Research Activities of JAEA Considering the Future Needs of Japan in Burnup Credit Implementation

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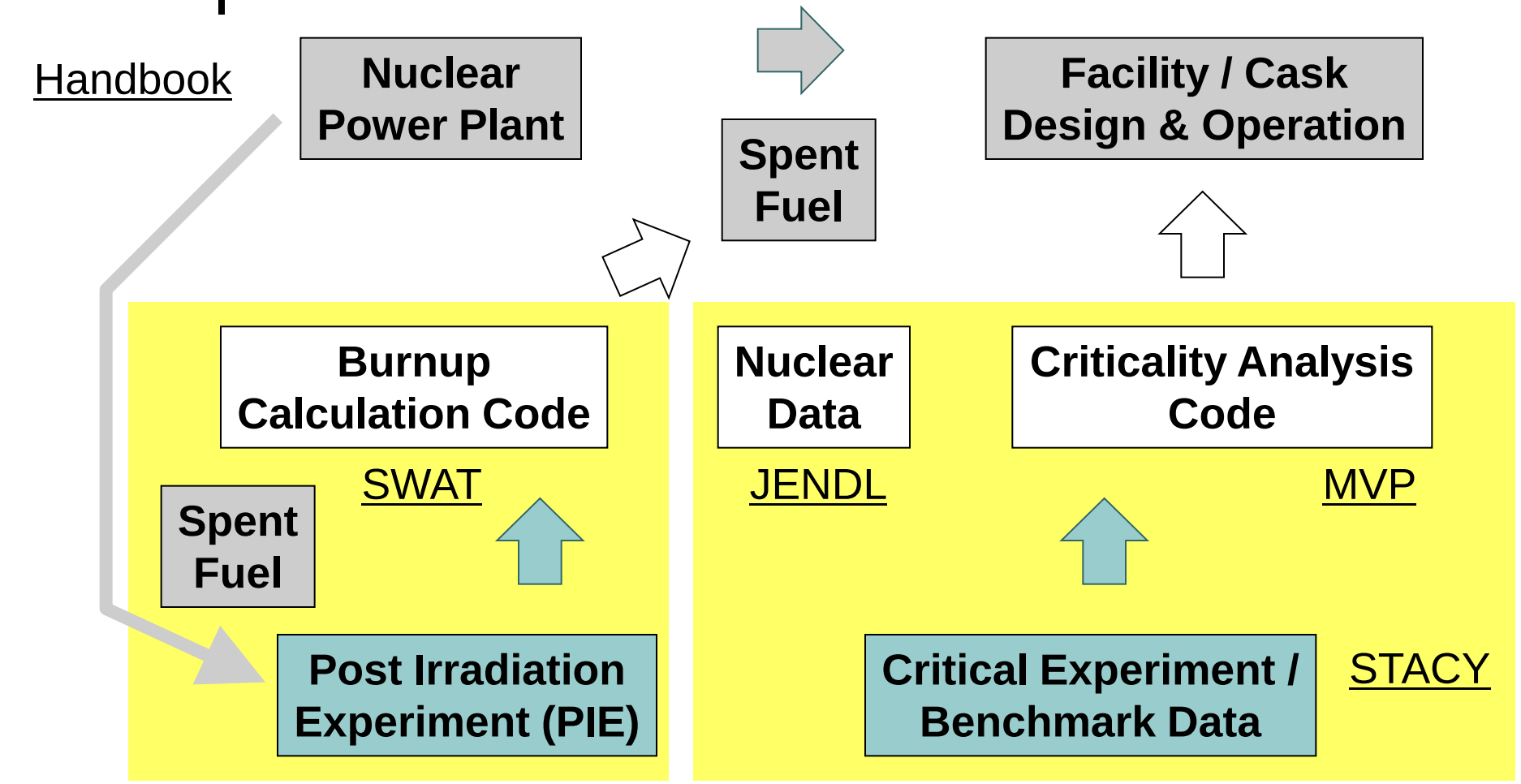
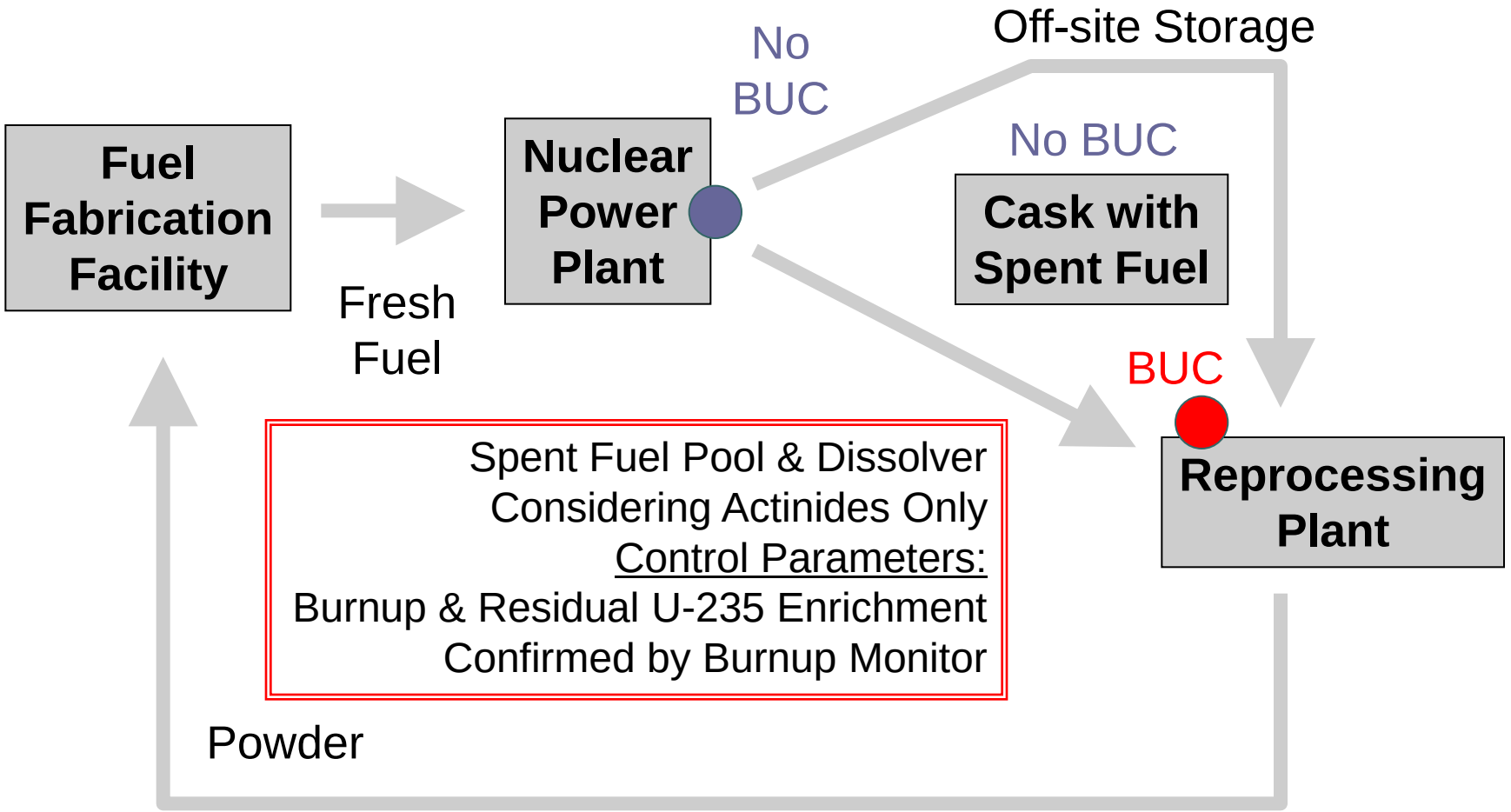
Criticality Safety with BUC

