
Preface: emergency and risk zoning around nuclear power plants

Christian Kirchsteiger*

European Commission, DG TREN-H2
E-mail: christian.kirchsteiger@ec.europa.eu
*Corresponding author

Biographical notes: Christian Kirchsteiger is a Scientific Officer of the European Commission. He received a PhD in Physics from the Technical University of Vienna and before joining the Commission, he worked for 17 years in Germany, Japan and South Africa as a research scientist in the areas of nuclear reactor safety, probabilistic risk assessment and energy systems modelling. From 1996 to 2002 he worked at the European Commission's Directorate-General Joint Research Centre (DG JRC) in Ispra/Italy, dealing with chemical and nuclear risk assessment projects in support of Commission policy services. From October 2002 to March 2007 he has been the Head of Sector on risk and availability assessment of nuclear and non-nuclear energy systems at the DG JRC's Institute for Energy in Petten, Netherlands. Currently, he is Project Administrator at DG TREN in Luxembourg, being responsible for economical and comparative aspects of nuclear energy.

Hegel bemerkt irgendwo, daß alle großen weltgeschichtlichen Tatsachen und Personen sich sozusagen zweimal ereignen. Er hat vergessen hinzuzufügen: das eine Mal als Tragödie, das andere Mal als lumpige Farce.

– Karl Marx in *Der Achtzehnte Brumaire des Louis Bonaparte*

Plant-specific probabilistic safety/risk assessment (PSA/PRA) can provide, together with other, more deterministic information sources, relevant information for strategic planning purposes in the area of emergency and risk zones around a nuclear power plant, as well as information to the public on the geographical component of plant risk.

Not least due to the close relation of this issue to security and civil protection, there is currently discussion within the nuclear safety community whether or not PSA technology in its current state (Levels 2 and 3) is mature enough to be used – as a complementary tool – to address the issues of levels of plant emergency classification, emergency and risk zones, risk acceptance criteria, information to the public in the event of a radiological emergency and public evacuation and sheltering.

The purpose of the *EC/JRC-OECD Seminar on Emergency and Risk Zoning around Nuclear Power Plants* was to provide a forum for the presentation and discussion of the status of emergency planning and risk assessment approaches and safety policies, as well as current and possible future requirements for emergency and risk zoning and to consider needs for international harmonisation.

The aim was to help relevant stakeholders on both national and international levels to decide on the relevance of this issue at this time and on related research and development needs. Relevant stakeholders were representatives from regulatory authorities, utilities

and emergency response organisations, as well as PSA users and developers from all over the world.

This seminar, held on 26 and 27 April 2005 at the premises of the European Commission's Joint Research Centre (JRC) – Institute for Energy in Petten, The Netherlands, provided an opportunity for sharing of experiences in the field on both good practice and identification of problem areas, including comparison with other major hazardous industries, such as the chemical process industries.

The following objectives were envisaged:

- To get an overall view of current probabilistic/deterministic information sources used to define emergency and risk zones around nuclear power plants in various countries worldwide.
- To share experience in the current applications and interface between PSA for nuclear power plant operation and emergency planning.
- To identify current regulations and practices for using outcomes of PSA Levels 2 and 3 for emergency planning.
- To identify requirements for possible future use of PSA in emergency planning.

This Special Issue of the *International Journal of Risk Assessment and Management* includes a carefully selected, edited and partly updated collection of papers presented at or proposed for the seminar. The objective of this publication is to present and cross-compare the different aspects of emergency and risk zoning with regard to

- relevance of the issue
- national approaches to nuclear power plant emergency and risk zoning
- possible approaches for future nuclear power plants
- current harmonisation efforts in the area and
- comparison with other industries, such as the chemical process industry.

A summary discussion is given, together with some recommendations for policy and research based on consensus discussion among the seminar participants.

I would like to thank Dr. Mohammed Dorgham as the Editor-in-Chief of the *International Journal of Risk Assessment and Management* for his interest and cooperation in the project. I further thank the individual authors for their work.