

OTIF



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ZWISCHENSTAATLICHE ORGANISATION FÜR DEN  
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Comparison of risk assessment practices for the railway transport of hazardous goods.

Research proposal submitted to the RID expert Commission – and the Working Group on Risk Analysis

Proposition de la France

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## INTRODUCTION

This proposal is following the work carried about by the Working group on Risk analysis who have written "Generic Guidelines for the Calculation of Risk due to Railway Transport of Dangerous Goods".

These generic guidelines allow a better harmonisation of the general content of the risk assessment between states.

During this first step the evaluation of the detailed application of risk assessments in states was not an objective of the working group. Thus the application of these generic guidelines without demonstration tests is not sufficient to ensure that in practice the risk assessment can not lead to contradictory conclusion about the transit restrictions of dangerous goods.

Then the working group considered in its meeting of the 3-4 May 2005 ( § 22, 23, 24, 25 and 27 from A81-03/504.2005) that the guidelines were a first valuable step for the risk assessment harmonisation but proposed to follow up the work related to the generic guidelines by a research project focused on the demonstration and benchmark of actual practices in the states. Due to the cost of such a work it was proposed to carry out this work by the mean of a research project.

## **THE RESEARCH SCOPE**

The work program of this second step is devoted to co-ordinate and to carry out comparison tests of the existing risk assessment models in the states in order to demonstrate the present practices, to propose practices harmonisation and to identify minimum common requirements that could be applied by the states for the mutual acceptance of transit restrictions in the future. This work has to be made at each level of the transit restriction decision process (which is based on risks assessment) from the hazards identification up to the presentation of the practical use of the decision criteria related to the risk assessment itself.

The details of the expected research program is given in annex.

The expected results are the demonstration of the existing common practices and the identification of the gaps in order to make recommendations for common future practices of risk assessment within a shared decision making process for transit restriction.

## **RESEARCH ORGANISATION AND FUNDING**

This research should be co-funded by the states, the rail industry and the European Commission.

It is intended by the Working Group that in case of the RID expert commission would be in favour of this research project, the project proposal could be co-ordinated by INERIS and could be proposed to the European Commission to a next suitable 6<sup>th</sup> or 7<sup>th</sup> PCRD call. The research team would be composed of research institutes, consultants and end-users as well as the rail industry and the UIC.

## **ANNEX: EXPECTED RESEARCH PROGRAM**

The project is based on a short term engineering approach aiming at define a shared use of risk assessment on the basis of existing tools and states practices knowing that uncertainties exist in that engineering field of expertise. This approach will facilitate the identification of uncertainties problems that are to tackle in the future.

The following basic requirements shall apply to the risk assessments.

the risk levels have to be transparently demonstrated by the state with their existing models and in the future within the framework of a shared assessment methodology and already defined "Guidelines",

the future shared assessment methodology shall be applicable for the risk assessment of a unique route and the risk comparison of alternative routes. For alternative routes quantitative as well as qualitative risk assessments will be studied (§ 2.2 of the "Guidelines").

the definition of the risk treatment is separated from the risk assessment itself but is based on the results of the risk assessment through a set of risk criteria (human and environmental impacts) and a set of decision criteria (risk acceptance, economy...) that are transparently fixed by the states,

The "Guideline" document already gives indications on the general content of a shared risk assessment procedure and on the place of this risk assessment in the decision making process.

The present research (demonstration - benchmark) shall give indication on the risk models that are available in the states and how the existing practices allow the application of the basic requirements listed above.

Doing this benchmark and knowing the capabilities of the models on pre-defined imposed tests cases it will be possible to propose solutions in order to reduce the gaps between the different risk levels obtained by the states and to reduce the gaps between practices.

The research program will contain the three main parts as it follows :

the benchmark on test cases,

the definition of minimum requirements for the assessment of risks (practices),

the identification of a shared and transparent criteria that are taken into account for the use of the risk assessment results within the risk treatment process.

### BENCHMARK OF EXISTING MODELS FOR RISK ASSESSMENT

The benchmark is focussed on few tests with an increasing sum of difficulties for the harmonisation of practices. These tests are composed of some risks assessment with existing tools on the basis of the test case definition, i.e. definition of a dangerous good accident within a defined context of population, buildings and environment. The planned tasks are the following :

- 1- Compare the parameters taken into account the existing assessment tools,
- 2- Carry out risk assessment on few simple event (quantitative and qualitative assessment)
- 3- Carry out risk assessment on a unique given route (quantitative assessment)
- 4- Carry out a comparison of risks between to alternative routes (qualitative and quantitative assessment)

#### MINIMUM REQUIREMENTS FOR RISK ASSESSMENTS PRACTICES

The minimum requirement will be extracted from the benchmark work and the available data for the risk assessment models.

Identify the minimum common capabilities of existing risk assessment tools,

- 5- Carry out the minimum detailed requirements for a shared (transparent) risk assessment,
- 6- Carry out the same risk comparison than done in the point 4 with the shared risk assessment defined in the point 6, compare and make proposition for minimum requirements.

#### SHARED AND TRANSPARENT CRITERIA FOR THE USE OF MODEL' RESULTS

The purpose of this part is not to impose the decision criteria to the states but to identify what are the criteria taken into account in the decision process of each states. The common part of these criteria will be identified. A separation will be made between the risk criteria (effects to human and environment...) and the decision criteria (social acceptance, economy ...).

- 7- Carry out shared risk criteria and decision criteria for the definition of transit restriction on the basis of the shared risk assessment process.

The expected deliverables of this project are the following:

Report on the benchmark tests and the common capabilities of existing risk assessment tools.

Report on the minimum detailed requirements for a future shared risk assessment

- 8- Report on recommendation for mutual acceptance of transit restriction based on existing tools and based on the proposed shared risk assessment.

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