

February 12, 2004

ORGANIZATION: ATOMIC ENERGY OF CANADA LIMITED (AECL)

SUBJECT: SUMMARY OF MEETING HELD ON JANUARY 12, 2004, TO DISCUSS  
ACR-700 FUEL HANDLING SYSTEM

The Nuclear Regulatory Commission (NRC) hosted a public meeting with Atomic Energy of Canada Limited (AECL) on January 12, 2004, at the U. S. Nuclear Regulatory Commission (NRC) Headquarters in Rockville, MD. The purpose of this meeting was to discuss the Advanced CANDU Reactor (ACR-700) fuel handling system. For a list of meeting attendees refer to Enclosure 1.

AECL provided the NRC staff with a Computer Aided Design (CAD) animation of the following CANDU 6 generalized fueling sequence:

- The fueling machine motion across the reactor face
- The upstream fueling machine latching on to an end fitting
- With snout, closure, and shield plug removed from the fuel channel, new fuel bundles are inserted into the channel in pairs
- The view of the reactor core to the outlet channel showing the fuel string move as fuel bundle pairs are taken out downstream
- The view of fuel bundles going into alternate magazine stations
- The view of the downstream fueling machine pushing the fuel string back into the channel while replacing the end of the shield plug
- After replacement of the closure and snout plug, the view of both fueling machines performing safety checks and disconnecting from the channel

After the presentation of the fueling sequence animation, the NRC staff and AECL discussed the fuel handling external interfaces, fueling machine cooling system, and fueling handling safety requirements. The NRC staff stated that they were investigating whether the existing regulations could be applied to the ACR fuel handling accident analyses for establishing the scope of credible design basis events and acceptance criteria. The NRC staff also stated that the fueling machine snout attachment lock and channel closure plug may be outside of the normal American Society of Mechanical Engineers (ASME) pressure vessel code practice. The AECL agreed that the ACR uses materials and fabrication techniques recognized by the Canadian Standards Association (CSA), but not by the ASME code.

The NRC staff stated that the design basis for fueling machine and support equipment must be well understood in order to postulate the design basis accidents and establish safety acceptance criteria. The NRC staff also recommend the reconciliation of CSA standards with ASME codes and propose CSA standards as alternatives to 10 CFR 50.55a.

Additional details on the material covered in this meeting may be accessed through the Agencywide Documents Access and Management System (ADAMS) under Accession No. ML040220163. If you do not have access to ADAMS or if there are problems in accessing the handouts located in ADAMS, contact the NRC Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr@nrc.gov](mailto:pdr@nrc.gov).

Members of the public were in attendance but did not make public comments.

*/RA/*

James Kim, Project Manager  
New Reactors Section  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Project No. 722

Enclosures: As stated

cc w/encls: See next page

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OFFICE	PM:RNRP	SC:RNRP
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DATE	2/4/04	2/11/04

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**ACR-700 Fuel Handling Meeting**  
**January 12, 2004, Room O-10B6, 1:00pm - 4:00pm**

**ATTENDANCE LIST**

<u>Name</u>	<u>Representing</u>
Robert Ion	AECL
Julian Millard	AECL
James Kim	NRC
Steven Jones	NRC
Edward Throm	NRC
Jay Lee	NRC
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Patrick Sekerak	NRC
Richard Lee	NRC
Bill Smith	Energetics
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ACR-700

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