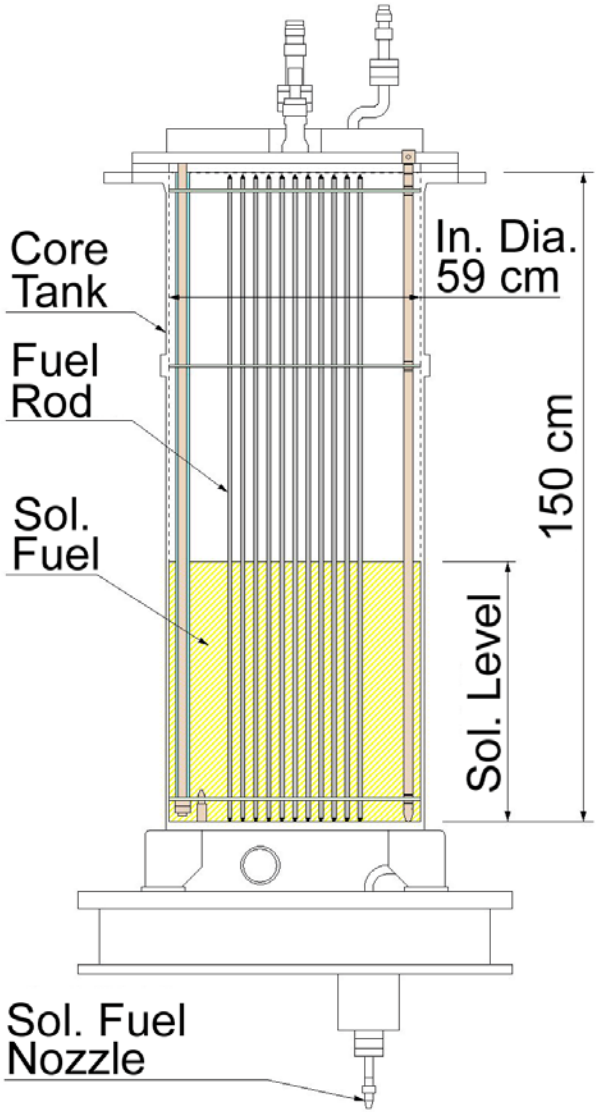


Fuel Cycle Flow and BUC Status in Japan



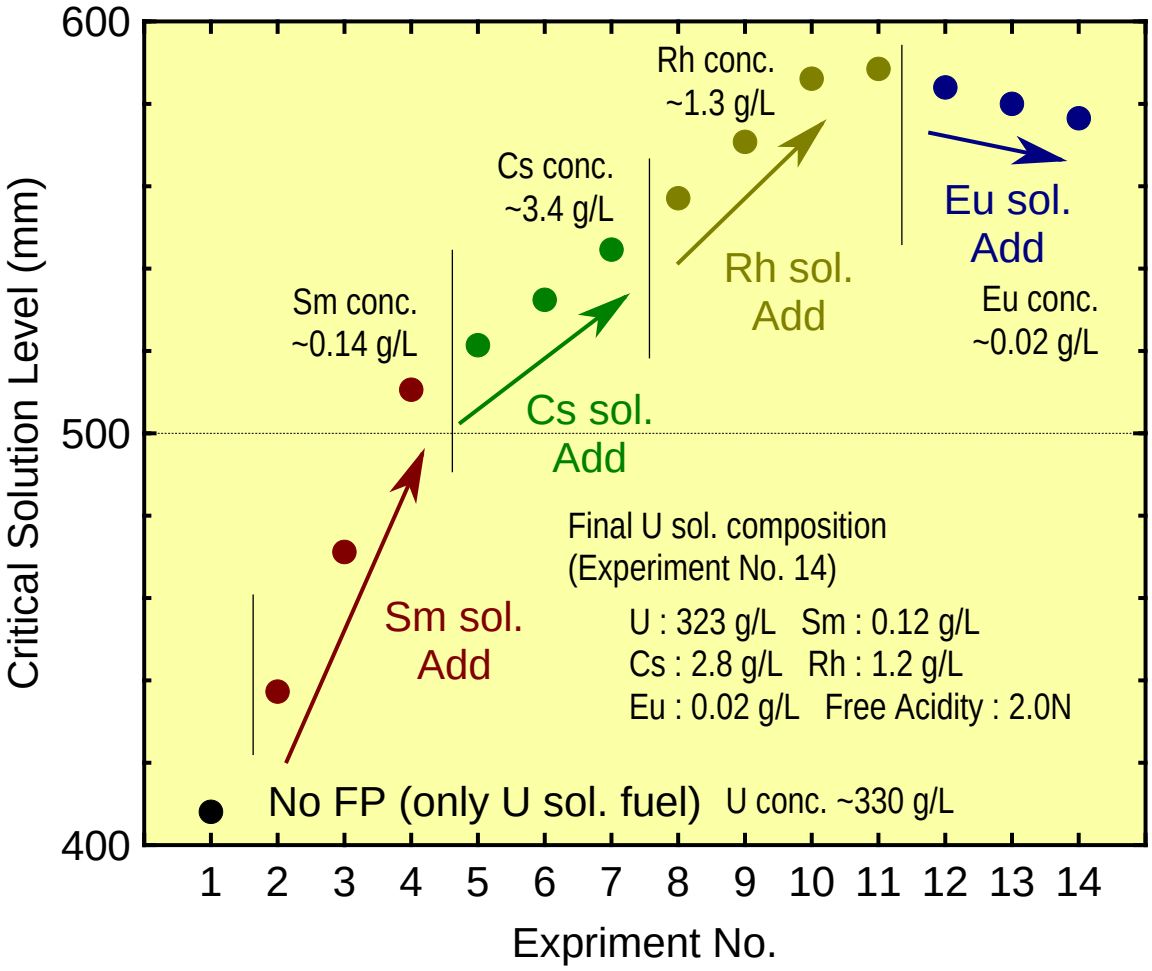
STACY Experiment with FP (Condition)*

- Uranium Solution with FP
  6%EU, Sm, Cs, Rh, Eu
