




UK EPR	Title: PCSR – Sub-chapter 17.6 – Conclusions of EPR ALARP assessment	
	UKEPR-0002-176 Issue 04	
Total number of pages: 5		Page No.: I / III
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Name/Initials  Date 24-05-2012		Name/Initials  Date 24-05-2012

REVISION HISTORY

Issue	Description	Date
00	First issue for INSA review	22/4/2008
01	Integration of technical and INSA review comments	28/6/2008
02	PCSR June 2009 update: - Minor clarification of text	27/06/2009
03	Consolidated Step 4 PCSR update: - Changes in line with update to Chapter 17	28/03/2011
04	Consolidated PCSR update: - Minor editorial changes - Minor update of conclusions in line with changes to Sub-chapter 17.5	24/05/2012

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1. CONCLUSIONS

SUB-CHAPTER 17.6 - CONCLUSIONS OF EPR ALARP ASSESSMENT

1. CONCLUSIONS

UK Health and Safety Legislation requires that companies conduct their operations such that the risk to their workers and members of the public is as low as reasonably practicable (ALARP). In the context of new nuclear power plants, this duty requires that all measures are taken by designers and dutyholders to minimise radiation doses to workers and members of the public, providing that the cost (whether in money, time or difficulty) of such measures is not disproportionately large compared with the benefits achieved.

HSE has presented guidance for the application of the ALARP principle for the new civil nuclear reactor designs being presented for Generic Design Assessment. The guidance requests that supporting safety submissions should provide the following information to demonstrate that the ALARP principle is met:

- A demonstration of Relevant Good Practice, including a review of the design against applicable international/national standards and UK HSE Safety Assessment Principles.
- A rationale for the evolution of the proposed design, demonstrating the improvements made over predecessor designs and explaining why the chosen design options were selected.
- A presentation of the PSA results to show, ideally, that the radiological risk levels from operating the facility would be in the 'Broadly Acceptable' region of risk defined by UK HSE guidelines.
- Arguments that no further reasonably practicable improvements could be implemented to improve the design and that the risk had therefore been reduced to ALARP.

This chapter of the PCSR has provided the requested information:

- Sub-chapter 17.2 has provided the required demonstration of Relevant Good Practice by demonstrating the comprehensive assessment process and R&D programmes used to underwrite the EPR design. The sub-chapter has confirmed use of well established international design codes, and presented arguments to support demonstration of compliance with all the relevant key HSE Safety Assessment Principles.
- Sub-chapter 17.3 has reviewed the EPR design optimisation process performed under the oversight of the French and German regulatory authorities, and explained the rationale for the design options chosen. It has confirmed that both public and worker risks are addressed in the safety design approach, including risks due to normal operation and accidents.

- Sub-chapter 17.4 has presented and reviewed results of the PSA for the UK EPR, to provide the required demonstration that the risk to members of the public and workers due to accidents meets the HSE targets for 'Broadly Acceptable' risk, considered as an important element in overall demonstration that the ALARP principle is met by the EPR.
- Finally, Sub-chapter 17.5 has considered the potential safety benefits of a number of additional modification options. It confirms that no further modifications are indicated as reasonably practicable according to the ALARP methodology, beyond those already identified for implementation.

It is concluded that the design of the UK EPR complies with the overall requirements of the ALARP principle, which is a key safety design objective for the UK EPR.