlled by the security guard detail. Additionally, a bicycle shelter was constructed for members to store their bicycles.

Finally, a Ceremony Area with a JCBRN Defence COE Monument and Sponsoring Nations flags provides a wonderful backdrop for the new facility, honors the former Director of the COE and signals to visitors the Sponsoring Nations and Contributing Partners who are committed to the mission of the Joint CBRN Defence Centre of Excellence.
The JCBRN Defence COE Enhancement Project was officially opened and the COL János Zelenak's Memorial unveiled during our 10th Anniversary celebration on 17 October, 2016.

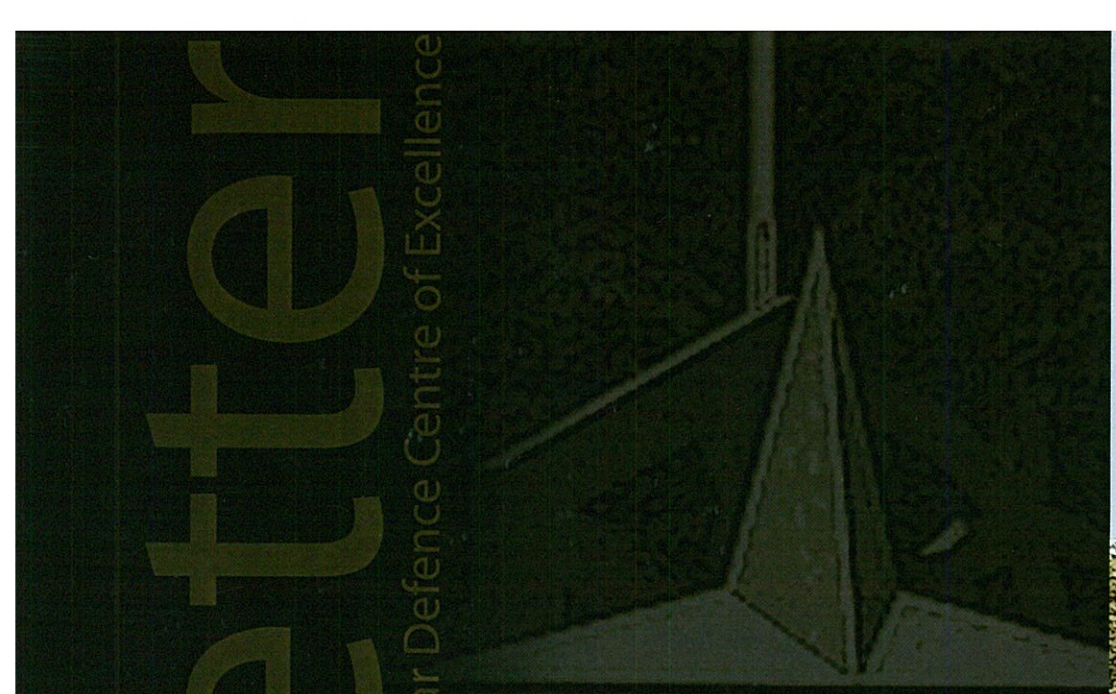
Author and photos:
LTC Aleš Mylan (CZE)

June 2016

October 2016

June 2016

October 2016



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