MSIAC Munitions Safety Information Analysis Center
Supporting Member Nations in the Enhancement of their Munitions Life Cycle Safety

Bulletin

IN THIS ISSUE

May 2014

CONTACT INFORMATION
☎ 32-2-707.54.16
🖷 32-2-707.53.63
http://www.msiac.nato.int
info@msiac.nato.int

THE DGA EM MISSILE TESTING SITE: *THE FIRST FRENCH CENTRE ACQUIRING A MSIAC/ NATO REFERENCE!*

On 19 and 20 March 2014, a review of internal processes related to safety and vulnerability tests (to NATO standards) was conducted at the DGA EM (Gironde site). The review involved delegations from of 4 external organisations, including: NATO (MSIAC), the French IPE explosives inspectorate, and the US Department of Defense Explosives Safety Board (DDESB).

Two days were devoted to an audit of existing procedures. During this period, the observers were able to appreciate the demanding requirements imposed and the skills deployed to meet the customers' test specifications. They also had the opportunity to review the test equipment employed at the Gironde site at the safety testing areas (EB5, EB'2, EB3 and EB'1), which included:

- the fast fragment projectors that can deliver fragments in the mass range of 4 g to 252 g and at speeds varying from 700 m/sec to 2800 m/sec;
- the 12.7 mm bullet impact device, allowing shots with speeds of 550 m/sec up to 950 m/sec;
- the test set-ups for shaped charge attack, sympathetic reaction and slow heating (at a rate of 3.3°C/hour) in three standard enclosures;
- the new 11 m x 11 m fire test bench, with semi-automatic treatment of discharged water (ISO 14001), allowing durations of > 30 min for specimens, and a maximum thrust of 20 tons,
- the drop-test tower that was increased to 21 m in 2013.

This self-audit established that the processes and equipment used at DGA EM are at the level of NATO best practice. On this basis, DGA EM will soon be included in the NATO/MSIAC compendium. They will be the only French member of the international test centres which have demonstrated this level of competence. Others to date include: WTD91 (Germany), Bofors Test Centre (Sweden) and NAMMO (Norway). The TNO and DMO of the Netherlands recently indicated that they have initiated the self-audit procedure for their joint test centre.

The certification of NATO munitions test centres

This is an initiative that was launched in the 1950s to address small-calibre ammunition interchangeability problems. Today there is a formal accreditation process for such ammunition which is of benefit to both users and manufacturers – now many nations only buy ammunition to the NATO standard that have been tested in regional and national centres accredited by the NATO Armaments Groups.

(Continued on page 2)

The NATO/MSIAC self-audit procedure

The purpose of the MSIAC self-audit procedure is to help organisations carrying out insensitive munition (IM/MURAT) safety tests to establish and promote test methods leading to mutual acceptance of: test results, reports and IM signatures. It also serves to recognize organizations that have demonstrated competence in testing which meets the NATO standards.

This procedure also provides technical information required under ISO/EIC standard 17025; General Requirements for the Competence of Testing and Calibration Laboratories, clause 5 (technical requirements). This is a quality management system that is applicable to organizations carrying out tests, which is independent of the number of personnel or the nature of the activity. Unlike ISO 9001, this standard uses procedures specifically developed to determine technical capability and assure the customer that tests are performed accurately and reliably.

Description

The self-audit procedure takes the form of four questionnaires to be completed that will then be incorporated in a final audit report:

- *"Guidance on general standards"*, indicating the existence of an environmental management, health and safety at work, and quality management system.
- *"Guidance on IM testing"*, providing detailed information on: the qualifications, training and experience of the staff conducting IM/MURAT tests; drafting specifications; and assessing the results in accordance with the requirements of STANAG 4439 and AOP-39.
- *"MURAT tests procedures mandatory requirements"*. This is a detailed comprehensive questionnaire to determine compliance against the minimum instrumentation requirements need to carry out all the IM and/or Hazard Classification tests.
- *"Guidance on reporting additional MURAT testing capabilities"*, a questionnaire intended to help the centre demonstrate its ability to go beyond the minimum requirements of the standards, to capture and document technical skills, and to identify the strengths and weaknesses of the organization.