- Uranium Dioxide Fuel Rods
  5%EU, PWR-type
- Heterogeneous System
  Simulating Dissolver

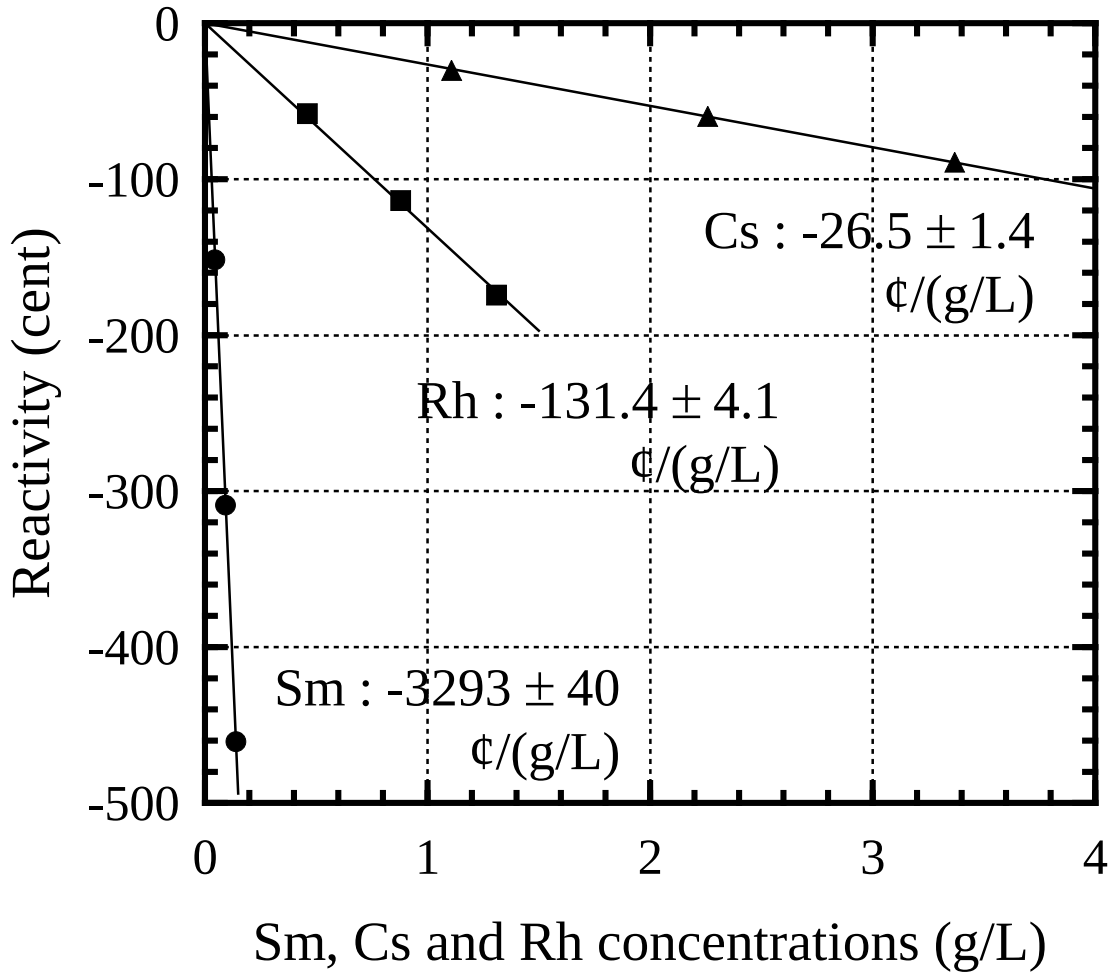


* Study performed under the contract with Ministry of Education, Culture, Science and Technology of Japan

