Western European Nuclear Regulators' Association
REACTOR HARMONIZATION WORKING GROUP

WENRA Reactor Safety Reference Levels

Revision of March 2007

After some feedback and discussions with Stakeholders, based on the set of reference levels of January 2007, WENRA decided to introduce slight modifications of some reference levels to clarify their intent or avoid misunderstanding.

Appendix E	**Issue: Design Basis Envelope for Existing Reactors**
Document status: Final	Safety area: Design

Reference level :

8.2 Modified as follows :

The worst single failure[1] shall be assumed in the analyses of design basis events. However, it is not necessary to assume the failure of a passive component, provided it is justified that a failure of that component is very unlikely and its function remains unaffected by the PIE.

Appendix J	**Issue: System for Investigation of Events and Operational Experience Feedback**
Document status: Final	Safety area: operation

Reference level

3.1 Modified as follows :

The licensee shall report events of significance to safety in accordance with established procedures and criteria.

Appendix K	**Issue: Maintenance, in-service inspection and functional testing**
Document status: Final	Safety area: operation

Reference level

3.7 Modified as follows :

Following any event due to which the safety functions and functional integrity of any component or system may have been challenged, the licensee shall identify and revalidate the safety functions and carry out any necessary remedial actions, including inspection, testing, maintenance, and repair, as appropriate.

[1] A failure and any consequential failure(s) shall be postulated to occur in any component of a safety function in connection with the initiating event or thereafter at the most unfavourable time and configuration.

Appendix O	Issue: Probabilistic Safety Analysis (PSA)
Document status: Final	Safety area: Safety Verification

Reference level

1.3 Modified as follows :

The basic Level 1 PSA shall contain sensitivity and uncertainty analyses. The basic Level 2 PSA shall contain sensitivity analyses and, as appropriate, uncertainty analyses.

Appendix S	Issue: Protection against internal fires
Document status: Final	Safety area: Emergency Preparedness

Reference level

2 Basic design principles

2.2 The former 2.2 has been divided into 2 different reference levels :

Buildings that contain SSCs important to safety shall be suitably [2] fire resistant.

2.3 Buildings that contain equipment that is important to safety shall be subdivided into compartments that segregate such items from fire loads and segregate redundant safety systems from each other[3]. When a fire compartment approach is not practicable, fire cells shall be used[4], providing a balance between passive and active means, as justified by fire hazard analysis.

2.4 New numbering (former 2.3)

Buildings that contain radioactive materials that could cause radioactive releases in case of fire shall be designed to minimize such releases.

2.5 New numbering (former 2.4)

Access and escape routes for fire fighting and operating personnel shall be available.

[2] In accordance with the results of the fire hazard analysis.

[3] A fire compartment is a building or part of building that is completely surrounded by fire resistant barriers of sufficient rating so that a total combustion of the fire load can occur without breaching the barriers. (Barriers comprise doors, walls, floors and ceilings.) The fire resistance rating of the barriers must be sufficiently high so that the total combustion of the fire load in the compartment can occur without breaching the barriers.

[4] In the fire cell approach the spread of fire is avoided by substituting the fire resistant barriers primarily with other passive provisions (e.g. distance, thermal insulation, etc.), that take into account all physical and chemical phenomena that can lead to propagation. Provision of active measures (e.g. fire extinguishing systems) may also be needed in order to achieve a satisfactory level of protection. The achievement of a satisfactory level of protection is demonstrated by the results of the fire hazard analysis.