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NORM TRANSPORTATION IN THE PORT OF ANTWERP: FROM MEGAPORTS TO A SPECIAL-PURPOSE MEASUREMENT METHODOLOGY

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The Megaports project started as a result of the terrorist attacks that took place on September 11th in 2001 in the USA. The Megaports Initiative is a worldwide effort to prevent nuclear smuggling in container traffic. The US government sponsors the worldwide installation of nuclear detection equipment in ports.

The Belgian government agreed to such an installation in the port of Antwerp in November 2004. The final checks have been initiated in 2007.

Customs thought it was desirable that support came from specialized people, and that's where the Nuclear Technological Centre (NuTeC) came into the picture.

Nuclear inspections consist of three phases, as they have been designed in a general approach in the Megaports Initiative.

Primary phase: all containers are inspected by radiation portals. If the load is radioactive, the portals will create an alarm, but will not give further information about the nature of the load. That is why the container will be blocked and the manifest info will be collected. If the container contains naturally occurring radioactive materials (NORM) it will be released if the radiation profile corresponds to a homogeneous load and when the threshold for that particular material has not been exceeded.

Secondary phase: suspicious containers are further investigated. An X-ray scan of the lorry is made to visualize the kind and the distribution of the load. Custom officers will use handheld equipment to further characterise the radioactive material in the container. In most cases containers will be released after this inspection, because of confirmation of the NORM nature of the contents of the container.

Tertiary phase: when there is no logical and legally acceptable explanation for the radioactivity, local government officials are warned. The inspection will be performed by radiation experts, mostly consisting of reviewing the available data and performing a physical inspection of the container. In Belgium the authorised agency is FANC (Federal Agency for Nuclear Control) and in most cases co-workers of NuTeC performed the task of a radiation expert, for the period till May 2008. From June 2008 the inspections are carried out by FANC and Controlatom.

Soon it became clear that the greater part of the alarms were generated by containers filled with NORM materials. NuTeC, together with customs,

decided to keep records of the NORM alarms to gain an insight into this matter.

This newly obtained knowledge will contribute to a faster settlement of the alarms and will therefore also fasten up the passing through of the container traffic in the port of Antwerp.

In our findings we will summarize the equipment used, the methodology and the results.