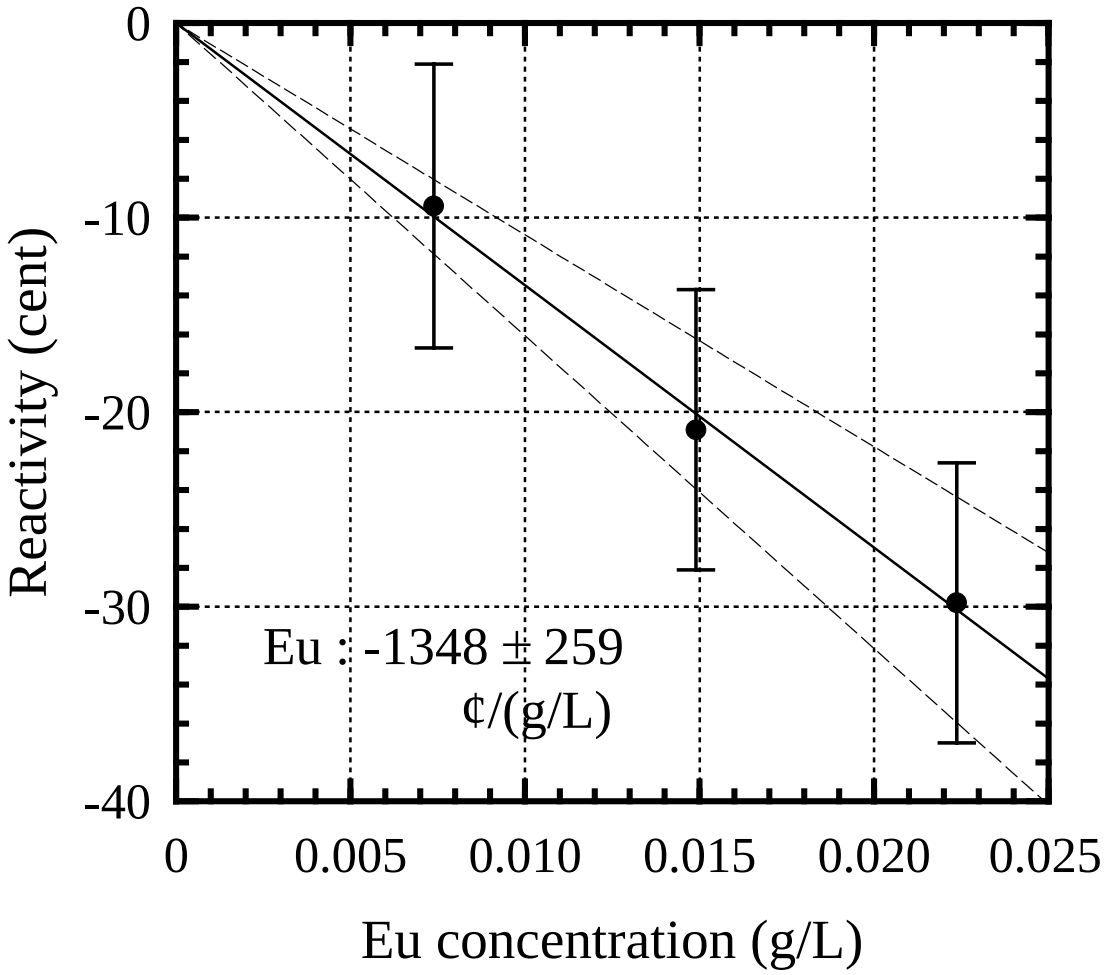
STACY Experiment with FP (Critical Volume)*



