

# Used Fuel Disposition Campaign

## GDSA Planning for FY2017

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# GDSA Planning for FY2017

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## ■ Basic Code Needs

- Add/upgrade basic GDSA processes and capabilities
- Improve code efficiency, convergence, gridding techniques

## ■ Applications

- Upgrade GDSA reference case models in the various host rocks
- Expand and improve uncertainty and sensitivity analyses
- Design and perform additional analyses to address questions of repository design and prioritization of UFD campaign research

## ■ Integration

- Integrate subsystem conceptual models, developed under other disposal research work packages, into the GDSA-PA system model architecture
- Discussion continued in the GDSA Integration Session

# GDSA To Do List

## ■ Basic Code Needs

- Processes and capabilities
  - *Canister performance after breach*
  - *Comprehensive decay and ingrowth*
  - *Control variate method for PA*
  - *Dual or multi continuum*
  - **Grid refinement (e.g. Octree)**
  - *Optimization (e.g., FMDM)*
  - *Pitzer equations*
  - **Solute property temperature dependence**
  - *Withdrawal well*
- V&V documentation (workflow)

## ■ Application

- Climate
- **Continued fractured media development**
  - *Revisit engineered barrier needs*
- Disruptive events
- **Multiphase**
  - *Re-saturation, gas generation, ventilation*
- Reactive transport in near field
- Reference biospheres
  - *Topography, surface morphology, infiltration, pumping wells*
- Updated salt and clay generic repository models
  - *Add heterogeneities*

## ■ Integration

- Process models
  - *Biosphere pathways*
  - *Canister degradation, various*
  - *Clay deformation*
  - **Colloid stability/transport**
  - *Discrete fracture network enhancements*
  - *Early WP failure*
  - *Flow through WPs*
  - *FMDM enhancements*
  - *Glass dissolution*
  - *Neutron activation*
  - *Non-Darcy flow*
  - *Solid solution model*
  - *THM for buffer materials*
  - *THM for salt repository*
  - *THMC with clay illitization*
- Data
  - *Process model input parameters*
  - *Properties of solutes, phases, materials, and formations*

Items in **bold** are currently at the top of the list for FY2017