

# Work Plan Outline

## **Task Group 4: *Impact Assessment of a Terrorist Attack on a Nuclear Power Plant***

4.1 The objective of TASK Group 4 is the determination of:

4.1.1 The impact on flora and fauna in the affected areas

4.1.2 The short term health impact on the facility, staff, first responders, and members of the public affected by an uncontrolled release.

4.1.3 The mid-term health impact on the population in the affected area due to inhalation and ingestion of contaminated food stuff and water.

4.1.4 The mid-term health risks due to genetic effects and somatic effects

4.2 The method of implementation foresees the use of advanced dedicated software developed in the U.S. and Europe. The US code RASCAL and the EU code COSYMA will use the release fraction as determined by task group 2 source term for the subsequent impact assessment.

4.3 Using Gaussian atmospheric dispersion models the following parameters will be determined for radiologically important radioisotopes for various target groups.

- Atmospheric contamination downwind from the facility
- Deposition on the ground in the fallout-affected areas
- External gamma dose rate
- Effective dose to the thyroid
- Whole body dose
- Collective dose to different target population groups

4.4 For the determination of the mid-term consequences, the computer model VT OFF SITE will be used. In addition the feasibility of using the UNSCEAR recommended transfer coefficients for compartmental modeling will be investigated. The following parameters will be determined.

- Radionuclide transfer for the soil-grass-cow-milk-beef-man pathway
- Intake by drinking water
- Resuspension of fallout
- Effective dose due to inhalation of resuspended fallout
- Effective dose due to ingestion of contaminated food

4.5 Based on the dose distribution in the different population groups, the resulting theoretical risk will be assessed. For this purpose the currently valid ICRP risk factors will be applied to determine:

- The risk for acute radiation syndrome for staff working at the facility and first responders

- The risk for genetic and somatic health effects for these groups
- The risk for genetic and somatic health effects for the population living in the fallout affected areas.

4.6 It is anticipated that the quantitative assessment of the uncontrolled releases –as determined by Task group No. 2 – will have been made available to Task Group No. 4 by spring 2003. In that case it is planned to conduct a joint meeting (duration 3 days) with experts from US EPA and NATO task group N.4 (venue Washington DC) to discuss the choice of environmental scenarios (wind speed, precipitation, season) for the subsequent environmental impact assessment.