



# **ACR Fuel**

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# The Presenters

- **Peter Boczar**
  - Director, Reactor Core Technology Division: 130 people, 5 branches at CRL and SP; company-wide responsibility for physics, fuel, thermal hydraulics
  - “Technical Champion” with US NRC on ACR physics & fuel
- **Mukesh Tayal**
  - Manager, Fuel Design Branch at SP
  - The branch has CANDU fuel design authority; responsibility for fuel design and analysis codes; fuel qualification
- **Al Manzer**
  - Senior fuel designer
  - ACR fuel design responsibility



# Outline

## **Part 1: Background to CANDU Fuel**

- 1. Introduction to CANDU Fuel**
- 2. CANDU Fuel Design and Performance Computer Codes**

## **Part 2: ACR Fuel Design and Qualification**

- 3. ACR Fuel Design**
- 4. Experience Base for ACR Fuel**
  - **CANFLEX, extended burnup, low void reactivity fuel**
- 5. ACR Fuel Qualification**



# Nomenclature

- Fuel element – equivalent to fuel rod, fuel pin
- Fuel bundle – equivalent to fuel assembly
- Fuel clad – equivalent to fuel sheath, fuel cladding
- CHF – critical heat flux, corresponding to dryout (not departure from nucleate boiling)
- Critical Channel Power (CCP) – channel power corresponding to first occurrence of dryout
- CVR – coolant void reactivity
- NOC – normal operating conditions
- DI – demonstration irradiation
- SCC – stress corrosion cracking, equivalent to pellet-clad interaction (PCI)
- NU – natural uranium
- SEU – slightly enriched uranium
- LVRF – low void reactivity fuel
- NVRF – negative void reactivity fuel
- SP – Sheridan Park, Mississauga, Ontario
- CRL – Chalk River Laboratories, Chalk River, Ontario
- WL – Whiteshell Laboratories, Pinawa, Manitoba
- PLGS – Point Lepreau Generating Station, New Brunswick, Canada



# **AECL**

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