This self-audit brings a double benefit:

- **for NATO:** it establishes an international compendium of skills and competences dedicated to IM/Hazard Classification safety testing that are available for armaments programmes.
- **on the national level:**
  - ◊ assurance that the management system and the associated technical capabilities are at the level of the best practice;
  - ◊ it provides documentation that can be attached to test proposals to demonstrate skills, capabilities, and performance in carrying out IM tests;
  - ◊ it provides a means to achieve international recognition and to improve the visibility of the test centre, reciprocally it provides an opportunity to share knowledge on the practices of competing test centres.

This article was kindly provided by DGA/EM and edited by MSIAC.

You can download the full article in ENGLISH and FRENCH via this hyperlink.

INDUSTRY & TECHNOLOGY PRESS REVIEW

If you have information that you consider of relevance to this section, please do not hesitate to contact MSIAC at m.becker@msiac.nato.int.

After not including a "Science / Technology and Procurement" section in the last newsletter, this issues report is longer than normal, with information highlighted under the two following categories: the first, Procurements, identifies some of the more pertinent procurements and contracts of interest , as well as business mergers and alliance changes within the defense industry. The second, Science/Technology, provides highlights of technology developments related to munitions and munition safety. This section also includes major weapon development events and other technology topics of interest. We hope you find the information of interest. At the end of each excerpt is the hyperlink to the news source where you can find the entire article.

For more on Industry & Technology, use this hyperlink .

(Continued on page 3)

Our SCJ Workshop will soon be held! Even though you've missed the **deadline** for **Pre-registration**, you can still register on the day!

The pre-registration was necessary to confirm your attendance at the Reception and the Dinner. Those who have pre-registered will receive a confirmation email with additional workshop details. We still offer on site registration on Tuesday morning at ENSTA for those of you who are only attending the workshop. The lunches and dinner will be at your own expense in this case.
Already over 50 attendees from 8 nations have registered. This will be a great opportunity to provide input on improvements for STANAG4526!

So do not miss it:
MSIAC Shaped Charge Jet Workshop 2014
https://www.msiac.nato.int/products/scj-2014-workshop

Integrated Munition Health Management Cooperative Technology Demonstration

An article from the Chairman of AVT 212: *Weapons systems budgets are shrinking across NATO and many countries seek a longer life from munitions; however, there is no universal standard for monitoring the health of such stockpiles. AVT-212 explains how Integrated Munition Health Management aims to address this issue for both legacy and future systems across all domains.*

AVT is setting up a demonstration of Integrated Munition Health Management at NATO HQ on October 15 and 16. The demonstration involves input from seven nations, with representatives from both government and industry. If you want to learn more:

Click here to read the full article.

The MSIAC Website Access

MSIAC maintains a secure web environment which contains a wealth of information regarding munitions safety across the life cycle. This article focuses on the support provided under AC326 on the Accident and Hazard Classification database exchanges, based on national contributions. For more information :

Click here to read the full article.

The MSIAC Spring Steering Committee Meeting

MSIAC recently held its 19th SC meeting in April 2014 during which there was agreement to increase staffing levels at MSIAC. The SC finished with a visit to the Belgian Disposal Site at Poelkapelle which disposes first and second world war munitions.

For more details, click here .

Welcome To Martin Pope!

Martin Pope has just joined MSIAC as the TSO Munitions Systems.

Prior to MSIAC, he served in the British Army for 30 years mostly working as an Ammunition Technical Officer.

In this technical specialism, he held a number of varied posts in ammunition and weapons safety related fields including logistic management and storage, transportation, field and operational storage, incident investigation and in the UK EOD and Munitions Training organisation.

Martin also spent some years involved in EOD in a range of operational theatres alongside these other duties including a tour specifically in Counter-IED. Of particular relevance to MSIAC: he spent 3 years working in the UK Ordnance Board working in support of NIMIC and AC310 and more recently 4 years in the UK Defence Ordnance Safety Group.

