

PBMR Adapted for INEEL Co-Generation NGNP

**Presented at NRC Workshop on
Options for Non-LWR Containment Functional Performance
January 14, 2004**

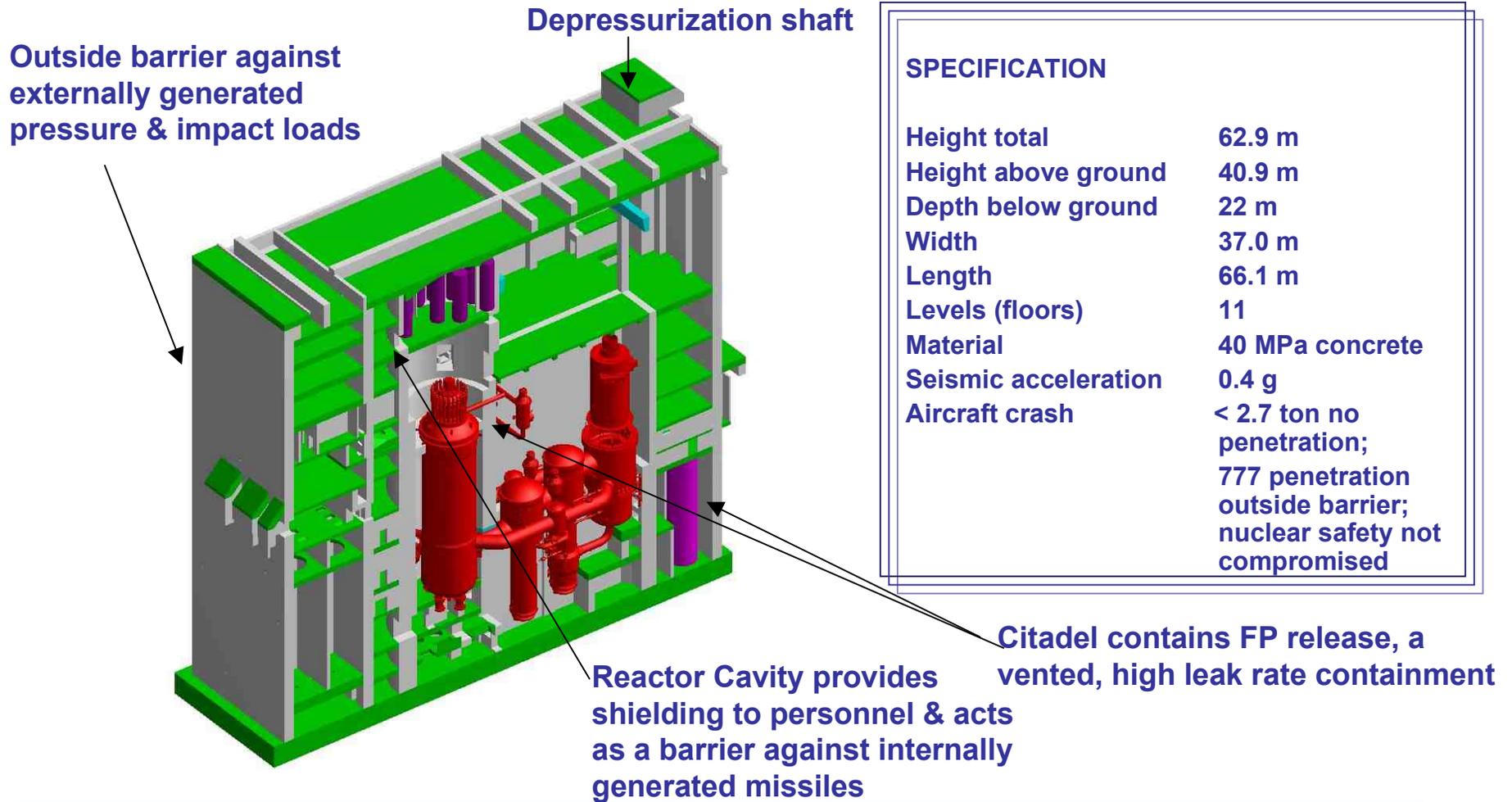
S. A. Caspersson

Exelon submitted a PBMR Containment Design Position Paper to NRC in May 2002 (as a guide for future NRC pre-application interactions), and concluded that:

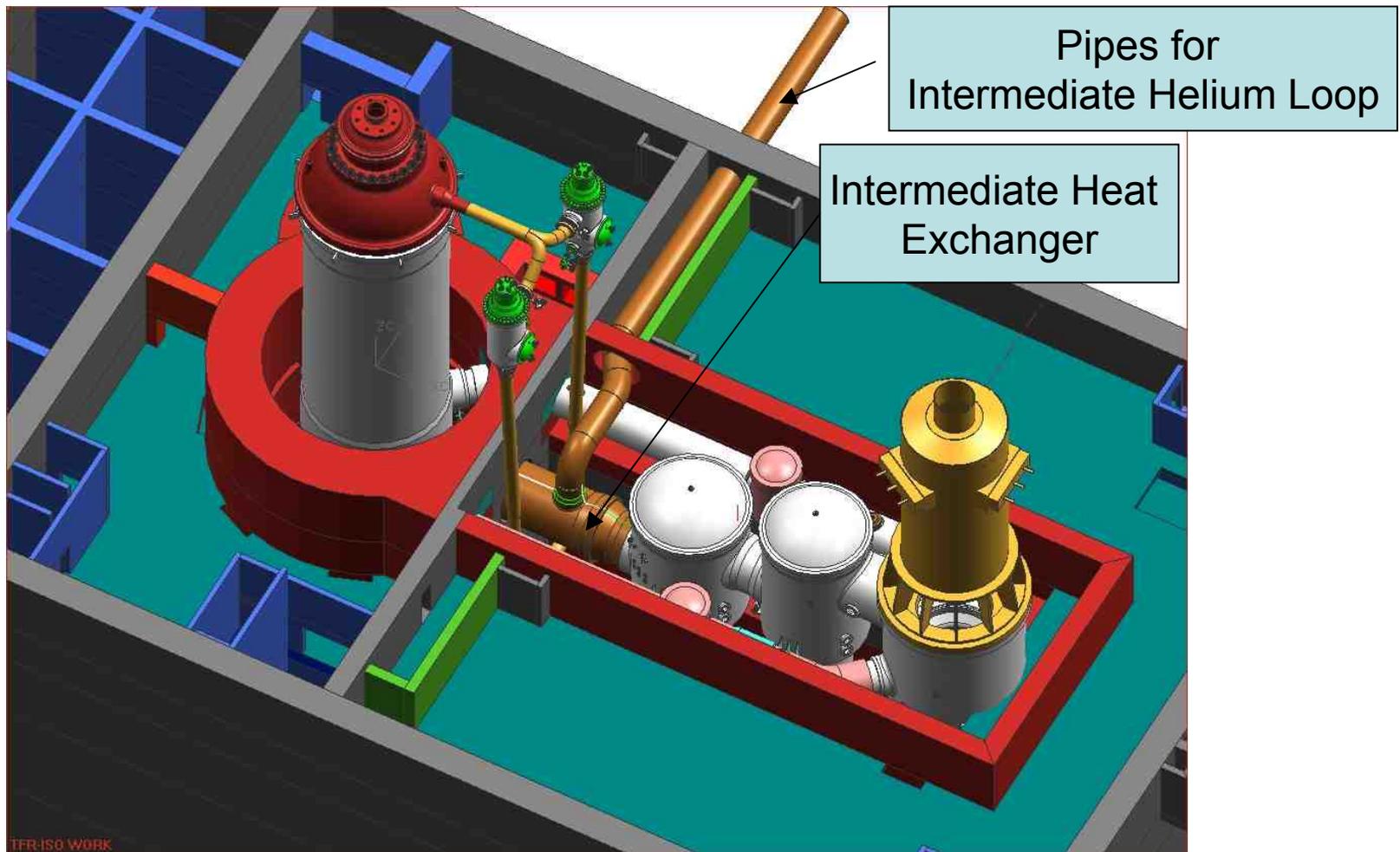
“The preliminary PBMR containment design will meet the latest NRC policy regarding containment since the policy focuses on containment function and not leak-tight goals. The PBMR design can be shown to provide components or systems that can inherently or passively protect separate multiple barriers to the potential release of radioactive material to the environment...., it can be demonstrated that the PBMR containment design is consistent with the Severe Accident Policy Statement.”

- **Advanced Reactor Policy**
- **SRM to SECY-93-092**
- **SECY-95-299**
- **Severe Accident Policy Statement**

Module Building



Intermediate Heat Exchanger Installed In Hot Pipe for NNGNP



The PBMR containment system takes advantage of the excellent characteristics of particle fuel. The particle fuel benefits are further enhanced by PBMR safety design features of limited heat generation capacity and passive heat removal.

The amount of radiological material available for distribution to the environment is limited to a value that makes retention in a high-pressure containment unnecessary. A reliable and cost-effective solution is to ensure that the building integrity is maintained by venting any sizeable pressure boundary leak via a pressure relief system directly to the environment. Containment isolation and filtered releases are then restored before additional releases due to core heat-up will occur.

The PBMR designers are confident that the proposed containment system concept complies with the regulator's aim of preventing undue exposure of the public as a result of any DBE.

Westinghouse has considered the NRC Staff proposed Containment "Options" [November 19, 2003], and is confident that the PBMR for NGNP will satisfy NRC functional performance criteria.

Functional requirements for the PBMR can be stated which, combined with its progression of accidents and resulting source terms, will confirm the PBMR vented containment concept.

Functional requirements for other advanced reactor concepts may differ from PBMR, due to fundamental differences, resulting in selection of different containment concepts for them.

PBMR can be adapted for NGNP without the necessity of major design modifications.