Codes and Standards to be Applied to the ACR-700 Design in the U.S.

Al Stretch, Principal Engineer, Safety Concepts

Presentation to US Nuclear Regulatory Commission

Washington DC

May 25-26, 2004

AECL TECHNOLOGIES INC.

Application of Codes and Standards

- U.S. regulations, codes and standards will be applied to the ACR-700 design.
- Certain CANDU-specific aspects of the ACR-700 design will necessitate the use of additional requirements (i.e., such as those found in Canadian Standards)

Background Information

CANDU Nuclear Standards

- Developed over the last 30 years (National Standards of Canada)
- Define acceptable requirements and design methods.
- Accepted by regulator as part of standards ballot process.
- Applicable to plants built in Canada, to the extent agreed with the regulator.
- Used as input to the design, part of the design requirements.
- Compliance with the Canadian standards is not necessarily required by regulators in other countries.

CANDU Nuclear Standards

- CANDU standards series:
  - N285 : Systems and Components (pressure boundary)
  - N286 : Quality Assurance
  - N287 : Concrete Containment Structures
  - N288 : Environmental Radiation Protection
  - N289 : Seismic Design
  - N290 : Control Systems, Safety Systems, and Instrumentation
  - N293 : Fire Protection

Application of U.S. Codes and Standards

- **Pressure Boundary Systems and Components (N285)**

– Code classification	SRP 3.1, 3.2, RG 1.26, ANSI / ANS 51.1
– Design	10CFR50.55a, ASME Section III, B31.1, etc.
– Supplemental requirements	See next presentation
– Metal containment	ASME Section III
– In-Service Inspection	ASME Section XI
– Material standards	ASME Section II, supplemented for ACR specific components

Summary

- The ACR-700 DCD will use U.S. codes and standards
- For CANDU-specific aspects of the ACR-700 design not addressed in the U.S. regulations, codes and standards, requirements from CANDU standards may be used
- The following presentations provide a detailed discussion of how this can be done for the ACR-700 RCPB


AECL
TECHNOLOGIES INC.