# Comparison of International QRA models on the basis of the "Setup and Results of The Joint UK / Australian 40 tonne Donor / Acceptor Trial"

by
Philip van Dongen, TNO Prins Maurits Laboratory, The Netherlands
Meredith Hardwick, APT Research, Inc., United States
David Hewkin, Explosives Storage and Transport Committee, United Kingdom
Peter Kummer, Bienz, Kummer & Partner Ltd., Switzerland
Hans Øiom, Norwegian Army Materiel Command, Norway

Abstract

In 1998 it was acknowledged by the NATO AC/258 Storage Sub Group (STSG) that consideration of the methodology and techniques of quantitative risk analysis (QRA) should be a useful step forward in the area of explosion safety principles. This acknowledgement resulted in the establishment of the AC/258 STSG Risk Analysis Working Group (RAWG) which has the charter of examining the requirement for risk analysis in the ammunition and explosive storage and transportation areas, producing a NATO Risk Analysis Manual AASTP-4, and recommending technical risk analysis inputs to all other documentation produced by AC/258 and its Sub-Groups.

In the third RAWG meeting, the delegates discussed their concern that the QRA models developed by different nations could give different results for the same input conditions. It was decided that again a group of experts would compare and explain the different QRA models on the basis of the setup and results of the recently conducted joint UK/Australian 40-tonne HD1.1 full scale explosion trial. On March 14$^{th}$ 2000, a meeting was held in Oberjettenberg, Germany, in which risk analysis experts from Germany, the Netherlands, Norway, Switzerland, the United Kingdom, and the United States began discussions on the different case study results and QRA model approaches.

This paper starts with a short description of the case and the QRA models that were used to quantify the risks associated with the 40 tonnes NEQ of ammunition storage. The overall risk results and some detailed model outputs are presented and discussed. During the one-day meeting, discussions were particularly focused on the QRA topics "frequency/probability of an accidental explosion" and "the prediction of building debris and ammunition fragments throw-out." The nations' approaches will be presented and discussed.


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