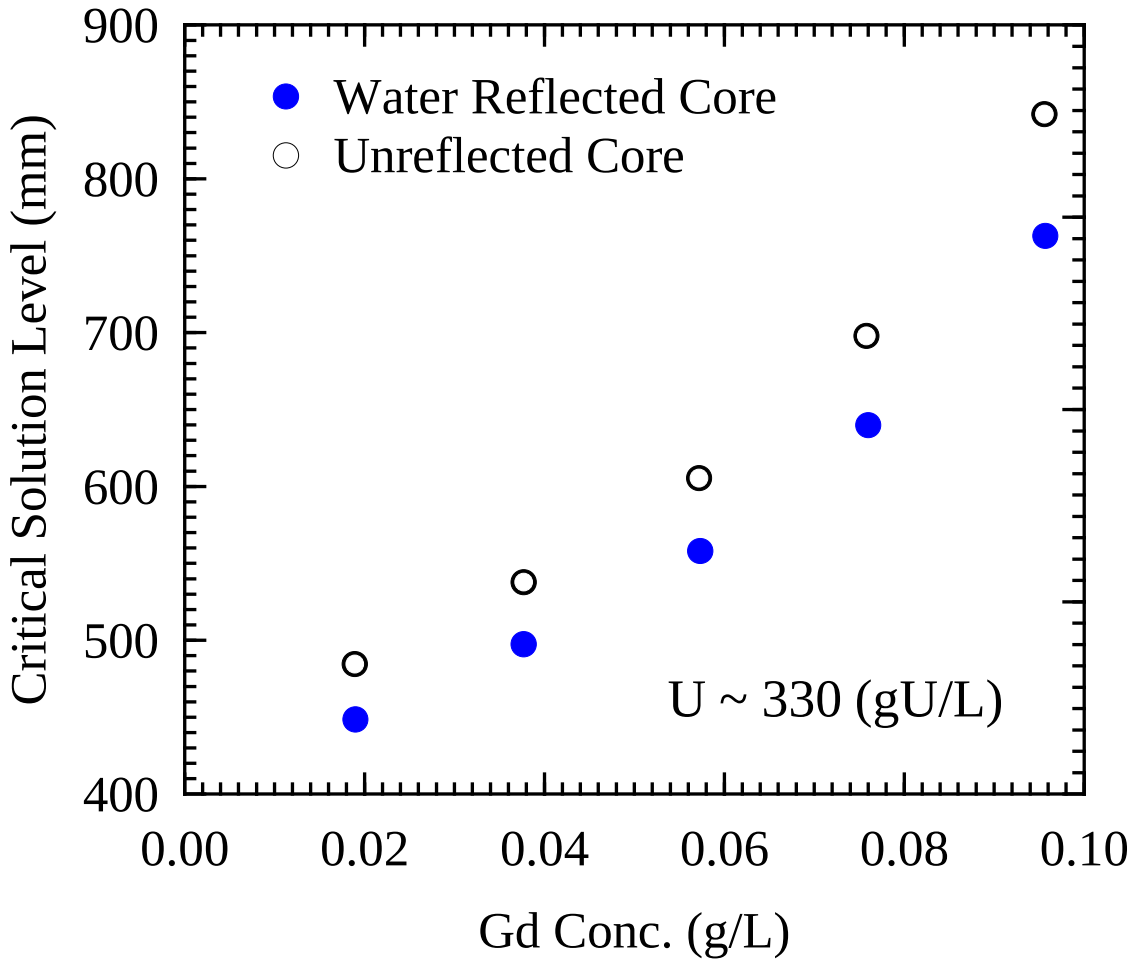
STACY Experiment with FP (Concentration Worth)*



STACY Experiment with FP (Concentration Worth)*



STACY Experiment with Gd (Critical Volume)



Expected Trend of Japan in Future

- Longer LWR Era
- Improvement of LWR Economy
  e.g. Longer Fuel Reload Interval
- Higher Initial U-235 Enrichment
- Wider Application of BUC
  to SF Transportation
  (including Off-site Storage), etc.

Discussion Point

- NPP Operator's Capability of BU Calculation for Criticality Safety
- Sophisticated BU Monitor

- **Incentive of Electric Company**
- **Utilization of Experiment Facility**
  PIE Facility, Critical Assembly, etc.

Conclusions

- Only One Facility with BUC in JAPAN
- Possible Next Target :
  Transportation
  (including Off-site Storage)
- JAEA will promote R&D programs and develop technical capabilities.