Most recently he worked a short period with QinetiQ in support of munitions research and development and gained a good understanding of weapons test and evaluation.

Martin takes over as the point of contact for MSAS, SASO, the Response Descriptors Review, and S3 review task.

He is looking forward to working with MSIAC customers on munition systems safety related questions and issues.

MSIAC developed a new poster from the Open Report O-150! Follow this link to download the PDF version. Keep your eye on our Website, more posters will become available soon.

MSIAC

SUPPORTING MUNITIONS SAFETY

The United Nations exerted pressure on the Cyprus Government to confiscate a shipment of military arms and ammunition which was in violation to UN security council sanctions. The shipment was seized in February 2009 and was stored on the Evangelos-Florakis Naval Base in Cyprus.

The storage location was driven by the security requirements (sabotage was a primary concern).

All 98 Ammunition Containers were stored en masse and were not separated to minimise and manage the risk.

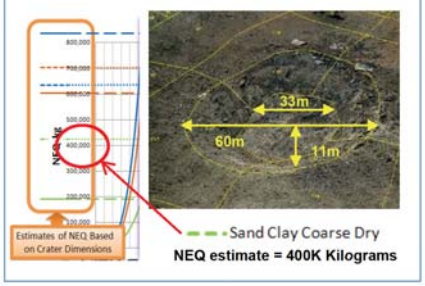
Ammunition was exposed directly to the environment; in particular solar radiation for 2.5 years.

The hazard was understood by national experts and communicated to high level stakeholders within the Government, but the risk was not communicated to exposed personnel (Naval Base, Power Station, Firefighters)

Mixing and Aggregation Rules for Hazard Divisions per Table 4 of NATO AASTP-1 (HD 1.3.1 plus HD 1.1 = HD 1.1).

The mix must be aggregated as HD 1.1 when high loading density storage of HD 1.3 is in relatively heavy confinement (e.g., Earth Covered Magazines or in stacked ISO Containers).

The Ship's Manifest regarding the quantities of munitions seized and total NEQ were unclear. Therefore MSIAC performed a Crater Analysis to estimate the NEQ.



Cyprus Accident

A spontaneous and sustained combustion of the propellant occurred followed by a mass detonation of the remaining explosive contents (HD 1.1 event) on 11 July 2011.

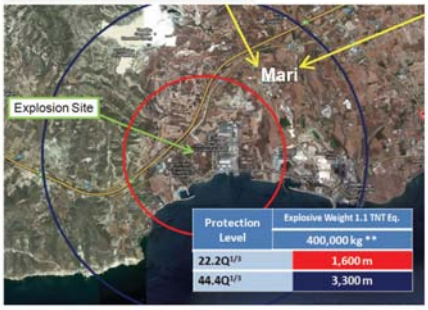
CASUALTIES: 13 fatalties, 62 injuries. The Head of Cyprus' Navy, the Base Commander, five Navy personnel and six firefighters were killed.

DAMAGE: Estimated costs are 4 Billion EURO, includes commercial and residential property.

POLITICAL: Former Cypriot Defence Minister Costas Papacostas was found guilty of manslaughter and 3-fire chiefs were convicted of causing death through negligence.

OTHER: Crippled Cyprus's main electrical power plant, causing severe disruption. Thousands of citizens protested at the presidential palace.

A wave of destruction occurred within many buildings in the town of Mari located 1700m from the explosion site.



A major public utility such as the power station is a "large facility of special importance" thus storage separation at protection level 44.$Q^{1/3}$ per NATO guidelines should have been applied.

Latest Publications

(Available on the MSIAC secure webenvironment https://sw.msiac.nato.int/SecureWeb/ or on request at info@msiac.nato.int)

LIMITED PUBLICATIONS

L-185 **Management of Rocket Motors containing Asbestos**

Click here to find all Publications in the Technical Reports section on our website.

You can access all REPORTED ACCIDENTS via this hyperlink.

(Re-printed on our Website with permission of ility engineering)

You can find the LATEST PATENTS OF INTEREST on our MSIAC Website via this hyperlink .