

PIRT to Uncertainty Parameter

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PIRT to Uncertainty Parameter

- **KNGR LBLOCA PIRT** (WFO861702, 2001)
 - Former APR1400, KNGR (Korea Next Generation Reactor)
 - Developed by KINS/INEEL
 - Internationally recognized panel members: Dr. Brent E. Boyack (LANL), Dr. Bub-Dong Chung (KAERI), Dr. Lawrence E. Hochreiter (PSU), Dr. Jose N. Reyes (OSU), Mr. Gary E. Wilson (INEEL)
 - **Time period definition**
 - 1: Blowdown (break ~ lower plenum begins to refill)
 - 2: Refill (~ mixture level approaches the core inlet)
 - 3: Reflood (~ initial core quenched)
 - 4: long-term cooling period (~ stable core quenched)

PIRT to Uncertainty Parameter

➤ KNGR LBLOCA PIRT (WFO861702, 2001)

- Constitutes of
 - PIRT KNGR LBLOCA (main body)
 - Description of process/phenomena used in the PIRT (Appendix A)
 - Importance Ranking, Knowledge-Level and Rationales LBLOCA PIRT for the KNGR (Appendix B)
 - Summary of KNGR RELAP5 LBLOCA Sensitivity Calculations (Appendix C)
 - TRAC-M Simulations of LBLOCA in the KNGR (Appendix D)
 - Curriculum Vitae for KNGR PIRT panel (Appendix E)

PIRT to Uncertainty Parameter

- **KNGR LBLOCA PIRT** (WFO861702, 2001)
 - [KNGR LBLOCA PIRT table](#)
- **APR1400 PIRT**
 - Some modifications made for APR1400 PIRT
 - Definition of time periods modified
 1. blowdown (~ SIT injection initiates)
 2. refill (~ level approaches the core inlet)
 3. early reflood (~ SITs empty)
 4. late reflood (SITs empty ~)
 - SIT flow path, IRWST water level, IRWST-SIP flow, Pressurizer stored energy, etc... are modified
 - Due to better knowledge, change in the definition of time phases, corrections...

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- Adjustment of rankings modified

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PIRT to Uncertainty Parameter

- **APR1400 LBLOCA PIRT** (Appendix A of Topical Report)

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- **APR1400 LBLOCA PIRT** (Appendix A of Topical Report)

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PIRT to Uncertainty Quantification

➤ General guide line

- In CAREM, all phenomena of importance (≥ 4) should be considered by each uncertainty parameters (UCP) and their uncertainty ranges in principle. (e.g. 1 to 1 match)

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PIRT to Code Parameters (1/7)

▶ APR1400 LBLOCA PIRT (ToR)

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PIRT to Code Parameters (2/7)

➤ APR1400 LBLOCA PIRT (ToR)

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PIRT to Code Parameters (3/7)

➤ APR1400 LBLOCA PIRT (ToR)

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PIRT to Code Parameters (4/7)

➤ APR1400 LBLOCA PIRT (ToR)

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PIRT to Code Parameters (5/7)

➤ APR1400 LBLOCA PIRT (ToR)

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PIRT to Code Parameters (6/7)

➤ APR1400 LBLOCA PIRT (ToR)

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PIRT to Code Parameters (7/7)

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Final Uncertainty Parameter Selection

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Final Uncertainty Parameter Selection

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Distributions and Ranges of the Uncertainty Parameters (1/2)

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Distributions and Ranges of the Uncertainty Parameters (2/2)

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Thank you for your attention